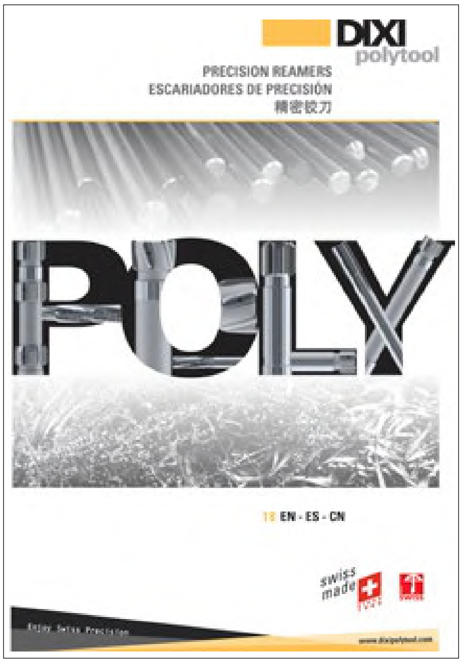
TUNGSTEN CARBIDE AND DIAMOND PRECISION TOOLS

swiss made since 1946

MADE SWISS



COMPANY PROFILE

DIXI POLYTOOL S.A.

DIXI Polytool S.A. is specialized in the production of tungsten carbide and diamond cutting tools as well as precision reamers. The company is based in Le Locle since 1946.

With the introduction of the Lean Project, and the heavy investments in the production, our efforts are also focused on supporting our (customers and) 250 co-workers.

Eager to guarantee the quality of its products while preserving the environment, DIXI Polytool S.A. elaborated a system of certified management according the standards ISO 9001 and ISO 14001

A daily commitment to be eco-friendly

For several years, DIXI POLYTOOL SA has decided to use only 100% recycled paper, natural colouring ink for our catalogues and flyers. Furthermore, we are proud to be a precursor by using green energy for the maintenance of the building and the production.

Our commitment for the sustainable development…

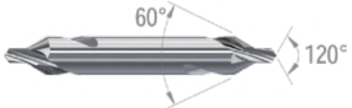
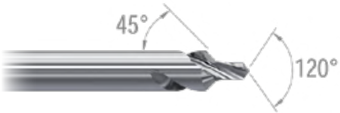
Système de Management Certifié
SQS
ISO 9001 / ISO 13485

CERTIFIED
IQNet
MANAGEMENT SYSTEM

Areuse

DRILLING

✓ = item from stock

CENTRE AND SPOTTING DRILLS		Z	Page	cutting length	☐ CARBIDE	TiAlN	DICUT		
DIXI 1101 Ø0.80 - Ø4.00		2	12	DIN 333 A	✓				
DIXI 1106 Ø1.00 - Ø20.00		2	13		✓	✓			
DIXI 1106 L Ø4.00 - Ø6.00		2	14		✓				
DIXI 1107 Ø1.00 - Ø20.00		2	15		✓				
DIXI 1108 Ø0.50 - Ø2.50		2	16	1 - 2×Ø	✓	✓			
DIXI 1109 Ø0.50 - Ø2.50		2	17	1 - 2×Ø	✓		✓		
DIXI 1110 Ø0.80 - Ø1.45		2	18	1 - 2×Ø	✓	✓			

HELICAL GUN DRILLS Z = 1									
DIXI 1111 Ø0.10 - Ø2.00		1	19	4 - 9×Ø	✓				

TWIST DRILLS Z = 2									
DIXI 1126 Ø1.00 - Ø14.00		2	20	DIN 338 7 - 12×Ø	✓		✓		
DIXI 1130 Ø0.30 - Ø14.00		2	22	DIN 6539 2 - 16×Ø	✓		✓		
DIXI 1130 L Ø0.30 - Ø8.00		2	24	4 - 16×Ø	✓		✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	○	◎	

◎					◎	○	◎		◎			

◎	○	○	○	◎	◎	○	○	○	○	○	○	
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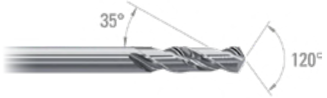
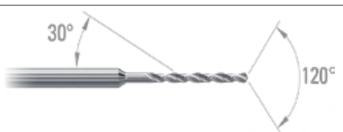
◎	○	○	○	◎	◎	○	○	○	○	○	○	

○ good ◎ excellent

✓ = item from stock
* for non-ferrous material

TWIST DRILLS Z = 2		Z	Page	cutting length	☐ CARBIDE	TiAlN	C-TOP	DICUT	DRYCUT*	DLC*
DIXI 1132 Ø0.40 - Ø2.00		2	26	4 - 15×Ø	✓			✓		
DIXI 1133 Ø0.50 - Ø6.00		2	27	4 - 18×Ø	✓			✓		

TWIST DRILLS - REINFORCED SHANK Z = 2		Z	Page	cutting length	☐ CARBIDE	TiAlN	C-TOP	DICUT	DRYCUT*	DLC*
DIXI 1131 Ø0.05 - Ø2.45		2	28	DIN 1899 4 - 9×Ø	✓			✓		✓*
DIXI 1131 L Ø0.10 - Ø2.45		2	31	DIN 1899 4 - 9×Ø	✓			✓		
DIXI 1137-5D Ø0.15 - Ø6.00		2	34	5×Ø	✓		✓		✓*	
DIXI 1137-8D Ø0.15 - Ø6.00		2	37	8×Ø	✓		✓		✓*	
DIXI 1134 Ø0.20 - Ø2.49		2	40	DIN 1899 6 - 9 ×Ø	✓			✓		
DIXI 1135 Ø0.20 - Ø2.49		2	42	3 - 8×Ø	✓			✓		
DIXI 1136 Ø0.20 - Ø1.99		2	45	4 - 8×Ø	✓			✓		
DIXI 1138 Ø0.05 - Ø2.80		2	48	4 - 9×Ø	✓	✓				
DIXI 1139 Ø0.50 - Ø3.00		2	50	12×Ø	✓	✓				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

○	◎	○	◎	○	○	◎	◎	○	◎	○	◎	
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○	◎	○	◎	○	○	◎	◎		◎	○	◎	

○ good ◎ excellent

✓ = item from stock

SELF-CENTERING DRILLS Z = 2

		Z	Page	cutting length	☐ CARBIDE	TiAlN	XIDUR		
DIXI 1149 Ø1.00 - Ø14.00		2	53	DIN 6537K 3 - 4×Ø		✓			
DIXI 1147 Ø0.50 - Ø6.00		2	55	6.5×Ø		✓			

SELF-CENTERING DRILLS WITH THROUGH COOLANT Z = 2

		Z	Page	cutting length	☐ CARBIDE	TiAlN	XIDUR		
DIXI 1145-HH Ø0.70 - Ø14.00		2	57	DIN 6537L 5 - 7×Ø		✓			
DIXI 1146-HH Ø0.80 - Ø10.00		2	59	10×Ø		✓			

TWIST DRILLS FOR HARDENED STEEL > 45 HRC

		Z	Page	cutting length	☐ CARBIDE	TiAlN	XIDUR		
DIXI 1280 Ø0.25 - Ø12.00		2	61	3 - 7×Ø			✓		

TWIST DRILLS Z = 3

		Z	Page	cutting length	☐ CARBIDE	TiAlN	XIDUR		
DIXI 1151 Ø1.00 - Ø14.00		3	63	3 - 8×Ø	✓				
DIXI 1152 Ø0.15 - Ø2.90		3	65	6 - 10×Ø	✓				

DRILLS FOR COMPOSITE MATERIALS / KEVLAR®

		Z	Page	cutting length	☐ CARBIDE	TiAlN	XIDUR		
DIXI 1290 Ø2.50 - Ø12.00		2	67	3 - 7×Ø	✓				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
○	○	◎	◎	◎	○	○	○	○	○	○	◎	
◎	◎	◎	○	○	○	○				◎	○	

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
○	○	◎	◎	◎	○	○	○		○	○	◎	
◎	◎	◎	○	○						◎	○	

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
										○		◎

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
○	○			◎	◎	◎			◎		◎	
○	○			◎	◎	◎			◎		◎	

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
								◎				

○ good ◎ excellent

✓ = item from stock

TOOLS ON REQUEST

	Z	Page	cutting length	☐ CARBIDE				
SPADE DRILLS								
DIXI 1112 R+L Ø0.08 - Ø5.99 	2	68		ON REQUEST				
HALF-MOON BITS								
DIXI 1114 R+L Ø0.08 - Ø5.99 	1	68		ON REQUEST				
STRAIGHT FLUTE SLOT DRILLS								
DIXI 1118 R+L Ø0.08 - Ø5.99 	2	68		ON REQUEST				
STEPPED TWIST DRILLS								
DIXI 1501 R+L 		69		ON REQUEST				
DIXI 1502 R+L 		70		ON REQUEST				
DIXI 1503 R+L 		71		ON REQUEST				
DIXI 1504 R+L 		72		ON REQUEST				
DIXI 1512 		72		ON REQUEST				
DIXI 1514 		72		ON REQUEST				
DIXI 1518 		72		ON REQUEST				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
○				○	○		◎	○	◎			

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
◎				○	○	○	○	○	◎	○		

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
○				○	◎	◎	○	○	◎	○		

Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
◎	○	○	○	○	○	○	◎	○	◎	○	○	
◎	○	○	○	○	○	○	◎	○	◎	○	○	
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○				○	◎	◎	◎	○	◎			

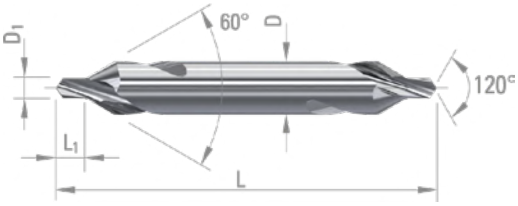
○ good ◎ excellent

DIXI 1101 60°

Z = 2

Vc f Ap — P.74 | i — P.73 | $D_1 \geq 3.15$ | DIN 333 A

CENTRE DRILLS



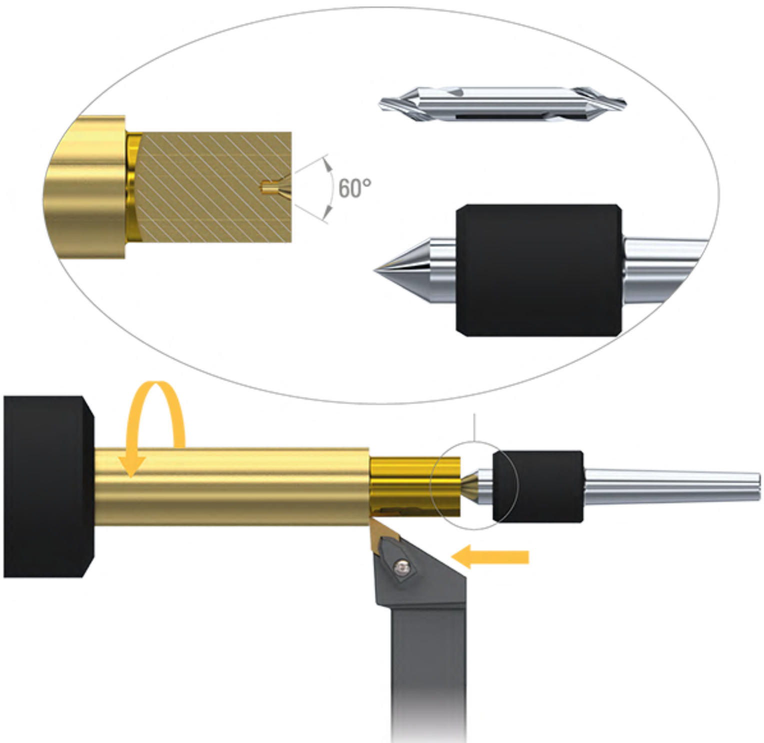
- Centre drills, according to DIN 333A, developed for tailstock holes.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◯	◯	◯	◯

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯		◯	◯				

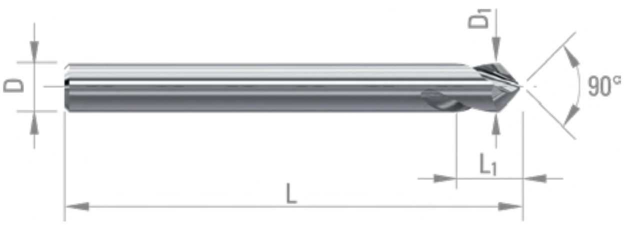
D_1		L_1		D_{h5}	L		CARBIDE
0.80	+0.14 / 0	1.30	±0.1	3.15	31.50	±2	37253
1.00	+0.14 / 0	1.60	±0.2	3.15	31.50	±2	37254
1.25	+0.14 / 0	1.90	±0.2	3.15	31.50	±2	37255
1.60	+0.14 / 0	2.40	±0.2	4.00	35.50	±2	37256
2.00	+0.14 / 0	2.90	±0.2	5.00	40.00	±2	29156
2.50	+0.14 / 0	3.60	±0.2	6.30	45.00	±2	37257
3.15	+0.18 / 0	4.40	±0.3	8.00	50.00	±2	24756
4.00	+0.18 / 0	5.60	±0.4	10.00	56.00	±3	32950



DIXI 1106 90° Z = 2

SPOTTING DRILLS

P.74 P.73



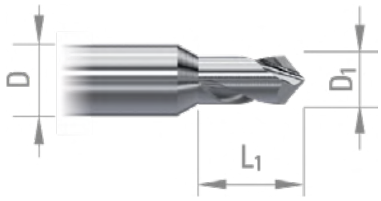
- 90° spotting drills developed for general machining. Usable for 45° chamfering. Can only be used on the point.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

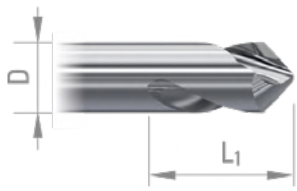
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

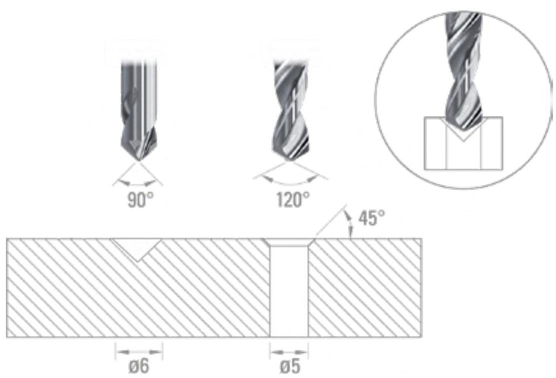
$D_{1\ h6}$	L_1	D_{h5}	L	CARBIDE	TiAlN
1.00	3	3	38	956799	957230
1.50	5	3	38	956800	957231
2.00	5	3	38	956801	957232



	D_{h5}	L_1	L	CARBIDE	TiAlN
	1.00	3	32	953781	953780
	1.50	5	32	953778	953779
	2.00	5	32	47101	62892
	3.00	9	38	43231	34090
	4.00	10	50	36911	61280
	5.00	13	50	47716	63736
*	6.00	13	57	42788	63757
*	8.00	27	63	42789	63758
*	10.00	30	72	43233	61561
*	12.00	35	83	43064	41463
*	16.00	46	92	43234	63759
*	20.00	52	104	43235	63760

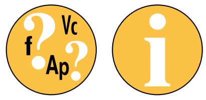


* logarithmic relief



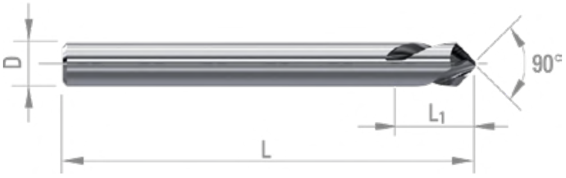
DIXI 1106 L 90°

Z = 2



P.74 P.73

LEFT HAND SPOTTING DRILLS



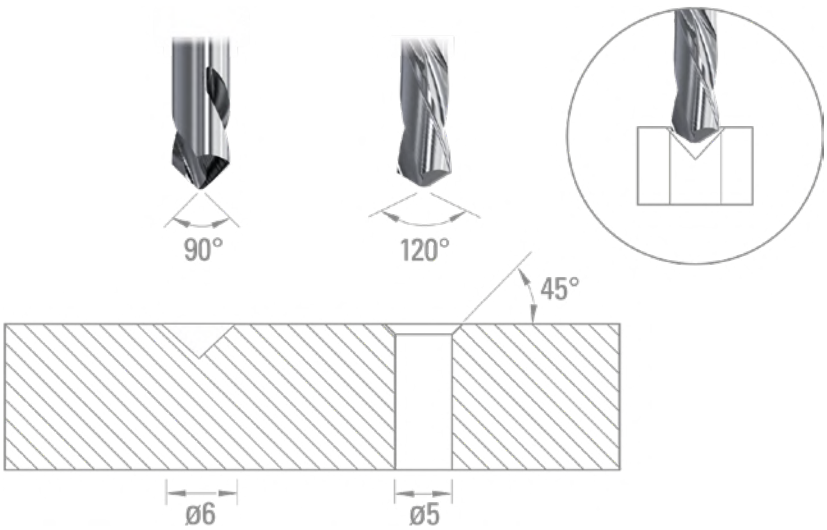
- 90° left-hand spotting drills developed for general machining. Usable for 45° chamfering.
- Can only be used on the point.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

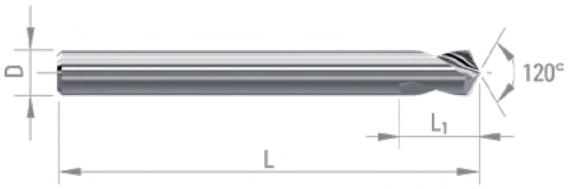
ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron		
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

D_{h5}	L_1	L	CARBIDE
4	10	50	47714
5	13	50	47715
6	13	57	48813



P.74 P.73

SPOTTING DRILLS



- 120° spotting drills developed for general machining.
- Can only be used on the point.

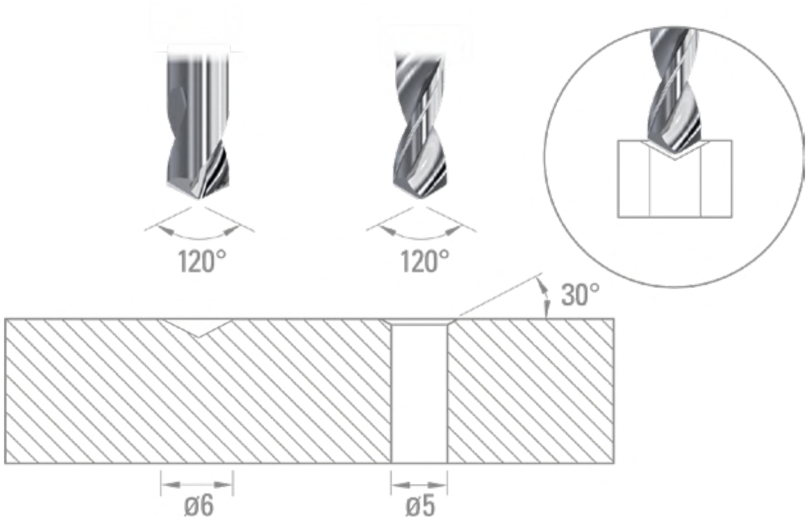
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

D_{h5}	L_1	L	CARBIDE
1	3	38	985118
2	5	38	985120
3	9	38	43236
4	10	50	36914
* 6	13	57	43238
* 8	27	63	43239
* 10	30	72	43240
* 12	35	83	43241
* 16	46	92	43242
* 20	52	104	43243

* logarithmic relief

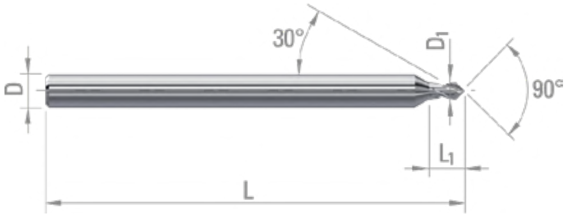


DIXI 1108 90°

Z = 2

P.74 P.73

SPOTTING DRILLS REINFORCED SHANK



- 90° spotting drills developed for setting preparation.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

$D_{1\ h6}$	L_1	D_{h5}	L	CARBIDE	TiAIN
0.50	1.00	3	38	983702	
0.60	1.00	3	38	964801	
0.65	1.00	3	38	964800	
0.70	1.00	3	38	964799	
0.75	1.00	3	38	964798	
0.80	1.50	3	38	956678	956679
0.82	1.50	3	38	956681	956682
0.85	1.50	3	38	956684	956685
0.87	1.50	3	38	956687	956689
0.90	1.50	3	38	956691	956693
0.92	1.50	3	38	956695	956696
0.95	1.50	3	38	956697	956703
0.97	1.50	3	38	956704	956706
1.00	1.50	3	38	956708	956707
1.02	2.00	3	38	956709	956710
1.05	2.00	3	38	956711	956712
1.07	2.00	3	38	956713	956714
1.10	2.00	3	38	956715	956716
1.12	2.00	3	38	956717	956718
1.15	2.00	3	38	956719	956720
1.17	2.00	3	38	956721	956722
1.20	2.00	3	38	956723	956724
1.22	2.00	3	38	956725	956726
1.25	2.00	3	38	956727	956728
1.27	2.00	3	38	956729	956730
1.30	2.00	3	38	956731	956732
1.32	2.00	3	38	956733	956734
1.35	2.00	3	38	956735	956736
1.37	2.00	3	38	956737	956738
1.40	2.00	3	38	956739	956740

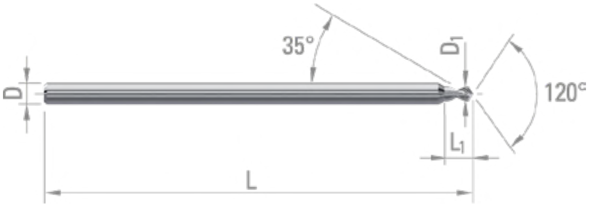
$D_{1\ h6}$	L_1	D_{h5}	L	CARBIDE	TiAIN
1.42	2.00	3	38	956741	956742
1.45	2.00	3	38	956743	956744
1.47	2.00	3	38	956745	956746
1.50	2.00	3	38	956747	956748
1.52	3.00	3	38	956749	956750
1.55	3.00	3	38	956751	956752
1.57	3.00	3	38	956753	956754
1.60	3.00	3	38	956755	956756
1.62	3.00	3	38	956757	956758
1.65	3.00	3	38	956759	956760
1.67	3.00	3	38	956761	956762
1.70	3.00	3	38	956763	956764
1.72	3.00	3	38	956765	956766
1.75	3.00	3	38	956767	956768
1.77	3.00	3	38	956769	956770
1.80	3.00	3	38	956771	956772
1.82	3.00	3	38	956773	956774
1.85	3.00	3	38	956775	956776
1.87	3.00	3	38	956777	956778
1.90	3.00	3	38	956779	956780
1.92	3.00	3	38	956781	956782
1.95	3.00	3	38	956783	956784
1.97	3.00	3	38	956785	956786
2.00	3.00	3	38	956803	956804
2.10	3.00	3	38	956812	956813
2.20	3.00	3	38	956820	956821
2.30	3.00	3	38	956828	956830
2.40	3.00	3	38	956837	956838
2.50	3.00	3	38	956845	956846

DIXI 1109 120°

Z = 2

P.74 P.73

SPOTTING DRILLS REINFORCED SHANK



- 120° spotting drills developed for pilot holes on uneven surfaces.
- DICUT coating improves tool life in ferrous materials.

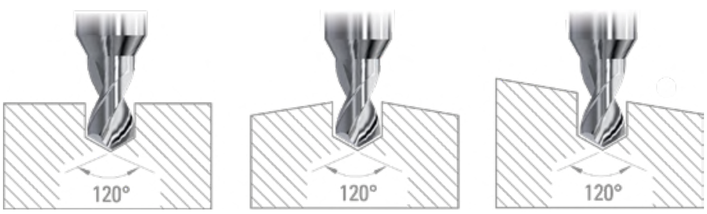
◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.50	1.00	1.50	30	62674	67354
0.55	1.00	1.50	30	62675	67355
0.60	1.20	1.50	30	62676	67356
0.65	1.20	1.50	30	62677	67357
0.70	1.50	1.50	30	62678	67358
0.75	1.50	1.50	30	62679	67359
0.80	2.00	1.50	30	52126	60989
0.85	2.00	1.50	30	52127	67360
0.90	2.00	1.50	30	52128	60990
0.95	2.00	1.50	30	52129	67361
1.00	2.00	1.50	30	52130	60991
1.05	2.00	1.50	30	52131	67362
1.10	2.00	1.50	30	52132	60992
1.15	2.40	1.50	30	52133	62487
1.20	2.40	1.50	30	52134	60993
1.25	2.40	1.50	30	52135	67363
1.30	2.40	1.50	30	52136	60994
1.35	2.40	1.50	30	52137	67364
1.40	2.40	1.50	30	52138	63485
1.45	2.40	1.50	30	52139	67365
1.50	3.00	2.00	32	981825	981839
1.55	3.00	2.00	32	981826	981840
1.60	3.00	2.00	32	981827	981841
1.65	3.00	2.00	32	981828	981842
1.70	3.00	2.00	32	981829	981843
1.75	3.50	2.00	32	981830	981844

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.80	3.50	2.00	32	981831	981845
1.85	3.50	2.00	32	981832	981847
1.90	3.50	2.00	32	981833	981848
1.95	3.50	2.00	32	981834	981849
2.00	4.00	2.50	32	981317	981325
2.10	4.00	2.50	32	981835	981850
2.20	4.00	2.50	32	981836	981852
2.30	4.00	2.50	32	981837	981853
2.40	4.00	2.50	32	981838	981854
2.50	4.00	2.50	32	981320	981327

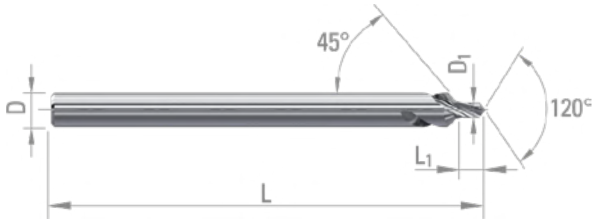


DIXI 1110 120°

Z = 2

P.74 P.73

SPOTTING AND CHAMFERING DRILLS



- Spotting and chamfering drills, developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

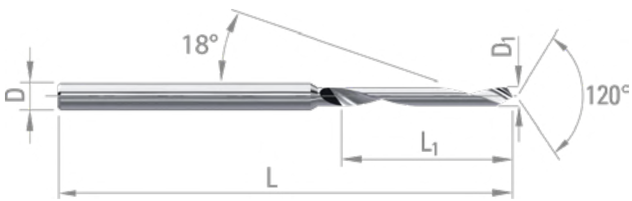
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
0.80	2.00	3	38	60268	64055
0.85	2.00	3	38	60269	67239
0.90	2.00	3	38	60270	64000
0.95	2.00	3	38	60271	67240
1.00	2.00	3	38	60272	64056
1.05	2.00	3	38	60273	67241
1.10	2.00	3	38	60274	63523
1.15	2.40	3	38	60275	67242
1.20	2.40	3	38	60276	64001
1.25	2.40	3	38	60277	67243
1.30	2.40	3	38	60278	67244
1.35	2.40	3	38	60279	67245
1.40	2.40	3	38	60280	64002
1.45	2.40	3	38	60281	67246

DIXI 1111

Z = 1

P.74 P.73

HELICAL GUN DRILLS



- Helical gun drills developed to achieve high-precision holes in materials with good machinability.
- D1 +/- 1 µm on request. Other diameters until Ø5.99 mm on request.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎																		

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎												

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE
0.10	0.70	1.00	30	955371
0.15	1.00	1.00	30	955374
0.20	1.00	1.00	30	955375
0.25	1.00	1.00	30	955377
0.30	1.50	1.00	30	955378
0.35	1.50	1.00	30	955379
0.40	2.00	1.00	30	955380
0.45	3.60	1.00	30	955381
0.50	4.00	1.00	30	955382
0.55	4.50	1.00	30	955383
0.60	4.50	1.00	30	955384
0.65	5.00	1.00	30	955385
0.70	5.60	1.00	30	955386
0.75	5.60	1.00	30	955387
0.80	6.30	1.50	30	955388
0.85	6.30	1.50	30	955389
0.90	7.10	1.50	30	955390

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE
0.95	7.10	1.50	30	955391
1.00	9.00	1.50	30	955392
1.05	9.00	1.50	30	955393
1.10	9.00	1.50	30	955394
1.15	9.00	1.50	30	955395
1.20	10.00	1.50	30	955396
1.30	10.00	1.50	30	965839
1.40	11.20	1.50	30	965840
1.45	11.20	1.50	30	965841
1.50	12.00	2.00	38	961881
1.60	12.00	2.00	38	965842
1.65	12.00	2.00	38	965843
1.70	12.00	2.00	38	961882
1.75	12.00	2.00	38	965844
1.80	12.00	2.00	38	961883
2.00	12.00	2.50	43	959038

DIXI 1126

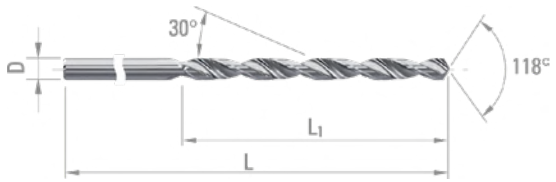
Z = 2

TWIST DRILLS

P.76 P.73

$D_1 \geq 3.1$

DIN 338



- Long length cylindrical twist drills, according to DIN 338, developed for general machining.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	○	○	○	◎	○	○	○	○		○	○				

D_{h5}	L_1	L	CARBIDE	DICUT
1.00	12	34	40244	53697
1.10	14	36	40656	53698
1.20	16	38	40657	53699
1.30	16	38	40658	53700
1.40	18	40	40659	53701
1.50	18	40	40077	53702
1.60	20	43	40703	53703
1.70	20	43	38677	53704
1.80	22	46	41510	53705
1.90	22	46	41370	53706
2.00	24	49	41593	53707
2.10	24	49	40707	53708
2.20	27	53	40125	53709
2.30	27	53	43515	53710
2.40	30	57	45074	53711
2.50	30	57	40978	53712
2.60	30	57	40607	53713
2.70	33	61	41318	53714
2.80	33	61	41024	54284
2.90	33	61	40608	53715
3.00	33	61	40059	53716
3.10	36	65	40173	53717
3.20	36	65	41511	53718
3.30	36	65	40575	53736
3.40	39	70	41247	53737
3.50	39	70	41451	53738
3.60	39	70	40078	53739
3.70	39	70	40174	53740
3.80	43	75	40060	53741

D_{h5}	L_1	L	CARBIDE	DICUT
3.90	43	75	43676	53742
4.00	43	75	43497	53743
4.10	43	75	41218	53744
4.20	43	75	41295	53745
4.30	47	80	41452	53746
4.40	47	80	42866	53747
4.50	47	80	40263	53748
4.60	47	80	41991	53749
4.70	47	80	34710	53750
4.80	52	86	40126	53751
4.90	52	86	42661	53752
5.00	52	86	40061	53753
5.10	52	86	42022	53754
5.20	52	86	40062	53755
5.30	52	86	40063	53756
5.40	57	93	40064	53757
5.50	57	93	40065	53758
5.60	57	93	41992	53759
5.70	57	93	43357	53760
5.80	57	93	40864	53761
5.90	57	93	40258	53762
6.00	57	93	39996	53763
6.10	63	101	40704	54264
6.20	63	101	40066	54267
6.30	63	101	40067	54283
6.40	63	101	40068	54287
6.50	63	101	40069	54290
6.60	63	101	40070	54293
6.70	63	101	40071	54304

P.76 P.73 $D_1 \geq 3.1$ DIN 338

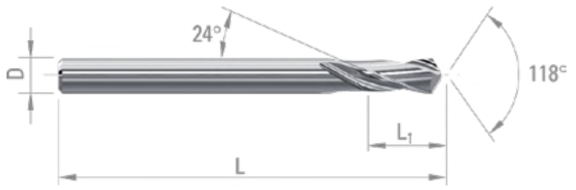
D_{h5}	L_1	L	CARBIDE	DICUT
6.80	69	109	40943	54306
6.90	69	109	41512	54309
7.00	69	109	40072	54312
7.50	69	109	40912	54315
7.70	75	117	53196	54318
7.80	75	117	45792	54321
8.00	75	117	40073	54324
8.50	75	117	40074	54811
9.00	81	125	40075	54778
9.50	81	125	41641	54781
10.00	87	133	40812	54784
10.20	87	133	40944	54787
10.50	87	133	34732	54790
11.00	94	142	40127	54793
11.50	94	142	40865	54795
12.00	101	151	41513	54798
12.50	101	151	41642	54801
13.00	101	151	40660	54804
13.50	108	160	40076	54807
14.00	108	160	40771	54810

DIXI 1130

Z = 2

P.76 P.73 $D_1 \geq 3.1$ DIN 6539

TWIST DRILLS



- Standard length cylindrical twist drills, according to DIN 6539, developed for general machining.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	○	○	○	◎	○	○	○	○		◎	◎				

D_{h5}	L_1	L	CARBIDE	DICUT
0.30	5	30	24828	953165
0.35	5	30	37861	953167
0.40	6	30	244	953169
0.45	6	30	245	953171
0.50	6	30	246	54480
0.55	6	30	247	54481
0.60	6	30	248	54482
0.65	6	30	249	54483
0.70	6	30	250	54484
0.75	6	30	251	54485
0.80	7	30	252	54487
0.85	7	30	253	54486
0.90	7	30	254	54528
0.95	7	30	255	54488
1.00	7	30	256	54490
1.05	8	30	257	54491
1.10	8	30	258	54492
1.15	8	30	259	54493
1.20	8	30	260	54494
1.25	8	30	261	54495
1.30	8	30	262	54496
1.35	8	30	263	54497
1.40	8	30	264	54498
1.45	8	30	265	54499
1.50	8	30	266	54500
1.55	9	38	267	54501
1.60	9	38	268	54502
1.65	9	38	269	54503
1.70	9	38	270	54504

D_{h5}	L_1	L	CARBIDE	DICUT
1.75	9	38	271	54505
1.80	9	38	272	54506
1.85	9	38	32277	54507
1.90	9	38	274	54509
1.95	9	38	275	54508
2.00	9	38	276	54510
2.05	9	38	39575	54511
2.10	9	38	39757	54512
2.15	10	40	33192	54513
2.20	10	40	39655	54514
2.25	10	40	4562	54516
2.30	10	40	43350	54529
2.35	10	40	1756	54530
2.40	11	43	42869	54531
2.45	11	43	4563	54532
2.50	11	43	43351	54533
2.55	11	43	41514	54534
2.60	11	43	41874	54535
2.65	11	43	4564	54536
2.70	12	46	42139	54539
2.75	12	46	4565	54537
2.80	12	46	42339	54538
2.85	12	46	42522	54540
2.90	12	46	41911	54541
2.95	12	46	41501	54542
3.00	12	46	41840	54543
3.05	14	49	4607	54544
3.10	14	49	41456	54545
3.15	14	49	1757	54546

P.76 P.73 $D_1 \geq 3.1$ DIN 6539

D_{h5}	L_1	L	CARBIDE	DICUT
3.20	14	49	42023	54547
3.25	14	49	3356	54548
3.30	14	49	290	54549
3.35	14	49	4567	54550
3.40	15	52	42200	54551
3.45	15	52	4020	54552
3.50	15	52	41534	54553
3.55	15	52	4568	54554
3.60	15	52	41535	54556
3.65	15	52	42523	54557
3.70	15	52	43037	54558
3.75	15	52	4570	54560
3.80	17	55	4610	54562
3.85	17	55	4571	54563
3.90	17	55	4142	54565
3.95	17	55	42870	54567
4.00	17	55	42093	54568
4.05	17	55	42871	54569
4.10	17	55	42652	54570
4.15	17	55	15177	54571
4.20	17	55	42340	54572
4.25	17	55	39938	54573
4.30	18	58	301	54574
4.35	18	58	39939	54575
4.40	18	58	29689	54576
4.45	18	58	4616	54577
4.50	18	58	303	54578
4.55	18	58	40790	54579
4.60	18	58	39013	54580
4.65	18	58	19790	54581
4.70	18	58	42170	54582
4.75	18	58	40791	54583
4.80	20	62	29756	54584
4.85	20	62	42524	54585
4.90	20	62	41914	54586
4.95	20	62	39997	54587
5.00	20	62	29758	54588
5.10	20	62	29759	54589
5.20	20	62	29760	54590
5.30	20	62	29761	54593
5.40	21	66	29693	54594
5.50	21	66	29694	54595
5.60	21	66	41594	54596

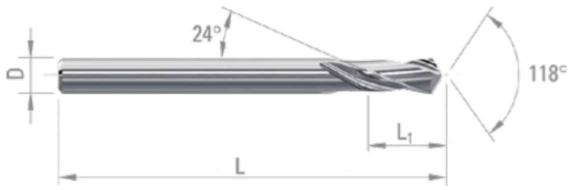
D_{h5}	L_1	L	CARBIDE	DICUT
5.70	21	66	45724	54597
5.80	21	66	316	54599
5.90	21	66	28594	54600
6.00	21	66	42173	54601
6.10	23	70	29762	54602
6.20	23	70	41457	54618
6.30	23	70	29764	54619
6.40	23	70	42171	54620
6.50	23	70	42220	54621
6.60	23	70	41515	54622
6.70	23	70	41680	54623
6.80	25	74	326	54624
6.90	25	74	327	54625
7.00	25	74	328	54626
7.10	25	74	8646	54627
7.20	25	74	50671	54628
7.30	25	74	53054	54629
7.50	25	74	5389	54631
7.60	27	79	53056	54632
7.70	27	79	22351	54633
7.80	27	79	50331	54634
7.90	27	79	53057	54635
8.00	27	79	42821	54636
8.10	27	79	53058	54639
8.20	27	79	25291	54640
8.30	27	79	53479	54641
8.40	27	79	53059	54642
8.50	27	79	42653	54643
8.80	29	84	57852	59399
9.00	29	84	35325	54644
9.20	29	84	57851	59401
9.50	29	84	39660	54645
9.80	31	89	57853	963531
10.00	31	89	7958	54646
10.20	31	89	34340	54647
10.50	31	89	30130	54648
11.00	33	95	28591	54649
11.50	33	95	41092	54650
12.00	35	102	14939	54651
13.00	35	102	21462	54653
13.50	37	107	45725	54654
14.00	37	107	23729	54655

DIXI 1130 L

Z = 2

LEFT HAND TWIST DRILLS

P.76 P.73 $D_1 \geq 3.1$



- Left-hand cylindrical twist drills, developed for general machining.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	○	○	○	◎	○	○	○	○		◎	◎				

D_{h5}	L_1	L	CARBIDE	DICUT
0.30	5	30	37906	953748
0.35	5	30	37907	953752
0.40	6	30	330	953754
0.45	6	30	331	953758
0.50	6	30	332	54659
0.55	6	30	333	54660
0.60	6	30	334	54661
0.65	6	30	335	54662
0.70	6	30	336	54663
0.75	6	30	37908	54664
0.80	8	30	338	54665
0.85	8	30	339	54666
0.90	8	30	340	54667
0.95	8	30	341	54668
1.00	8	30	29560	54669
1.05	10	30	343	54670
1.10	10	30	344	54671
1.15	10	30	345	54672
1.20	10	30	346	54673
1.25	10	30	347	54674
1.30	10	30	348	54675
1.35	10	30	349	54676
1.40	10	30	350	54677
1.45	10	30	351	54678
1.50	10	30	352	54679
1.55	16	38	38634	54680
1.60	16	38	38826	54681
1.65	16	38	39127	54682
1.70	16	38	39126	54683

D_{h5}	L_1	L	CARBIDE	DICUT
1.75	16	38	38827	54684
1.80	16	38	395	54685
1.85	16	38	38921	54686
1.90	16	38	30637	54687
1.95	16	38	38997	54688
2.00	16	38	35181	54689
2.05	16	38	27526	54690
2.10	16	38	39657	54691
2.15	16	40	39041	54692
2.20	16	40	38965	54693
2.25	16	40	40245	54694
2.30	16	40	38769	54695
2.35	16	40	26575	54696
2.40	16	43	23429	54698
2.45	16	43	45720	54699
2.50	16	43	43245	54700
2.55	16	43	41034	54701
2.60	16	43	39043	54702
2.65	16	43	4026	54703
2.70	16	46	40247	54704
2.75	16	46	43036	54705
2.80	16	46	370	54706
2.85	16	46	40266	54707
2.90	16	46	40793	54708
2.95	16	46	40511	54709
3.00	16	46	42787	54710
3.05	18	49	40079	54711
3.10	18	49	40661	54712
3.15	18	49	40794	54713

P.76 P.73

$D_1 \geq 3.1$

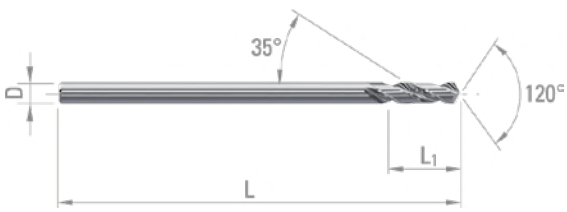
D_{h5}	L_1	L	CARBIDE	DICUT
3.20	18	49	40267	54714
3.25	18	49	40080	54715
3.30	18	49	375	54716
3.35	18	49	40296	54717
3.40	20	50	376	54718
3.45	20	50	37957	54719
3.50	20	50	377	54720
3.55	20	50	41596	54721
3.60	20	50	40662	54722
3.65	20	50	40797	54723
3.70	20	50	379	54724
3.75	20	50	38922	54725
3.80	22	50	40172	54726
3.85	22	50	37960	54727
3.90	22	50	38923	54728
3.95	22	50		54729
4.00	22	50	382	54730
4.05	22	50	40801	54731
4.10	22	50	383	54732
4.15	22	50	40576	54733
4.20	22	50	384	54734
4.25	22	50	39658	54735
4.30	24	50	385	54736
4.35	24	50	37966	54737
4.45	24	50	27518	54739
4.50	24	50	387	54740
4.55	24	50	37968	
4.85	25	50	37971	54747
4.95	25	50	37972	54749
5.00	25	50	392	54750
5.20	25	50	4141	
5.50	25	50	27042	54755
5.60	25	50	27041	54756
5.90	25	50	6489	54759
6.00	28	66	43390	54760
6.50	31	70	37994	54765
6.60	31	70	37996	54766
6.70	31	70		54767

DIXI 1132

Z = 2

P.80 P.73

TWIST DRILLS



- Cylindrical twist drills developed for the drilling of long chip materials.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○	○	○		◎	◎				

D_{h5}	L_1	L	CARBIDE	DICUT
0.40	6	30	197	953186
0.45	6	30	198	58925
0.50	6	30	199	53585
0.55	6	30	200	53586
0.60	6	30	201	53582
0.65	6	30	202	53588
0.70	6	30	203	53589
0.75	6	30	204	53587
0.80	7	30	205	53590
0.85	7	30	206	53591
0.90	7	30	207	53592
0.95	7	30	208	53593
1.00	7	30	40275	53583
1.05	8	30	210	53594
1.10	8	30	41502	53595
1.15	8	30	212	53596
1.20	8	30	41150	53597
1.25	8	30	41319	53598
1.30	8	30	215	53599
1.35	8	30	41320	53600
1.40	8	30	217	53584
1.45	8	30	218	53601
1.50	8	30	219	53602
1.55	9	38	220	53604
1.60	9	38	221	53605
1.65	9	38	5418	53606
1.70	9	38	222	53607
1.75	9	38	42537	53608

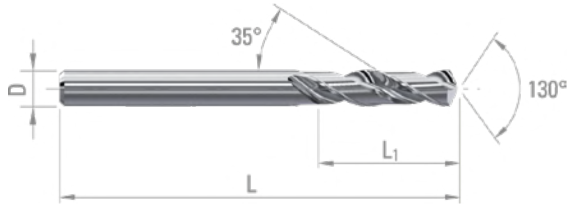
D_{h5}	L_1	L	CARBIDE	DICUT
1.80	9	38	223	53609
1.85	9	38	42538	53610
1.90	9	38	224	53611
1.95	9	38	42539	53612
2.00	9	38	225	53613

DIXI 1133

Z = 2

P.80 P.73 $D_1 \geq 3.1$

TWIST DRILLS



- Long length cylindrical twist drills developed for the drilling of low-hardness and long chip materials.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○		○	○				

D_{h5}	L_1	L	CARBIDE	DICUT
0.50	9	38	91	57557
0.55	9	38	92	57558
0.60	13	38	93	57559
0.65	13	38	94	57560
0.70	13	38	95	55471
0.75	13	38	96	55473
0.80	13	38	97	55475
0.85	13	38	98	55482
0.90	16	38	99	55599
0.95	16	38	100	55601
1.00	16	38	101	55603
1.05	16	38	102	55605
1.10	16	38	103	55607
1.15	16	38	104	55609
1.20	16	38	105	55611
1.25	16	38	106	55613
1.30	16	38	107	55615
1.35	16	38	108	55617
1.40	16	38	109	55619
1.45	16	38	110	55621
1.50	16	38	111	55623
1.55	16	38	2972	55625
1.60	16	38	112	55627
1.65	16	38	3360	55629
1.70	16	38	113	55631
1.75	16	38	3361	55633
1.80	16	38	114	55635
1.85	16	38	115	55637
1.90	16	38	116	55639
1.95	16	38	3362	55641

D_{h5}	L_1	L	CARBIDE	DICUT
2.00	16	38	117	55643
2.10	16	38	118	55645
2.20	16	40	119	55647
2.30	16	40	120	55649
2.40	16	43	121	55651
2.50	16	43	122	55653
2.60	16	43	35575	55655
3.00	16	46	35726	55657
3.30	18	49	35665	55659
3.50	20	50	35727	55661
4.00	22	55	34062	55663
4.20	22	55	35728	55665
4.50	24	58	35729	55667
5.00	26	62	35730	55669
5.50	28	66	45735	55671
6.00	28	66	45736	55673

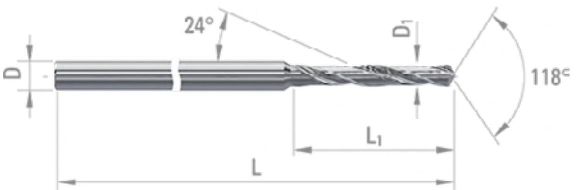
DIXI 1131

Z = 2

P.76 P.73

DIN 1899

TWIST DRILLS REINFORCED SHANK



- Twist drills with reinforced shank, according to DIN 1899, developed for general machining.
- DICUT coating improves tool life in ferrous materials.
- DLC coating improves tool life in non-ferrous materials in case of dry machining or with emulsion.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○		◎	◎				

D_1 0/-0.004	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
0.05	0.35	1.00	30	962703		
0.06	0.40	1.00	30	962702		
0.07	0.50	1.00	30	962701		
0.08	0.60	1.00	30	962700		
0.09	0.65	1.00	30	962699		
0.10	0.70	1.00	30	36792		
0.11	0.70	1.00	30	40829		
0.12	0.70	1.00	30	40627		
0.13	0.70	1.00	30	40628		
0.14	0.70	1.00	30	40629		
0.15	1.00	1.00	30	35600		
0.16	1.00	1.00	30	38658		
0.17	1.00	1.00	30	38659		
0.18	1.00	1.00	30	38660		
0.19	1.00	1.00	30	38661		
0.20	1.00	1.00	30	26824	952580	955953
0.21	1.00	1.00	30	29609	952581	955954
0.22	1.00	1.00	30	29610	952582	955955
0.23	1.00	1.00	30	29611	950087	955956
0.23	2.20	1.00	30	62513	952583	962712
0.24	1.00	1.00	30	25957	952496	955957
0.24	2.20	1.00	30	62514	952584	962713
0.25	1.00	1.00	30	28712	950088	955958
0.25	2.20	1.00	30	38282	952585	962714
0.26	1.00	1.00	30	38665	952587	955959
0.27	1.00	1.00	30	37358	952588	955960
0.28	1.00	1.00	30	37258	952589	955961
0.29	1.00	1.00	30	30568	952590	955962
0.30	1.5	1.00	30	28713	952591	955963

D_1 0/-0.004	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
0.31	1.5	1.00	30	35421	952592	955964
0.32	1.5	1.00	30	38662	952593	955965
0.32	3.0	1.00	30	62515	952594	962715
0.33	1.5	1.00	30	38663	952595	955966
0.33	3.0	1.00	30	62516	952596	962716
0.34	1.5	1.00	30	29570	952597	955967
0.34	3.0	1.00	30	62517	952598	962717
0.35	1.5	1.00	30	31747	952599	955968
0.36	1.5	1.00	30	39018	952600	955970
0.37	1.5	1.00	30	40633	952601	955971
0.38	1.5	1.00	30	40634	952602	955972
0.39	1.5	1.00	30	40635	952603	955973
0.40	2.0	1.00	30	25992	63706	955974
0.41	2.0	1.00	30	29571	952604	955975
0.42	2.0	1.00	30	38419	952605	955976
0.43	2.0	1.00	30	35804	950186	955977
0.44	2.0	1.00	30	40636	952606	955978
0.45	3.6	1.00	30	45726	59562	955979
0.46	3.6	1.00	30	45727	952607	955980
0.47	3.6	1.00	30	45728	952497	955981
0.48	3.6	1.00	30	45729	952608	955982
0.49	4.0	1.00	30	45730	952609	955983
0.50	4.0	1.00	30	25994	55141	955984
0.51	4.0	1.00	30	45731	55142	955985
0.52	4.0	1.00	30	45732	55143	955986
0.53	4.0	1.00	30	45733	55144	955987
0.54	4.5	1.00	30	40640	55145	955988
0.55	4.5	1.00	30	28375	55146	955989
0.56	4.5	1.00	30	41925	55147	955990

* for non-ferrous material

DIXI 1131

TWIST DRILLS
REINFORCED SHANK

P.76 P.73

DIN 1899

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
0.57	4.50	1.00	30	40641	55148	955991
0.58	4.50	1.00	30	40642	55149	955993
0.59	4.50	1.00	30	40643	55150	955997
0.60	4.50	1.00	30	29643	55151	956048
0.61	5.00	1.00	30	37639	55152	956049
0.62	5.00	1.00	30	25270	55153	956050
0.63	5.00	1.00	30	40644	55154	956051
0.64	5.00	1.00	30	40645	55155	956052
0.65	5.00	1.00	30	41679	55156	956053
0.66	5.00	1.00	30	41886	55157	956054
0.67	5.00	1.00	30	42286	55158	956055
0.68	5.60	1.00	30	42287	55159	956056
0.69	5.60	1.00	30	41788	55160	956057
0.70	5.60	1.00	30	32099	55161	956058
0.71	5.60	1.00	30	42288	55162	956059
0.72	5.60	1.00	30	40983	55163	956060
0.73	5.60	1.00	30	35422	55164	956061
0.74	5.60	1.00	30	36102	55165	956062
0.75	5.60	1.00	30	35423	55166	956063
0.76	6.30	1.00	30	18579	55167	956064
0.77	6.30	1.00	30	42706	55168	956065
0.78	6.30	1.00	30	41887	55169	956066
0.79	6.30	1.00	30	36640	55170	956068
0.80	6.30	1.50	30	402	55171	956069
0.81	6.30	1.50	30	36144	55172	956070
0.82	6.30	1.50	30	34510	55173	956071
0.83	6.30	1.50	30	42290	55174	956072
0.84	6.30	1.50	30	27400	55175	956074
0.85	6.30	1.50	30	35551	55176	956075
0.86	7.10	1.50	30	29254	55177	956076
0.87	7.10	1.50	30	42291	55178	956077
0.88	7.10	1.50	30	19601	55179	956080
0.89	7.10	1.50	30	41789	55180	956081
0.90	7.10	1.50	30	32100	55181	956082
0.91	7.10	1.50	30	42292	55182	956083
0.92	7.10	1.50	30	36859	55183	956084
0.93	7.10	1.50	30	42293	55184	956085
0.94	7.10	1.50	30	42167	55185	956086
0.95	7.10	1.50	30	35183	55186	956087
0.96	8.00	1.50	30	37741	55188	956088
0.97	8.00	1.50	30	29255	55189	956089
0.98	8.00	1.50	30	42294	55190	956091

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
0.99	8.00	1.50	30	41790	55191	956092
1.00	9.00	1.50	30	406	55192	956093
1.01	9.00	1.50	30	34996	55193	956094
1.02	9.00	1.50	30	42876	55195	956095
1.03	9.00	1.50	30	34778	55196	956096
1.04	9.00	1.50	30	43984	55200	956097
1.05	9.00	1.50	30	4774	55201	956098
1.06	9.00	1.50	30	43985	55202	956099
1.07	9.00	1.50	30	42228	55203	956100
1.08	9.00	1.50	30	43198	55204	956101
1.09	9.00	1.50	30	28779	55205	956102
1.10	9.00	1.50	30	407	55206	956103
1.11	9.00	1.50	30	43986	55207	956104
1.12	9.00	1.50	30	43347	55208	956105
1.13	9.00	1.50	30	42853	55209	956106
1.14	9.00	1.50	30	43987	55210	956107
1.15	9.00	1.50	30	3530	55211	956108
1.16	9.00	1.50	30	22712	55212	956109
1.17	9.00	1.50	30	4775	55213	956110
1.18	9.00	1.50	30	42230	55214	956111
1.19	10.00	1.50	30	41791	55215	956112
1.20	10.00	1.50	30	408	55216	956113
1.21	10.00	1.50	30	42168	55217	956114
1.22	10.00	1.50	30	25751	55218	956115
1.23	10.00	1.50	30	23285	55219	956116
1.24	10.00	1.50	30	45524	55220	956118
1.25	10.00	1.50	30	3531	55221	956119
1.26	10.00	1.50	30	42005	55222	956120
1.27	10.00	1.50	30	3761	55223	956121
1.28	10.00	1.50	30	42169	55224	956122
1.29	10.00	1.50	30	37694	55225	956124
1.30	10.00	1.50	30	409	55226	956125
1.31	10.00	1.50	30	45525	55227	956128
1.32	10.00	1.50	30	29712	55228	956130
1.33	11.20	1.50	30	34695	55229	956131
1.34	11.20	1.50	30	45526	55230	956132
1.35	11.20	1.50	30	3532	55231	956133
1.36	11.20	1.50	30	45527	55232	956134
1.37	11.20	1.50	30	35556	55233	956135
1.38	11.20	1.50	30	45055	55234	956136
1.39	11.20	1.50	30	45297	55235	956137
1.40	11.20	1.50	30	410	55236	956138

* for non-ferrous material

DIXI 1131

Z = 2

P.76 P.73 DIN 1899

TWIST DRILLS
REINFORCED SHANK

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
1.41	11.20	1.50	30	33499	55237	956139
1.42	11.20	1.50	30	43348	55238	956140
1.43	11.20	1.50	30	45056	55239	956141
1.44	11.20	1.50	30	45528	55240	956142
1.45	11.20	1.50	30	36006	55241	956143
1.46	11.20	1.50	30	45529	55242	956144
1.47	11.20	1.50	30	45530	55243	956145
1.48	11.20	1.50	30	45057	55244	956146
1.49	11.20	1.50	30	35681	55245	956147
1.50	11.20	2.00	38	411	55246	956148
1.51	12.00	2.00	38	27735	55247	956149
1.52	12.00	2.00	38	27736	55248	956150
1.53	12.00	2.00	38	23286	55249	956151
1.54	12.00	2.00	38	45909	55250	956152
1.55	12.00	2.00	38	25686	55251	956153
1.56	12.00	2.00	38	58194	58196	956154
1.57	12.00	2.00	38	55541	58193	956155
1.58	12.00	2.00	38	39953	55252	956156
1.59	12.00	2.00	38	34993	55253	956157
1.60	12.00	2.00	38	412	55254	956158
1.61	12.00	2.00	38	40288	55255	956159
1.62	12.00	2.00	38	46968	55256	956160
1.63	12.00	2.00	38	45605	55257	956161
1.64	12.00	2.00	38	45910	55258	956162
1.65	12.00	2.00	38	32283	55259	956163
1.66	12.00	2.00	38	47198	55260	956164
1.67	12.00	2.00	38	50763	55261	956165
1.68	12.00	2.00	38	31684	55262	956166
1.69	12.00	2.00	38	45339	55263	956167
1.70	12.00	2.00	38	413	55264	956169
1.71	12.00	2.00	38	45911	55265	956175
1.72	12.00	2.00	38	27925	55266	956177
1.73	12.00	2.00	38	42609	55267	956178
1.74	12.00	2.00	38	45912	55268	956179
1.75	12.00	2.00	38	45734	55269	956180
1.76	12.00	2.00	38	45913	55270	956181
1.77	12.00	2.00	38	38757	61408	956182
1.78	12.00	2.00	38	46957	55271	956183
1.79	12.00	2.00	38	45340	55272	956185
1.80	12.00	2.00	38	31497	55273	956186
1.81	12.00	2.00	38	45914	55274	956187
1.82	12.00	2.00	38	46969	55275	956188

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT	DLC*
1.83	12.00	2.00	38	58717	61407	956189
1.84	12.00	2.00	38	46970	55276	956190
1.85	12.00	2.00	38	36793	55277	956191
1.86	12.00	2.00	38	50761	55278	956192
1.87	12.00	2.00	38	36487	55279	956195
1.88	12.00	2.00	38	45801	55280	956196
1.89	12.00	2.00	38	45341	55281	956197
1.90	12.00	2.00	38	415	55282	956198
1.91	12.00	2.00	38	45915	55283	956200
1.92	12.00	2.00	38	45916	55284	956201
1.93	12.00	2.00	38	44853	55285	956202
1.94	12.00	2.00	38	45917	55286	956203
1.95	12.00	2.00	38	32284	55287	956204
1.96	12.00	2.00	38	60692	61404	956205
1.97	12.00	2.00	38	50332	61401	956206
1.98	12.00	2.00	38	46959	55288	956207
1.99	12.00	2.00	38	45342	55289	956208
2.00	12.00	2.50	43	416	55290	956209
2.01	12.00	2.50	43	45498	55291	956210
2.02	12.00	2.50	43	48962	61399	956211
2.03	12.00	2.50	43	50685	55292	956212
2.04	12.00	2.50	43	60958	60962	956213
2.05	12.00	2.50	43	40813	55293	956214
2.10	12.00	2.50	43	42295	55294	956215
2.15	12.00	2.50	43	40814	55295	956216
2.20	12.00	2.50	43	418	55296	956217
2.25	12.00	2.50	43	40815	55297	956218
2.30	12.00	2.50	43	419	55298	956219
2.34	12.00	2.50	43	955569	955572	956228
2.35	12.00	2.50	43	6341	55299	956220
2.40	12.00	2.50	43	420	55300	956221
2.45	12.00	2.50	43	40816	55301	956222

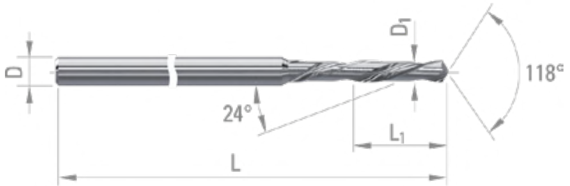
* for non-ferrous material

DIXI 1131 L

LEFT HAND TWIST DRILLS REINFORCED SHANK

P.76 P.73

DIN 1899



- Left-hand cylindrical twist drills with reinforced shank, according to DIN 1899, developed for general machining.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○		◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.11	0.70	1.00	30	36917	
0.14	0.70	1.00	30	36920	
0.15	1.00	1.00	30	36921	
0.16	1.00	1.00	30	36922	
0.17	1.00	1.00	30	38654	
0.18	1.00	1.00	30	36924	
0.19	1.00	1.00	30	36925	
0.20	1.00	1.00	30	36926	952652
0.21	1.00	1.00	30	36927	952653
0.22	1.00	1.00	30	36928	952654
0.23	1.00	1.00	30	36929	952655
0.24	1.00	1.00	30	36930	952656
0.25	1.00	1.00	30	36931	952657
0.26	1.00	1.00	30	36932	952658
0.27	1.00	1.00	30	36933	952659
0.28	1.00	1.00	30	36934	952660
0.29	1.00	1.00	30	36935	952661
0.30	1.50	1.00	30	36936	952662
0.31	1.50	1.00	30	36937	952663
0.32	1.50	1.00	30	36938	952664
0.33	1.50	1.00	30	36939	952665
0.34	1.50	1.00	30	36940	952666
0.35	1.50	1.00	30	36941	952667
0.36	1.50	1.00	30	36942	952669
0.37	1.50	1.00	30	36943	952672
0.38	1.50	1.00	30	36944	952673
0.39	1.50	1.00	30	36945	952674

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.40	2.00	1.00	30	15026	952676
0.41	2.00	1.00	30	35708	952677
0.42	2.00	1.00	30	36946	952678
0.43	2.00	1.00	30	36947	952679
0.44	2.00	1.00	30	36948	952680
0.45	3.60	1.00	30	38054	952681
0.46	3.60	1.00	30	38057	952682
0.47	3.60	1.00	30	38059	952683
0.48	3.60	1.00	30	38062	952684
0.49	4.00	1.00	30	38063	952685
0.50	4.00	1.00	30	38065	55302
0.51	4.00	1.00	30	38066	55303
0.52	4.00	1.00	30	38068	55304
0.53	4.00	1.00	30	38069	55305
0.54	4.50	1.00	30	38245	55306
0.55	4.50	1.00	30	38246	55307
0.56	4.50	1.00	30	38190	55308
0.57	4.50	1.00	30	38187	55309
0.58	4.50	1.00	30	38103	55310
0.59	4.50	1.00	30	38070	55311
0.60	4.50	1.00	30	38188	55312
0.61	5.00	1.00	30	38247	55313
0.62	5.00	1.00	30	38364	55314
0.63	5.00	1.00	30	38072	55315
0.64	5.00	1.00	30	38073	55316
0.65	5.00	1.00	30	38075	55317
0.66	5.00	1.00	30	36966	55318
0.67	5.00	1.00	30	36838	55319
0.68	5.60	1.00	30	21766	55320
0.69	5.60	1.00	30	4021	55321

DIXI 1131 L

Z = 2

P.76 P.73 DIN 1899

LEFT HAND TWIST DRILLS
REINFORCED SHANK

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.70	5.60	1.00	30	450	55322
0.71	5.60	1.00	30	38078	55323
0.72	5.60	1.00	30	38182	55324
0.73	5.60	1.00	30	22294	55325
0.74	5.60	1.00	30	38080	55326
0.75	5.60	1.00	30	36975	55327
0.76	6.30	1.00	30	36976	55328
0.77	6.30	1.00	30	40866	55329
0.78	6.30	1.00	30	36978	55330
0.79	6.30	1.00	30	38082	55331
0.80	6.30	1.50	30	38317	55332
0.81	6.30	1.50	30	36981	55333
0.82	6.30	1.50	30	36982	55334
0.83	6.30	1.50	30	36983	55335
0.84	6.30	1.50	30	38292	55336
0.85	6.30	1.50	30	38293	55337
0.86	7.10	1.50	30	38294	55338
0.87	7.10	1.50	30	38251	55339
0.88	7.10	1.50	30	36988	55340
0.89	7.10	1.50	30	36989	55341
0.90	7.10	1.50	30	24182	55342
0.91	7.10	1.50	30	38295	55343
0.92	7.10	1.50	30	36360	55344
0.93	7.10	1.50	30	35871	55345
0.94	7.10	1.50	30	38086	55346
0.95	7.10	1.50	30	455	55347
0.96	8.00	1.50	30	38296	55348
0.97	8.00	1.50	30	36996	55349
0.98	8.00	1.50	30	36997	55350
0.99	8.00	1.50	30	36998	55351
1.00	9.00	1.50	30	36999	55352
1.01	9.00	1.50	30	37000	55353
1.02	9.00	1.50	30	37001	55354
1.03	9.00	1.50	30	37002	55355
1.04	9.00	1.50	30	37003	55356
1.05	9.00	1.50	30	37004	55357
1.06	9.00	1.50	30	37005	55358
1.07	9.00	1.50	30	37006	55359
1.08	9.00	1.50	30	37007	55360
1.09	9.00	1.50	30	37008	55361
1.10	9.00	1.50	30	457	55362

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.11	9.00	1.50	30	37009	55363
1.12	9.00	1.50	30	37010	55364
1.13	9.00	1.50	30	14573	55365
1.14	9.00	1.50	30	37011	55366
1.15	9.00	1.50	30	19337	55367
1.16	9.00	1.50	30	37012	55368
1.17	9.00	1.50	30	37013	55369
1.18	9.00	1.50	30	37014	55370
1.19	10.00	1.50	30	37015	55371
1.20	10.00	1.50	30	37016	55372
1.21	10.00	1.50	30	26225	55373
1.22	10.00	1.50	30	37017	55374
1.23	10.00	1.50	30	45717	55375
1.24	10.00	1.50	30	37019	55376
1.25	10.00	1.50	30	26763	55377
1.26	10.00	1.50	30	27862	55378
1.27	10.00	1.50	30	6197	55379
1.28	10.00	1.50	30	25663	55380
1.29	10.00	1.50	30	27863	55381
1.30	10.00	1.50	30	459	55382
1.31	10.00	1.50	30	37020	55383
1.32	10.00	1.50	30	37021	55384
1.33	11.20	1.50	30	37022	55385
1.34	11.20	1.50	30	45718	55386
1.35	11.20	1.50	30	37024	55387
1.36	11.20	1.50	30	37025	55388
1.37	11.20	1.50	30	37026	55389
1.38	11.20	1.50	30	37027	55390
1.39	11.20	1.50	30	37028	55391
1.40	11.20	1.50	30	460	55392
1.41	11.20	1.50	30	26226	55393
1.42	11.20	1.50	30	37029	55394
1.43	11.20	1.50	30	37030	55395
1.44	11.20	1.50	30	37031	55396
1.45	11.20	1.50	30	26459	55397
1.46	11.20	1.50	30	37032	55398
1.47	11.20	1.50	30	37033	55399
1.48	11.20	1.50	30	37034	55400
1.49	11.20	1.50	30	37035	55401
1.50	11.20	2.00	38	461	55402
1.51	12.00	2.00	38	38089	55403

LEFT HAND TWIST DRILLS REINFORCED SHANK

P.76 P.73

DIN 1899

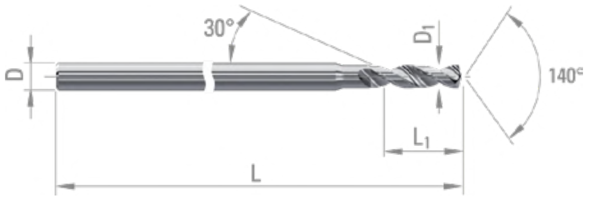
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.52	12.00	2.00	38	38962	55404
1.53	12.00	2.00	38	38938	55405
1.54	12.00	2.00	38	45531	55406
1.55	12.00	2.00	38	38090	55407
1.56	12.00	2.00	38	45532	55408
1.57	12.00	2.00	38	45351	55409
1.58	12.00	2.00	38	38252	55410
1.59	12.00	2.00	38	45533	55411
1.60	12.00	2.00	38	37234	55412
1.61	12.00	2.00	38	40655	55413
1.62	12.00	2.00	38	29286	55414
1.63	12.00	2.00	38	40910	55415
1.64	12.00	2.00	38	41297	55416
1.65	12.00	2.00	38	37235	55417
1.66	12.00	2.00	38	45534	55418
1.67	12.00	2.00	38	44015	55419
1.68	12.00	2.00	38	38092	55420
1.69	12.00	2.00	38	45535	55421
1.70	12.00	2.00	38	463	55422
1.71	12.00	2.00	38	45536	55423
1.72	12.00	2.00	38	45075	55424
1.73	12.00	2.00	38	43415	55425
1.74	12.00	2.00	38	45537	55426
1.75	12.00	2.00	38	38093	55427
1.76	12.00	2.00	38	58052	58054
1.77	12.00	2.00	38	42174	55428
1.78	12.00	2.00	38	57881	57888
1.79	12.00	2.00	38	58197	58199
1.80	12.00	2.00	38	464	55429
1.81	12.00	2.00	38	58636	61392
1.82	12.00	2.00	38	26183	55430
1.83	12.00	2.00	38	61388	61390
1.84	12.00	2.00	38	50611	55431
1.85	12.00	2.00	38	38094	55432
1.86	12.00	2.00	38	61385	61387
1.87	12.00	2.00	38	42119	55433
1.88	12.00	2.00	38	61382	61384
1.89	12.00	2.00	38	50657	55434
1.90	12.00	2.00	38	41217	55435
1.91	12.00	2.00	38	61150	61367
1.92	12.00	2.00	38	48963	57890
1.93	12.00	2.00	38	50158	58056
1.94	12.00	2.00	38	60780	60782
1.95	12.00	2.00	38	45719	55436
1.96	12.00	2.00	38	61368	61370
1.97	12.00	2.00	38	61372	61371
1.98	12.00	2.00	38	44254	57892
1.99	12.00	2.00	38	58741	60784
2.00	12.00	2.50	43	466	55437
2.01	12.00	2.50	43	38096	55438
2.02	12.00	2.50	43	47857	55439
2.03	12.00	2.50	43	61256	61375
2.04	12.00	2.50	43	61376	61378
2.05	12.00	2.50	43	61379	61381
2.10	12.00	2.50	43	467	55440
2.10	12.00	2.53	43	47858	55441
2.15	12.00	2.50	43	38097	55442
2.45	12.00	2.50	43	38098	55443

DIXI 1137-5D

Z = 2

P.78 P.73 $D_1 \geq 0.5$

TWIST DRILLS
FOR UNLEADED BRASS



- Self-centering twist drills with reinforced shank , $5xD_1$ cutting length, developed for the drilling of lead-free brass and high tech materials.
- C-TOP coating improves tool life in difficult to machine materials.
- DRYCUT coating improves tool life in non-ferrous materials in case of dry machining or with emulsion.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	○	◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.15	0.80	1.00	30	377730	416324	378235
0.16	0.80	1.00	30	377731	416325	378236
0.17	0.90	1.00	30	377732	416326	378237
0.18	0.90	1.00	30	377733	416327	378238
0.19	1.00	1.00	30	377734	416328	378239
0.20	1.00	1.00	30	377735	416329	378240
0.21	1.10	1.00	30	377736	416330	378241
0.22	1.10	1.00	30	377737	416331	378242
0.23	1.20	1.00	30	377738	416332	378243
0.24	1.20	1.00	30	377739	416333	378244
0.25	1.30	1.00	30	377740	416334	378245
0.26	1.30	1.00	30	377741	416335	378246
0.27	1.40	1.00	30	377742	416336	378247
0.28	1.40	1.00	30	377743	416337	378248
0.29	1.50	1.00	30	377744	416338	378249
0.30	1.50	1.00	30	377745	416339	378250
0.31	1.60	1.00	30	377746	416340	378251
0.32	1.60	1.00	30	377747	416341	378252
0.33	1.70	1.00	30	377748	416342	378253
0.34	1.70	1.00	30	377749	416343	378254
0.35	1.80	1.00	30	377750	416344	378255
0.36	1.80	1.00	30	377751	416345	378256
0.37	1.90	1.00	30	377752	416346	378257
0.38	1.90	1.00	30	377753	416347	378258
0.39	2.00	1.00	30	377754	416348	378259
0.40	2.00	1.00	30	377755	416349	378260
0.41	2.10	1.00	30	377756	416350	378261
0.42	2.10	1.00	30	377757	416351	378262
0.43	2.20	1.00	30	377758	416352	378263
0.44	2.20	1.00	30	377759	416353	378264

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.45	2.30	1.00	30	377760	416354	378265
0.46	2.30	1.00	30	377761	416355	378266
0.47	2.40	1.00	30	377762	416356	378267
0.48	2.40	1.00	30	377763	416357	378268
0.49	2.50	1.00	30	377764	416358	378269
0.50	2.50	1.00	30	377765	416359	378270
0.51	2.60	1.00	30	377766	416360	378271
0.52	2.60	1.00	30	377767	416361	378272
0.53	2.70	1.00	30	377768	416362	378273
0.54	2.70	1.00	30	377769	416363	378274
0.55	2.80	1.00	30	377770	416364	378275
0.56	2.80	1.00	30	377771	416365	378276
0.57	2.90	1.00	30	377772	416366	378277
0.58	2.90	1.00	30	377773	416367	378278
0.59	3.00	1.00	30	377774	416368	378279
0.60	3.00	1.00	30	377775	416369	378280
0.61	3.10	1.00	30	377776	416370	378281
0.62	3.10	1.00	30	377777	416371	378282
0.63	3.20	1.00	30	377778	416372	378283
0.64	3.20	1.00	30	377779	416373	378284
0.65	3.30	1.00	30	377780	416374	378285
0.66	3.30	1.00	30	377781	416375	378286
0.67	3.40	1.00	30	377782	416376	378287
0.68	3.40	1.00	30	377783	416377	378288
0.69	3.50	1.00	30	377784	416378	378289
0.70	3.50	1.00	30	377785	416379	378290
0.71	3.60	1.00	30	377786	416380	378291
0.72	3.60	1.00	30	377787	416381	378292
0.73	3.70	1.00	30	377788	416382	378293
0.74	3.70	1.00	30	377789	416383	378294

* for non-ferrous material

TWIST DRILLS
FOR UNLEADED BRASS

P.78 P.73 $D_1 \geq 0.5$

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.75	3.80	1.00	30	377790	416384	378295
0.76	3.80	1.00	30	377791	416385	378296
0.77	3.90	1.00	30	377792	416386	378297
0.78	3.90	1.00	30	377793	416387	378298
0.79	4.00	1.00	30	377794	416388	378299
0.80	4.00	1.50	30	377795	416389	378300
0.81	4.10	1.50	30	377796	416390	378301
0.82	4.10	1.50	30	377797	416391	378302
0.83	4.20	1.50	30	377798	416392	378303
0.84	4.20	1.50	30	377799	416393	378304
0.85	4.30	1.50	30	377800	416394	378305
0.86	4.30	1.50	30	377801	416395	378306
0.87	4.40	1.50	30	377802	416396	378307
0.88	4.40	1.50	30	377803	416397	378308
0.89	4.50	1.50	30	377804	416398	378309
0.90	4.50	1.50	30	377805	416399	378310
0.91	4.60	1.50	30	377806	416400	378311
0.92	4.60	1.50	30	377807	416401	378312
0.93	4.70	1.50	30	377808	416402	378313
0.94	4.70	1.50	30	377809	416403	378314
0.95	4.80	1.50	30	377810	416404	378315
0.96	4.80	1.50	30	377811	416405	378316
0.97	4.90	1.50	30	377812	416406	378317
0.98	4.90	1.50	30	377813	416407	378318
0.99	5.00	1.50	30	377814	416408	378319
1.00	5.00	1.50	30	377815	416409	378320
1.01	5.10	1.50	30	422878	423038	423198
1.02	5.10	1.50	30	422879	423039	423199
1.03	5.20	1.50	30	422880	423040	423200
1.04	5.20	1.50	30	422881	423041	423201
1.05	5.30	1.50	30	377816	416410	378321
1.06	5.30	1.50	30	422882	423042	423202
1.07	5.40	1.50	30	422883	423043	423203
1.08	5.40	1.50	30	422884	423044	423204
1.09	5.50	1.50	30	422885	423045	423205
1.10	5.50	1.50	30	377817	416411	378322
1.11	5.60	1.50	30	422886	423046	423206
1.12	5.60	1.50	30	422887	423047	423207
1.13	5.70	1.50	30	422888	423048	423208
1.14	5.70	1.50	30	422889	423049	423209
1.15	5.80	1.50	30	377818	416412	378323
1.16	5.80	1.50	30	422890	423050	423210
1.17	5.90	1.50	30	422891	423051	423211
1.18	5.90	1.50	30	422892	423052	423212

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
1.19	6.00	1.50	30	422893	423053	423213
1.20	6.00	1.50	30	377819	416413	378324
1.21	6.10	1.50	30	422894	423054	423214
1.22	6.10	1.50	30	422895	423055	423215
1.23	6.20	1.50	30	422896	423056	423216
1.24	6.20	1.50	30	422897	423057	423217
1.25	6.30	1.50	30	377820	416414	378325
1.26	6.30	1.50	30	422898	423058	423218
1.27	6.40	1.50	30	422899	423059	423219
1.28	6.40	1.50	30	422900	423060	423220
1.29	6.50	1.50	30	422901	423061	423221
1.30	6.50	1.50	30	377821	416415	378326
1.31	6.60	1.50	30	422902	423062	423222
1.32	6.60	1.50	30	422903	423063	423223
1.33	6.70	1.50	30	422904	423064	423224
1.34	6.70	1.50	30	422905	423065	423225
1.35	6.80	1.50	30	377822	416416	378327
1.36	6.80	1.50	30	422906	423066	423226
1.37	6.90	1.50	30	422907	423067	423227
1.38	6.90	1.50	30	422908	423068	423228
1.39	7.00	1.50	30	422909	423069	423229
1.40	7.00	1.50	30	377823	416417	378328
1.41	7.10	1.50	30	422910	423070	423230
1.42	7.10	1.50	30	422911	423071	423231
1.43	7.20	1.50	30	422912	423072	423232
1.44	7.20	1.50	30	422913	423073	423233
1.45	7.30	1.50	30	377824	416418	378329
1.46	7.30	1.50	30	422914	423074	423234
1.47	7.40	1.50	30	422915	423075	423235
1.48	7.40	1.50	30	422916	423076	423236
1.49	7.50	1.50	30	422917	423077	423237
1.50	7.50	2.00	32	377825	416419	378330
1.51	7.60	2.00	32	422918	423078	423238
1.52	7.60	2.00	32	422919	423079	423239
1.53	7.70	2.00	32	422920	423080	423240
1.54	7.70	2.00	32	422921	423081	423241
1.55	7.80	2.00	32	377826	416420	378331
1.56	7.80	2.00	32	422922	423082	423242
1.57	7.90	2.00	32	422923	423083	423243
1.58	7.90	2.00	32	422924	423084	423244
1.59	8.00	2.00	32	422925	423085	423245
1.60	8.00	2.00	32	377827	416421	378332
1.61	8.10	2.00	32	422926	423086	423246

* for non-ferrous material

DIXI 1137-5D

TWIST DRILLS FOR UNLEADED BRASS

P.78 P.73 $D_1 \geq 0.5$

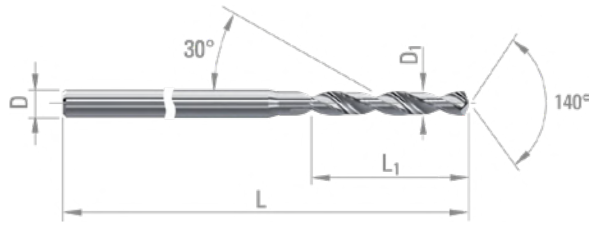
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
1.62	8.10	2	32	422927	423087	423247
1.63	8.20	2	32	422928	423088	423248
1.64	8.20	2	32	422929	423089	423249
1.65	8.30	2	32	377828	416422	378333
1.66	8.30	2	32	422930	423090	423250
1.67	8.40	2	32	422931	423091	423251
1.68	8.40	2	32	422932	423092	423252
1.69	8.50	2	32	422933	423093	423253
1.70	8.50	2	32	377829	416423	378334
1.71	8.60	2	32	422934	423094	423254
1.72	8.60	2	32	422935	423095	423255
1.73	8.70	2	32	422936	423096	423256
1.74	8.70	2	32	422937	423097	423257
1.75	8.80	2	32	377830	416424	378335
1.76	8.80	2	32	422938	423098	423258
1.77	8.90	2	32	422939	423099	423259
1.78	8.90	2	32	422940	423100	423260
1.79	9.00	2	32	422941	423101	423261
1.80	9.00	2	32	377831	416425	378336
1.81	9.10	2	32	422942	423102	423262
1.82	9.10	2	32	422943	423103	423263
1.83	9.20	2	32	422944	423104	423264
1.84	9.20	2	32	422945	423105	423265
1.85	9.30	2	32	377832	416426	378337
1.86	9.30	2	32	422946	423106	423266
1.87	9.40	2	32	422947	423107	423267
1.88	9.40	2	32	422948	423108	423268
1.89	9.50	2	32	422949	423109	423269
1.90	9.50	2	32	377833	416427	378338
1.91	9.60	2	32	422950	423110	423270
1.92	9.60	2	32	422951	423111	423271
1.93	9.70	2	32	422952	423112	423272
1.94	9.70	2	32	422953	423113	423273
1.95	9.80	2	32	377834	416428	378339
1.96	9.80	2	32	422954	423114	423274
1.97	9.90	2	32	422955	423115	423275
1.98	9.90	2	32	422956	423116	423276
1.99	10.00	2	32	422957	423117	423277
2.00	10.00	3	38	377835	416429	378340
2.10	10.50	3	38	377836	416430	378341
2.20	11.00	3	38	377837	416431	378342
2.30	11.50	3	38	377838	416432	378343
2.40	12.00	3	38	377839	416433	378344
2.50	12.50	3	38	377840	416434	378345
2.60	13.00	3	38	377841	416435	378346

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
2.70	13.50	3	38	377842	416436	378347
2.80	14.00	3	38	377843	416437	378348
2.90	14.50	3	38	377844	416438	378349
3.00	15.00	3	38	377845	416439	378350
3.10	16.00	4	60	415972	416440	416148
3.20	16.00	4	60	415973	416441	416149
3.30	17.00	4	60	415974	416442	416150
3.40	17.00	4	60	415975	416443	416151
3.50	18.00	4	60	415976	416444	416152
3.60	18.00	4	60	415977	416445	416153
3.70	19.00	4	60	415978	416446	416154
3.80	19.00	4	60	415979	416447	416155
3.90	20.00	4	60	415980	416448	416156
4.00	20.00	4	60	415981	416449	416157
4.10	21.00	6	75	415982	416450	416158
4.20	21.00	6	75	415983	416451	416159
4.30	22.00	6	75	415984	416452	416160
4.40	22.00	6	75	415985	416453	416161
4.50	23.00	6	75	415986	416454	416162
4.60	23.00	6	75	415987	416455	416163
4.70	24.00	6	75	415988	416456	416164
4.80	24.00	6	75	415989	416457	416165
4.90	25.00	6	75	415990	416458	416166
5.00	25.00	6	75	415991	416459	416167
5.10	26.00	6	75	415992	416460	416168
5.20	26.00	6	75	415993	416461	416169
5.30	27.00	6	75	415994	416462	416170
5.40	27.00	6	75	415995	416463	416171
5.50	28.00	6	75	415996	416464	416172
5.60	28.00	6	75	415997	416465	416173
5.70	29.00	6	75	415998	416466	416174
5.80	29.00	6	75	415999	416467	416175
5.90	30.00	6	75	416000	416468	416176
6.00	30.00	6	75	416001	416469	416177

* for non-ferrous material

DIXI 1137-8D

TWIST DRILLS FOR UNLEADED BRASS



P.78
P.73
$D_1 \geq 0.5$

- Self-centering twist drills with reinforced shank , 8xD_1 cutting length, developed for the drilling of lead-free brass and high tech materials.
- C-TOP coating improves tool life in difficult to machine materials.
- DRYCUT coating improves tool life in non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	○	◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.15	1.20	1.00	30	416002	416470	416178
0.16	1.30	1.00	30	416003	416471	416179
0.17	1.40	1.00	30	416004	416472	416180
0.18	1.50	1.00	30	416005	416473	416181
0.19	1.60	1.00	30	416006	416474	416182
0.20	1.60	1.00	30	416007	416475	416183
0.21	1.70	1.00	30	416008	416476	416184
0.22	1.80	1.00	30	416009	416477	416185
0.23	1.90	1.00	30	416010	416478	416186
0.24	2.00	1.00	30	416011	416479	416187
0.25	2.00	1.00	30	416012	416480	416188
0.26	2.10	1.00	30	416013	416481	416189
0.27	2.20	1.00	30	416014	416482	416190
0.28	2.30	1.00	30	416015	416483	416191
0.29	2.40	1.00	30	416016	416484	416192
0.30	2.40	1.00	30	416017	416485	416193
0.31	2.50	1.00	30	416018	416486	416194
0.32	2.60	1.00	30	416019	416487	416195
0.33	2.70	1.00	30	416020	416488	416196
0.34	2.80	1.00	30	416021	416489	416197
0.35	2.80	1.00	30	416022	416490	416198
0.36	2.90	1.00	30	416023	416491	416199
0.37	3.00	1.00	30	416024	416492	416200
0.38	3.10	1.00	30	416025	416493	416201
0.39	3.20	1.00	30	416026	416494	416202
0.40	3.20	1.00	30	416027	416495	416203
0.41	3.30	1.00	30	416028	416496	416204
0.42	3.40	1.00	30	416029	416497	416205
0.43	3.50	1.00	30	416030	416498	416206

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.44	3.60	1.00	30	416031	416499	416207
0.45	3.60	1.00	30	416032	416500	416208
0.46	3.70	1.00	30	416033	416501	416209
0.47	3.80	1.00	30	416034	416502	416210
0.48	3.90	1.00	30	416035	416503	416211
0.49	4.00	1.00	30	416036	416504	416212
0.50	4.00	1.00	30	416037	416505	416213
0.51	4.10	1.00	30	416038	416506	416214
0.52	4.20	1.00	30	416039	416507	416215
0.53	4.30	1.00	30	416040	416508	416216
0.54	4.40	1.00	30	416041	416509	416217
0.55	4.40	1.00	30	416042	416510	416218
0.56	4.50	1.00	30	416043	416511	416219
0.57	4.60	1.00	30	416044	416512	416220
0.58	4.70	1.00	30	416045	416513	416221
0.59	4.80	1.00	30	416046	416514	416222
0.60	4.80	1.00	30	416047	416515	416223
0.61	4.90	1.00	30	416048	416516	416224
0.62	5.00	1.00	30	416049	416517	416225
0.63	5.10	1.00	30	416050	416518	416226
0.64	5.20	1.00	30	416051	416519	416227
0.65	5.20	1.00	30	416052	416520	416228
0.66	5.30	1.00	30	416053	416521	416229
0.67	5.40	1.00	30	416054	416522	416230
0.68	5.50	1.00	30	416055	416523	416231
0.69	5.60	1.00	30	416056	416524	416232
0.70	5.60	1.00	30	416057	416525	416233
0.71	5.70	1.00	30	416058	416526	416234
0.72	5.80	1.00	30	416059	416527	416235

* for non-ferrous material

DIXI 1137-8D

TWIST DRILLS
FOR UNLEADED BRASS

P.78

P.73

$D_1 \geq 0.5$

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
0.73	5.90	1.00	30	416060	416528	416236
0.74	6.00	1.00	30	416061	416529	416237
0.75	6.00	1.00	30	416062	416530	416238
0.76	6.10	1.00	30	416063	416531	416239
0.77	6.20	1.00	30	416064	416532	416240
0.78	6.30	1.00	30	416065	416533	416241
0.79	6.40	1.00	30	416066	416534	416242
0.80	6.40	1.50	30	416067	416535	416243
0.81	6.50	1.50	30	416068	416536	416244
0.82	6.60	1.50	30	416069	416537	416245
0.83	6.70	1.50	30	416070	416538	416246
0.84	6.80	1.50	30	416071	416539	416247
0.85	6.80	1.50	30	416072	416540	416248
0.86	6.90	1.50	30	416073	416541	416249
0.87	7.00	1.50	30	416074	416542	416250
0.88	7.10	1.50	30	416075	416543	416251
0.89	7.20	1.50	30	416076	416544	416252
0.90	7.20	1.50	30	416077	416545	416253
0.91	7.30	1.50	30	416078	416546	416254
0.92	7.40	1.50	30	416079	416547	416255
0.93	7.50	1.50	30	416080	416548	416256
0.94	7.60	1.50	30	416081	416549	416257
0.95	7.60	1.50	30	416082	416550	416258
0.96	7.70	1.50	30	416083	416551	416259
0.97	7.80	1.50	30	416084	416552	416260
0.98	7.90	1.50	30	416085	416553	416261
0.99	8.00	1.50	30	416086	416554	416262
1.00	8.00	1.50	30	416087	416555	416263
1.01	8.10	1.50	38	422958	423118	423278
1.02	8.20	1.50	38	422959	423119	423279
1.03	8.30	1.50	38	422960	423120	423280
1.04	8.40	1.50	38	422961	423121	423281
1.05	8.40	1.50	38	416088	416556	416264
1.06	8.50	1.50	38	422962	423122	423282
1.07	8.60	1.50	38	422963	423123	423283
1.08	8.70	1.50	38	422964	423124	423284
1.09	8.80	1.50	38	422965	423125	423285
1.10	8.80	1.50	38	416089	416557	416265
1.11	8.90	1.50	38	422966	423126	423286
1.12	9.00	1.50	38	422967	423127	423287
1.13	9.10	1.50	38	422968	423128	423288
1.14	9.20	1.50	38	422969	423129	423289
1.15	9.20	1.50	38	416090	416558	416266
1.16	9.30	1.50	38	422970	423130	423290

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
1.17	9.40	1.50	38	422971	423131	423291
1.18	9.50	1.50	38	422972	423132	423292
1.19	9.60	1.50	38	422973	423133	423293
1.20	9.60	1.50	38	416091	416559	416267
1.21	9.70	1.50	38	422974	423134	423294
1.22	9.80	1.50	38	422975	423135	423295
1.23	9.90	1.50	38	422976	423136	423296
1.24	10.00	1.50	38	422977	423137	423297
1.25	10.00	1.50	38	416092	416560	416268
1.26	10.10	1.50	38	422978	423138	423298
1.27	10.20	1.50	38	422979	423139	423299
1.28	10.30	1.50	38	422980	423140	423300
1.29	10.40	1.50	38	422981	423141	423301
1.30	10.40	1.50	38	416093	416561	416269
1.31	10.50	1.50	38	422982	423142	423302
1.32	10.60	1.50	38	422983	423143	423303
1.33	10.70	1.50	38	422984	423144	423304
1.34	10.80	1.50	38	422985	423145	423305
1.35	10.80	1.50	38	416094	416562	416270
1.36	10.90	1.50	38	422986	423146	423306
1.37	11.00	1.50	38	422987	423147	423307
1.38	11.10	1.50	38	422988	423148	423308
1.39	11.20	1.50	38	422989	423149	423309
1.40	11.20	1.50	38	416095	416563	416271
1.41	11.30	1.50	38	422990	423150	423310
1.42	11.40	1.50	38	422991	423151	423311
1.43	11.50	1.50	38	422992	423152	423312
1.44	11.60	1.50	38	422993	423153	423313
1.45	11.60	1.50	38	416096	416564	416272
1.46	11.70	1.50	38	422994	423154	423314
1.47	11.80	1.50	38	422995	423155	423315
1.48	11.90	1.50	38	422996	423156	423316
1.49	12.00	1.50	38	422997	423157	423317
1.50	12.00	2.00	38	416097	416565	416273
1.51	12.10	2.00	38	422998	423158	423318
1.52	12.20	2.00	38	422999	423159	423319
1.53	12.30	2.00	38	423000	423160	423320
1.54	12.40	2.00	38	423001	423161	423321
1.55	12.40	2.00	38	416098	416566	416274
1.56	12.50	2.00	38	423002	423162	423322
1.57	12.60	2.00	38	423003	423163	423323
1.58	12.70	2.00	38	423004	423164	423324
1.59	12.80	2.00	38	423005	423165	423325
1.60	12.80	2.00	38	416099	416567	416275

* for non-ferrous material

DIXI 1137-8D

TWIST DRILLS FOR UNLEADED BRASS

P.78 P.73 $D_1 \geq 0.5$

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
1.61	12.9	2.0	38	423006	423166	423326
1.62	13.0	2.0	38	423007	423167	423327
1.63	13.1	2.0	38	423008	423168	423328
1.64	13.2	2.0	38	423009	423169	423329
1.65	13.2	2.0	38	416100	416568	416276
1.66	13.3	2.0	38	423010	423170	423330
1.67	13.4	2.0	38	423011	423171	423331
1.68	13.5	2.0	38	423012	423172	423332
1.69	13.6	2.0	38	423013	423173	423333
1.70	13.6	2.0	38	416101	416569	416277
1.71	13.7	2.0	38	423014	423174	423334
1.72	13.8	2.0	38	423015	423175	423335
1.73	13.9	2.0	38	423016	423176	423336
1.74	14.0	2.0	38	423017	423177	423337
1.75	14.0	2.0	38	416102	416570	416278
1.76	14.1	2.0	38	423018	423178	423338
1.77	14.2	2.0	38	423019	423179	423339
1.78	14.3	2.0	38	423020	423180	423340
1.79	14.4	2.0	38	423021	423181	423341
1.80	14.4	2.0	38	416103	416571	416279
1.81	14.5	2.0	38	423022	423182	423342
1.82	14.6	2.0	38	423023	423183	423343
1.83	14.7	2.0	38	423024	423184	423344
1.84	14.8	2.0	38	423025	423185	423345
1.85	14.8	2.0	38	416104	416572	416280
1.86	14.9	2.0	38	423026	423186	423346
1.87	15.0	2.0	38	423027	423187	423347
1.88	15.1	2.0	38	423028	423188	423348
1.89	15.2	2.0	38	423029	423189	423349
1.90	15.2	2.0	38	416105	416573	416281
1.91	15.3	2.0	38	423030	423190	423350
1.92	15.4	2.0	38	423031	423191	423351
1.93	15.5	2.0	38	423032	423192	423352
1.94	15.6	2.0	38	423033	423193	423353
1.95	15.6	2.0	38	416106	416574	416282
1.96	15.7	2.0	38	423034	423194	423354
1.97	15.8	2.0	38	423035	423195	423355
1.98	15.9	2.0	38	423036	423196	423356
1.99	16.0	2.0	38	423037	423197	423357
2.00	16.0	3.0	50	416107	416575	416283
2.10	16.8	3.0	50	416108	416576	416284
2.20	17.6	3.0	50	416109	416577	416285
2.30	18.4	3.0	50	416110	416578	416286
2.40	19.2	3.0	50	416111	416579	416287
2.50	20.0	3.0	50	416112	416580	416288

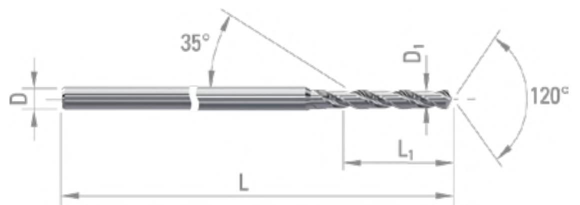
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
2.60	20.8	3.0	50	416113	416581	416289
2.70	21.6	3.0	50	416114	416582	416290
2.80	22.4	3.0	50	416115	416583	416291
2.90	23.2	3.0	50	416116	416584	416292
3.00	24.0	3.0	50	416117	416585	416293
3.10	25.0	4.0	75	416118	416586	416294
3.20	26.0	4.0	75	416119	416587	416295
3.30	27.0	4.0	75	416120	416588	416296
3.40	28.0	4.0	75	416121	416589	416297
3.50	28.0	4.0	75	416122	416590	416298
3.60	29.0	4.0	75	416123	416591	416299
3.70	30.0	4.0	75	416124	416592	416300
3.80	31.0	4.0	75	416125	416593	416301
3.90	32.0	4.0	75	416126	416594	416302
4.00	32.0	4.0	75	416127	416595	416303
4.10	33.0	6.0	100	416128	416596	416304
4.20	34.0	6.0	100	416129	416597	416305
4.30	35.0	6.0	100	416130	416598	416306
4.40	36.0	6.0	100	416131	416599	416307
4.50	36.0	6.0	100	416132	416600	416308
4.60	37.0	6.0	100	416133	416601	416309
4.70	38.0	6.0	100	416134	416602	416310
4.80	39.0	6.0	100	416135	416603	416311
4.90	40.0	6.0	100	416136	416604	416312
5.00	40.0	6.0	100	416137	416605	416313
5.10	41.0	6.0	100	416138	416606	416314
5.20	42.0	6.0	100	416139	416607	416315
5.30	43.0	6.0	100	416140	416608	416316
5.40	44.0	6.0	100	416141	416609	416317
5.50	44.0	6.0	100	416142	416610	416318
5.60	45.0	6.0	100	416143	416611	416319
5.70	46.0	6.0	100	416144	416612	416320
5.80	47.0	6.0	100	416145	416613	416321
5.90	48.0	6.0	100	416146	416614	416322
6.00	48.0	6.0	100	416147	416615	416323

* for non-ferrous material

DIXI 1134 Z = 2

P.80 P.73 DIN 1899

TWIST DRILLS REINFORCED SHANK



- Twist drills with reinforced shank, according to DIN 1899, developed for the drilling of long chip materials.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	○	○			○	○		◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.50	4.00	1.00	30	21228	57565
0.55	4.50	1.00	30	39029	57566
0.60	4.50	1.00	30	176	57567
0.65	5.00	1.00	30	39030	57568
0.70	5.60	1.00	30	178	55679
0.75	5.60	1.00	30	39031	55681
0.80	6.30	1.50	30	180	55683
0.81	6.30	1.50	30	957990	957991
0.82	6.30	1.50	30	957040	957994
0.83	6.30	1.50	30	45775	957802
0.84	6.30	1.50	30	45776	957804
0.85	6.30	1.50	30	181	55685
0.86	7.10	1.50	30	957995	957996
0.87	7.10	1.50	30	957998	957999
0.88	7.10	1.50	30	958001	958002
0.89	7.10	1.50	30	56626	957806
0.90	7.10	1.50	30	182	55687
0.91	7.10	1.50	30	958006	958007
0.92	7.10	1.50	30	957949	958004
0.93	7.10	1.50	30	957042	957808
0.94	7.10	1.50	30	957043	957810
0.95	7.10	1.50	30	39032	55689
0.96	9.00	1.50	30	49329	957812
0.97	9.00	1.50	30	957045	957829
0.98	9.00	1.50	30	43498	957831
0.99	9.00	1.50	30	61003	957834
1.00	9.00	1.50	30	184	55691
1.01	9.00	1.50	30	48709	957865
1.02	9.00	1.50	30	58334	957867

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.03	9.00	1.50	30	958010	958011
1.04	9.00	1.50	30	958013	958015
1.05	9.00	1.50	30	39033	55757
1.06	9.00	1.50	30	958017	958018
1.07	9.00	1.50	30	58335	957879
1.08	9.00	1.50	30	57722	957884
1.09	9.00	1.50	30	958020	958021
1.10	9.00	1.50	30	39034	55759
1.11	9.00	1.50	30	45752	957887
1.12	9.00	1.50	30	62921	954726
1.13	9.00	1.50	30	957889	954727
1.14	9.00	1.50	30	958023	958024
1.15	9.00	1.50	30	39035	55761
1.16	10.00	1.50	30	50299	957893
1.17	10.00	1.50	30	52449	957895
1.18	10.00	1.50	30	58333	957897
1.19	10.00	1.50	30	958026	958027
1.20	10.00	1.50	30	39036	55762
1.21	10.00	1.50	30	50233	957899
1.22	10.00	1.50	30	59610	957901
1.23	10.00	1.50	30	46797	957902
1.24	10.00	1.50	30	958029	958030
1.25	10.00	1.50	30	37037	55764
1.26	10.00	1.50	30	65858	50057
1.27	10.00	1.50	30	50558	957912
1.28	10.00	1.50	30	958032	958033
1.29	10.00	1.50	30	958035	958037
1.30	10.00	1.50	30	187	55766
1.31	11.20	1.50	30	958199	958200

TWIST DRILLS
REINFORCED SHANK

P.80 P.73 DIN 1899

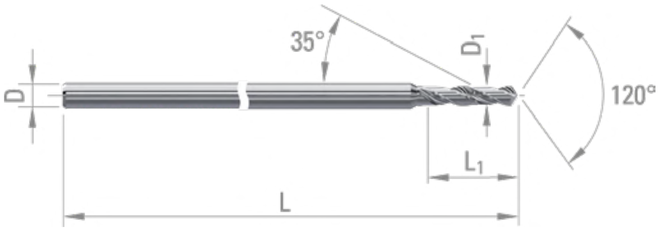
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.32	11.20	1.50	30	50068	957914
1.33	11.20	1.50	30	44387	957916
1.34	11.20	1.50	30	53518	958203
1.35	11.20	1.50	30	39038	55768
1.36	11.20	1.50	30	58147	957921
1.37	11.20	1.50	30	958205	958206
1.38	11.20	1.50	30	958208	958209
1.39	11.20	1.50	30	958211	958212
1.40	11.20	1.50	30	188	55777
1.45	11.20	1.50	30	39039	55779
1.50	11.20	2.00	38	39040	55780
1.55	12.00	2.00	38	52209	55782
1.60	12.00	2.00	38	52210	55786
1.65	12.00	2.00	38	52211	54986
1.70	12.00	2.00	38	191	55789
1.75	12.00	2.00	38	52212	55791
1.80	12.00	2.00	38	49082	55793
1.85	12.00	2.00	38	52213	55795
1.90	12.00	2.00	38	193	55797
1.95	12.00	2.00	38	52214	55799

DIXI 1135

Z = 2

P.80 P.73

TWIST DRILLS REINFORCED SHANK



- Twist drills with reinforced shank developed for the drilling of long chip materials.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎				○	○		◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.20	1.50	1.50	30	950342	950234
0.21	1.50	1.50	30	950235	950248
0.22	1.50	1.50	30	950236	950249
0.23	1.50	1.50	30	950240	950250
0.24	1.50	1.50	30	950241	950251
0.25	2.00	1.50	30	950253	950278
0.26	2.00	1.50	30	950254	950279
0.27	2.00	1.50	30	950255	950280
0.28	2.00	1.50	30	950256	950281
0.29	2.00	1.50	30	950084	950282
0.30	2.00	1.50	30	950276	950283
0.31	2.50	1.50	30	950284	950299
0.32	2.50	1.50	30	950285	950301
0.33	2.50	1.50	30	950286	950302
0.34	2.50	1.50	30	950287	950303
0.35	2.50	1.50	30	950288	950304
0.36	2.50	1.50	30	950085	950305
0.37	2.50	1.50	30	950289	950306
0.38	2.50	1.50	30	950290	950307
0.39	3.00	1.50	30	950308	950330
0.40	3.00	1.50	30	950309	950331
0.41	3.00	1.50	30	950310	950332
0.42	3.00	1.50	30	950311	950333
0.43	3.00	1.50	30	950312	950334
0.44	3.00	1.50	30	950313	950335
0.45	3.00	1.50	30	950314	950336
0.46	3.00	1.50	30	950315	950337
0.47	3.00	1.50	30	950316	950338
0.48	3.00	1.50	30	950317	950339

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.49	3.00	1.50	30	950318	950340
0.50	4.00	1.50	30	60922	61017
0.51	4.00	1.50	30	60923	61018
0.52	4.00	1.50	30	60924	61020
0.53	4.00	1.50	30	60925	61021
0.54	4.00	1.50	30	60926	61022
0.55	4.00	1.50	30	60927	61023
0.56	4.00	1.50	30	60928	61024
0.57	4.00	1.50	30	60929	61025
0.58	4.00	1.50	30	60930	61026
0.59	4.00	1.50	30	60931	61027
0.60	4.50	1.50	30	60932	61028
0.61	4.50	1.50	30	60933	61029
0.62	4.50	1.50	30	60934	61030
0.63	4.50	1.50	30	60935	61031
0.64	4.50	1.50	30	60936	61032
0.65	4.50	1.50	30	60937	61033
0.66	4.50	1.50	30	60938	61034
0.67	4.50	1.50	30	60939	61035
0.68	4.50	1.50	30	56623	61036
0.69	4.50	1.50	30	60940	61037
0.70	4.50	1.50	30	56364	57571
0.71	4.50	1.50	30	56365	57573
0.72	4.50	1.50	30	56366	57575
0.73	4.50	1.50	30	56367	57577
0.74	4.50	1.50	30	56368	57587
0.75	4.50	1.50	30	56369	57589
0.76	4.50	1.50	30	56370	57579
0.77	4.50	1.50	30	56371	57581

DIXI 1135

TWIST DRILLS
REINFORCED SHANK

P.80 P.73

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.78	4.50	1.50	30	56372	57583
0.79	4.50	1.50	30	56373	57585
0.80	5.00	1.50	30	52140	55801
0.81	5.00	1.50	30	52141	55803
0.82	5.00	1.50	30	52142	55805
0.83	5.00	1.50	30	52143	55807
0.84	5.00	1.50	30	52144	55809
0.85	5.00	1.50	30	52145	55811
0.86	5.00	1.50	30	52146	55813
0.87	5.00	1.50	30	52147	55815
0.88	5.00	1.50	30	52148	55817
0.89	5.00	1.50	30	52149	55819
0.90	5.00	1.50	30	52150	55821
0.91	5.00	1.50	30	52151	55823
0.92	5.00	1.50	30	52152	55825
0.93	5.00	1.50	30	52153	55827
0.94	5.00	1.50	30	52154	55829
0.95	5.00	1.50	30	52155	55831
0.96	5.00	1.50	30	52156	55833
0.97	5.00	1.50	30	52157	55835
0.98	5.00	1.50	30	52158	55837
0.99	5.00	1.50	30	52159	55839
1.00	5.00	1.50	30	52160	55841
1.01	5.00	1.50	30	52161	55842
1.02	5.00	1.50	30	52162	55844
1.03	5.00	1.50	30	52163	55848
1.04	5.00	1.50	30	52164	55850
1.05	5.00	1.50	30	52165	55852
1.06	5.00	1.50	30	52166	55854
1.07	5.00	1.50	30	52167	55856
1.08	5.00	1.50	30	52168	55858
1.09	5.00	1.50	30	52169	55860
1.10	5.00	1.50	30	52170	55861
1.11	5.00	1.50	30	52171	55863
1.12	5.00	1.50	30	52172	55865
1.13	5.00	1.50	30	52173	55871
1.14	5.00	1.50	30	52174	55872
1.15	5.00	1.50	30	52175	55873
1.16	5.00	1.50	30	52176	55875
1.17	5.00	1.50	30	52177	55877
1.18	5.00	1.50	30	52178	55878
1.19	5.00	1.50	30	52179	55893
1.20	6.00	1.50	30	52180	55880
1.21	6.00	1.50	30	52181	55882
1.22	6.00	1.50	30	52182	55884
1.23	6.00	1.50	30	52183	55886
1.24	6.00	1.50	30	52184	55896
1.25	6.00	1.50	30	52185	55898
1.26	6.00	1.50	30	52186	55900
1.27	6.00	1.50	30	52187	55902
1.28	6.00	1.50	30	52188	55904
1.29	6.00	1.50	30	52189	55906
1.30	6.00	1.50	30	52190	55908
1.31	6.00	1.50	30	52191	55910
1.32	6.00	1.50	30	52192	55912
1.33	6.00	1.50	30	52193	55914
1.34	6.00	1.50	30	52194	55916
1.35	6.00	1.50	30	52195	55918
1.36	6.00	1.50	30	52196	55920
1.37	6.00	1.50	30	52197	55922
1.38	6.00	1.50	30	52198	55924
1.39	6.00	1.50	30	52199	55926
1.40	6.00	1.50	30	52200	55929
1.41	6.00	1.50	30	52201	55932
1.42	6.00	1.50	30	52202	55934
1.43	6.00	1.50	30	52203	55936
1.44	6.00	1.50	30	52204	55938
1.45	6.00	1.50	30	52205	55940
1.46	6.00	1.50	30	52206	55942
1.47	6.00	1.50	30	52207	55944
1.48	6.00	1.50	30	52208	55946
1.49	6.00	1.50	30	52216	55948
1.50	7.00	2.00	38	56431	57591
1.51	7.00	2.00	38	56374	57593
1.52	7.00	2.00	38	56375	57595
1.53	7.00	2.00	38	56376	57597
1.54	7.00	2.00	38	56377	57599
1.55	7.00	2.00	38	56378	57601
1.56	7.00	2.00	38	56379	57603
1.57	7.00	2.00	38	56380	57605
1.58	7.00	2.00	38	56381	57607
1.59	7.00	2.00	38	56382	57609
1.60	7.00	2.00	38	56383	57611
1.61	7.00	2.00	38	56384	57613
1.62	7.00	2.00	38	56385	57615
1.63	7.00	2.00	38	56386	57617
1.64	7.00	2.00	38	56387	57619
1.65	7.00	2.00	38	56388	57621
1.66	7.00	2.00	38	56389	57623
1.67	7.00	2.00	38	56390	57625
1.68	7.00	2.00	38	56391	57627

DIXI 1135

TWIST DRILLS
REINFORCED SHANK

P.80 P.73

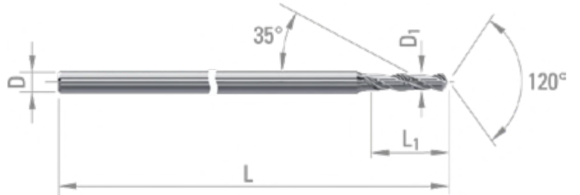
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.69	7.00	2.00	38	56392	57629
1.70	7.00	2.00	38	56393	57631
1.71	7.00	2.00	38	56394	57633
1.72	7.00	2.00	38	56395	57635
1.73	7.00	2.00	38	56396	57637
1.74	7.00	2.00	38	56397	57639
1.75	7.00	2.00	38	56398	57641
1.76	8.00	2.00	38	56399	57643
1.77	8.00	2.00	38	56400	57645
1.78	8.00	2.00	38	56401	57647
1.79	8.00	2.00	38	56402	57649
1.80	8.00	2.00	38	56403	57651
1.81	8.00	2.00	38	56404	57653
1.82	8.00	2.00	38	56405	57655
1.83	8.00	2.00	38	56406	57657
1.84	8.00	2.00	38	56407	57659
1.85	8.00	2.00	38	56408	57661
1.86	8.00	2.00	38	56409	57663
1.87	8.00	2.00	38	56410	57665
1.88	8.00	2.00	38	56411	57667
1.89	8.00	2.00	38	56412	57669
1.90	8.00	2.00	38	56413	57671
1.91	8.00	2.00	38	56414	57673
1.92	8.00	2.00	38	56415	57675
1.93	8.00	2.00	38	56416	57677
1.94	8.00	2.00	38	56417	57679
1.95	8.00	2.00	38	56418	57681
1.96	8.00	2.00	38	56419	57683
1.97	8.00	2.00	38	56420	57685
1.98	8.00	2.00	38	56421	57687
1.99	8.00	2.00	38	56422	57689
2.00	9.00	2.50	43	951030	951165
2.01	9.00	2.50	43	951034	951166
2.02	9.00	2.50	43	951035	951167
2.03	9.00	2.50	43	951036	951168
2.04	9.00	2.50	43	951039	951169
2.05	9.00	2.50	43	59122	951170
2.06	9.00	2.50	43	951040	951171
2.07	9.00	2.50	43	951041	951172
2.08	9.00	2.50	43	951042	951173
2.09	9.00	2.50	43	951043	951214
2.10	9.00	2.50	43	951058	951215
2.11	9.00	2.50	43	951059	951216
2.12	9.00	2.50	43	951060	951217
2.13	9.00	2.50	43	951061	951218
2.14	9.00	2.50	43	951062	951219
2.15	9.00	2.50	43	951063	951220
2.16	9.00	2.50	43	951064	951621
2.17	9.00	2.50	43	951065	951622
2.18	9.00	2.50	43	951066	951624
2.19	9.00	2.50	43	951067	951625
2.20	9.00	2.50	43	951068	951626
2.21	9.00	2.50	43	951069	951627
2.22	9.00	2.50	43	951070	951628
2.23	9.00	2.50	43	951071	951629
2.24	9.00	2.50	43	951072	951630
2.25	9.00	2.50	43	951073	951631
2.26	9.00	2.50	43	951074	951632
2.27	9.00	2.50	43	951075	951633
2.28	9.00	2.50	43	951076	951634
2.29	9.00	2.50	43	951077	951636
2.30	9.00	2.50	43	951078	951637
2.31	9.00	2.50	43	951079	951638
2.32	9.00	2.50	43	951080	951639
2.33	9.00	2.50	43	951081	951640
2.34	9.00	2.50	43	951082	951641
2.35	9.00	2.50	43	951083	951642
2.36	9.00	2.50	43	951084	951643
2.37	9.00	2.50	43	951085	951644
2.38	9.00	2.50	43	951086	951645
2.39	9.00	2.50	43	951087	951646
2.40	9.00	2.50	43	951089	951647
2.41	9.00	2.50	43	951090	951648
2.42	9.00	2.50	43	951091	951649
2.43	9.00	2.50	43	951092	951650
2.44	9.00	2.50	43	951093	951651
2.45	9.00	2.50	43	951094	951652
2.46	9.00	2.50	43	951095	951653
2.47	9.00	2.50	43	951096	951654
2.48	9.00	2.50	43	951097	951655
2.49	9.00	2.50	43	951098	951656

DIXI 1136

Z = 2

P.80 P.73

TWISTS DRILLS REINFORCED SHANK



- Twist drills with reinforced shank developed for the drilling of long chip materials.
- The diameter tolerance is 0/+4 µm.
- DICUT coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎				○	○		◎	◎				

D_1 0/+0.004	L_1	D_{h5}	L	CARBIDE	DICUT
0.20	1.50	1.50	30	990662	990642
0.21	1.50	1.50	30	990643	990676
0.22	1.50	1.50	30	990644	990677
0.23	1.50	1.50	30	990674	990678
0.24	1.50	1.50	30	990675	990679
0.25	2.00	1.50	30	990680	990659
0.26	2.00	1.50	30	990681	990660
0.27	2.00	1.50	30	990682	990663
0.28	2.00	1.50	30	990683	990664
0.29	2.00	1.50	30	990631	990665
0.30	2.00	1.50	30	990658	990666
0.31	2.50	1.50	30	990667	990645
0.32	2.50	1.50	30	990668	990646
0.33	2.50	1.50	30	990669	990647
0.34	2.50	1.50	30	990670	990648
0.35	2.50	1.50	30	990671	990649
0.36	2.50	1.50	30	990632	990650
0.37	2.50	1.50	30	990672	990651
0.38	2.50	1.50	30	990673	990652
0.39	3.00	1.50	30	990653	990633
0.40	3.00	1.50	30	990654	990634
0.41	3.00	1.50	30	990655	990635
0.42	3.00	1.50	30	990656	990636
0.43	3.00	1.50	30	990684	990637
0.44	3.00	1.50	30	990685	990638
0.45	3.00	1.50	30	990686	990639
0.46	3.00	1.50	30	990687	990640
0.47	3.00	1.50	30	990688	990641
0.48	3.00	1.50	30	990689	990657

D_1 0/+0.004	L_1	D_{h5}	L	CARBIDE	DICUT
0.49	3.00	1.50	30	990690	990661
0.50	4.00	1.50	30	990616	990605
0.51	4.00	1.50	30	990617	990606
0.52	4.00	1.50	30	990618	990607
0.53	4.00	1.50	30	990619	990608
0.54	4.00	1.50	30	990620	990609
0.55	4.00	1.50	30	990621	990610
0.56	4.00	1.50	30	990622	990630
0.57	4.00	1.50	30	990623	990592
0.58	4.00	1.50	30	990624	990593
0.59	4.00	1.50	30	990625	990594
0.60	4.50	1.50	30	990626	990595
0.61	4.50	1.50	30	990627	990596
0.62	4.50	1.50	30	990628	990597
0.63	4.50	1.50	30	990629	990598
0.64	4.50	1.50	30	990599	990604
0.65	4.50	1.50	30	990600	990612
0.66	4.50	1.50	30	990601	990613
0.67	4.50	1.50	30	990602	990614
0.68	4.50	1.50	30	990440	990615
0.69	4.50	1.50	30	990603	990611
0.70	4.50	1.50	30	990523	990576
0.71	4.50	1.50	30	990524	990577
0.72	4.50	1.50	30	990525	990578
0.73	4.50	1.50	30	990526	990579
0.74	4.50	1.50	30	990527	990581
0.75	4.50	1.50	30	990528	990582
0.76	4.50	1.50	30	990529	990588
0.77	4.50	1.50	30	990530	990589

DIXI 1136

Z = 2

TWIST DRILLS
REINFORCED SHANK

P.80 P.73

$D_{1\ 0/+0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
0.78	4.50	1.50	30	990531	990590
0.79	4.50	1.50	30	990532	990591
0.80	5.00	1.50	30	990426	990485
0.81	5.00	1.50	30	990410	990550
0.82	5.00	1.50	30	990411	990551
0.83	5.00	1.50	30	990412	990552
0.84	5.00	1.50	30	990413	990470
0.85	5.00	1.50	30	990414	990471
0.86	5.00	1.50	30	990415	990472
0.87	5.00	1.50	30	990416	990473
0.88	5.00	1.50	30	990417	990504
0.89	5.00	1.50	30	990418	990505
0.90	5.00	1.50	30	990419	990506
0.91	5.00	1.50	30	990420	990507
0.92	5.00	1.50	30	990421	990508
0.93	5.00	1.50	30	990422	990509
0.94	5.00	1.50	30	990423	990510
0.95	5.00	1.50	30	990424	990511
0.96	5.00	1.50	30	990425	990512
0.97	5.00	1.50	30	990444	990474
0.98	5.00	1.50	30	990445	990475
0.99	5.00	1.50	30	990446	990476
1.00	5.00	1.50	30	990447	990477
1.01	5.00	1.50	30	990448	990478
1.02	5.00	1.50	30	990339	990479
1.03	5.00	1.50	30	990340	990480
1.04	5.00	1.50	30	990341	990543
1.05	5.00	1.50	30	990441	990544
1.06	5.00	1.50	30	990442	990449
1.07	5.00	1.50	30	990443	990488
1.08	5.00	1.50	30	990427	990489
1.09	5.00	1.50	30	990428	990490
1.10	5.00	1.50	30	990429	990491
1.11	5.00	1.50	30	990430	990492
1.12	5.00	1.50	30	990431	990493
1.13	5.00	1.50	30	990432	990494
1.14	5.00	1.50	30	990433	990495
1.15	5.00	1.50	30	990434	990496
1.16	5.00	1.50	30	990435	990497
1.17	5.00	1.50	30	990436	990498
1.18	5.00	1.50	30	990437	990499
1.19	5.00	1.50	30	990438	990466
1.20	6.00	1.50	30	990439	990500
1.21	6.00	1.50	30	990342	990371
1.22	6.00	1.50	30	990343	990372
1.23	6.00	1.50	30	990344	990373

$D_{1\ 0/+0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.24	6.00	1.50	30	990345	990517
1.25	6.00	1.50	30	990346	990518
1.26	6.00	1.50	30	990347	990368
1.27	6.00	1.50	30	990348	990369
1.28	6.00	1.50	30	990349	990370
1.29	6.00	1.50	30	990350	990458
1.30	6.00	1.50	30	990351	990459
1.31	6.00	1.50	30	990352	990460
1.32	6.00	1.50	30	990353	990461
1.33	6.00	1.50	30	990354	990462
1.34	6.00	1.50	30	990355	990463
1.35	6.00	1.50	30	990356	990464
1.36	6.00	1.50	30	990357	990465
1.37	6.00	1.50	30	990358	990467
1.38	6.00	1.50	30	990359	990468
1.39	6.00	1.50	30	990360	990469
1.40	6.00	1.50	30	990361	990393
1.41	6.00	1.50	30	990362	990401
1.42	6.00	1.50	30	990363	990402
1.43	6.00	1.50	30	990364	990403
1.44	6.00	1.50	30	990365	990404
1.45	6.00	1.50	30	990366	990405
1.46	6.00	1.50	30	990367	990406
1.47	6.00	1.50	30	990331	990407
1.48	6.00	1.50	30	990332	990408
1.49	6.00	1.50	30	990333	990409
1.50	7.00	2.00	38	990400	990583
1.51	7.00	2.00	38	990533	990584
1.52	7.00	2.00	38	990534	990560
1.53	7.00	2.00	38	990535	990561
1.54	7.00	2.00	38	990536	990481
1.55	7.00	2.00	38	990537	990482
1.56	7.00	2.00	38	990538	990483
1.57	7.00	2.00	38	990539	990484
1.58	7.00	2.00	38	990540	990501
1.59	7.00	2.00	38	990541	990502
1.60	7.00	2.00	38	990542	990503
1.61	7.00	2.00	38	990545	990486
1.62	7.00	2.00	38	990546	990487
1.63	7.00	2.00	38	990547	990513
1.64	7.00	2.00	38	990548	990514
1.65	7.00	2.00	38	990549	990515
1.66	7.00	2.00	38	990519	990516
1.67	7.00	2.00	38	990520	990562
1.68	7.00	2.00	38	990521	990563
1.69	7.00	2.00	38	990522	990564

P.80 P.73

TWIST DRILLS
REINFORCED SHANK

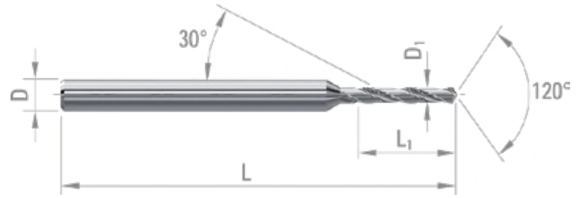
$D_{1\ 0/+0.004}$	L_1	D_{h5}	L	CARBIDE	DICUT
1.70	7.00	2.00	38	990374	990565
1.71	7.00	2.00	38	990375	990585
1.72	7.00	2.00	38	990376	990586
1.73	7.00	2.00	38	990377	990587
1.74	7.00	2.00	38	990378	990553
1.75	7.00	2.00	38	990394	990554
1.76	8.00	2.00	38	990395	990555
1.77	8.00	2.00	38	990396	990556
1.78	8.00	2.00	38	990397	990557
1.79	8.00	2.00	38	990398	990558
1.80	8.00	2.00	38	990399	990559
1.81	8.00	2.00	38	990379	990566
1.82	8.00	2.00	38	990380	990567
1.83	8.00	2.00	38	990381	990568
1.84	8.00	2.00	38	990334	990569
1.85	8.00	2.00	38	990335	990570
1.86	8.00	2.00	38	990336	990571
1.87	8.00	2.00	38	990337	990572
1.88	8.00	2.00	38	990338	990573
1.89	8.00	2.00	38	990382	990574
1.90	8.00	2.00	38	990383	990575
1.91	8.00	2.00	38	990384	990450
1.92	8.00	2.00	38	990385	990451
1.93	8.00	2.00	38	990386	990452
1.94	8.00	2.00	38	990387	990453
1.95	8.00	2.00	38	990388	990454
1.96	8.00	2.00	38	990389	990455
1.97	8.00	2.00	38	990390	990456
1.98	8.00	2.00	38	990391	990457
1.99	8.00	2.00	38	990392	990580

DIXI 1138

Z = 2

P.80 P.73 $D_1 > 0.8$

TWIST DRILLS REINFORCED SHANK



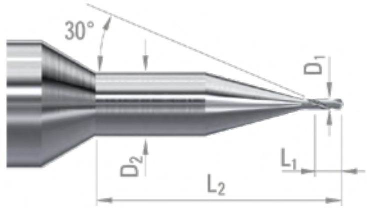
- Twist drills with reinforced shank developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

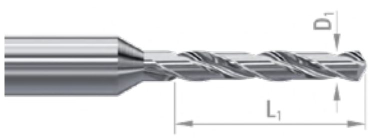
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎				○	○		◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_2	L_2	D_{h5}	L	CARBIDE	TiAlN
0.05	0.35	1.50	5.35	3	38	962810	
0.06	0.40	1.50	5.40	3	38	962809	
0.07	0.50	1.50	5.50	3	38	962808	
0.08	0.60	1.50	5.65	3	38	962807	
0.09	0.65	1.50	5.70	3	38	962806	
0.10	0.70	1.50	5.70	3	38	960016	960258
0.15	1.00	1.50	6.00	3	38	960014	200513
0.20	1.00	1.50	6.00	3	38	960013	200512
0.25	1.00	1.50	6.00	3	38	960012	200511
0.30	1.50	1.50	6.50	3	38	960011	200510
0.35	1.50	1.50	6.50	3	38	960010	200509
0.40	2.00	1.50	7.00	3	38	960009	200508
0.45	3.60	1.50	8.60	3	38	960007	200507



$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
0.50	4.00	3	38	200157	200439
0.53	4.50	3	38	960034	200514
0.55	4.50	3	38	200189	200471
0.60	4.50	3	38	200148	200429
0.62	5.00	3	38	960035	200515
0.65	5.00	3	38	200190	200472
0.70	5.60	3	38	200149	200431
0.71	5.60	3	38	960036	200516
0.75	5.60	3	38	200191	200473
0.80	6.30	3	38	200150	200432
0.81	6.30	3	38	200210	200492
0.82	6.30	3	38	200185	200467
0.83	6.30	3	38	200167	200449



DIXI 1138

Z = 2

TWIST DRILLS
REINFORCED SHANK

P.80 P.73 $D_1 > 0.8$

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
0.84	6.30	3	38	200168	200450
0.85	6.30	3	38	200151	200433
0.86	7.10	3	38	200211	200493
0.87	7.10	3	38	200207	200489
0.88	7.10	3	38	200208	200490
0.89	7.10	3	38	200204	200486
0.90	7.10	3	38	200152	200434
0.91	7.10	3	38	200209	200491
0.92	7.10	3	38	200213	200495
0.93	7.10	3	38	200184	200466
0.94	7.10	3	38	200186	200468
0.95	7.10	3	38	200192	200474
0.96	9.00	3	38	200160	200442
0.97	9.00	3	38	200187	200469
0.98	9.00	3	38	200201	200483
0.99	9.00	3	38	200182	200464
1.00	9.00	3	38	959533	200430
1.01	9.00	3	38	200169	200451
1.02	9.00	3	38	200178	200460
1.03	9.00	3	38	200214	200496
1.04	9.00	3	38	200215	200497
1.05	9.00	3	38	200193	200475
1.06	9.00	3	38	200219	200501
1.07	9.00	3	38	200179	200461
1.08	9.00	3	38	200180	200462
1.09	9.00	3	38	200216	200498
1.10	9.00	3	38	200194	200476
1.11	9.00	3	38	200164	200446
1.12	9.00	3	38	200183	200465
1.13	9.00	3	38	200212	200494
1.14	9.00	3	38	200220	200502
1.15	9.00	3	38	200195	200477
1.16	10.00	3	38	200166	200448
1.17	10.00	3	38	200163	200445
1.18	10.00	3	38	200177	200459
1.19	10.00	3	38	200217	200499
1.20	10.00	3	38	200196	200478
1.21	10.00	3	38	200165	200447
1.22	10.00	3	38	200181	200463
1.23	10.00	3	38	200161	200443
1.24	10.00	3	38	200221	200503
1.25	10.00	3	38	200197	200479
1.26	10.00	3	38	200206	200488
1.27	10.00	3	38	200203	200485
1.28	10.00	3	38	200218	200500
1.29	10.00	3	38	200222	200504
1.30	10.00	3	38	200153	200435

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
1.31	11.20	3	38	200188	200470
1.32	11.20	3	38	200176	200458
1.33	11.20	3	38	200162	200444
1.34	11.20	3	38	200202	200484
1.35	11.20	3	38	200198	200480
1.36	11.20	3	38	200205	200487
1.37	11.20	3	38	200158	200440
1.38	11.20	3	38	200223	200505
1.39	11.20	3	38	200224	200506
1.40	11.20	3	38	200154	200436
1.45	11.20	3	38	200199	200481
1.50	11.20	3	38	200200	200482
1.55	12.00	3	38	200170	200452
1.60	12.00	3	38	200171	200453
1.65	12.00	3	38	200172	200454
1.70	12.00	3	38	200155	200437
1.75	12.00	3	38	200173	200455
1.80	12.00	3	38	200159	200441
1.85	12.00	3	38	200174	200456
1.90	12.00	3	38	200156	200438
1.95	12.00	3	38	200175	200457
2.00	12.00	3	38	960037	200517
2.05	15.00	3	38	960038	200518
2.10	15.00	3	38	960039	200519
2.15	15.00	3	38	960040	200520
2.20	15.00	3	38	960041	200521
2.25	15.00	3	38	960042	200522
2.30	15.00	3	38	960043	200523
2.35	15.00	3	38	960044	200524
2.40	15.00	3	38	960045	200525
2.45	15.00	3	38	960046	200526
2.50	15.00	3	38	960047	200527
2.55	15.00	3	38	960048	200528
2.80	16.00	3	38	960049	200529

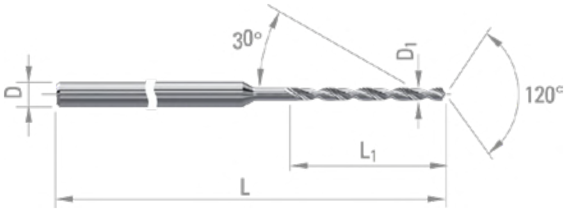
DIXI 1139

TWIST DRILLS
REINFORCED SHANK

$Z = 2$

$L_1 = 12 \times D_1$

P.80 P.73



- Twist drills with reinforced shank , $12xD_1$ cutting length, developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎				○	○		◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
0.50	6.00	3	38	317729	317900
0.51	6.10	3	38	317730	317901
0.52	6.30	3	38	317731	317902
0.53	6.40	3	38	317732	317903
0.54	6.50	3	38	317733	317904
0.55	6.60	3	38	317734	317905
0.56	6.70	3	38	317735	317906
0.57	6.90	3	38	317736	317907
0.58	7.00	3	38	317737	317908
0.59	7.10	3	38	317738	317909
0.60	7.20	3	38	317739	317910
0.61	7.30	3	38	317740	317911
0.62	7.50	3	38	317741	317912
0.63	7.60	3	38	317742	317913
0.64	7.70	3	38	317743	317914
0.65	7.80	3	38	317744	317915
0.66	7.90	3	38	317745	317916
0.67	8.10	3	38	317746	317917
0.68	8.20	3	38	317747	317918
0.69	8.30	3	38	317748	317919
0.70	8.40	3	38	317749	317920
0.71	8.50	3	38	317750	317921
0.72	8.70	3	38	317751	317922
0.73	8.80	3	38	317752	317923
0.74	8.90	3	38	317753	317924
0.75	9.00	3	38	317754	317925
0.76	9.10	3	38	317755	317926
0.77	9.30	3	38	317756	317927
0.78	9.40	3	38	317757	317928

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
0.79	9.50	3	38	317758	317929
0.80	9.60	3	38	317759	317930
0.81	9.70	3	38	317760	317931
0.82	9.90	3	38	317761	317932
0.83	10.00	3	38	317762	317933
0.84	10.10	3	38	317763	317934
0.85	10.20	3	38	317764	317935
0.86	10.30	3	38	317765	317936
0.87	10.50	3	38	317766	317937
0.88	10.60	3	38	317767	317938
0.89	10.70	3	38	317768	317939
0.90	10.80	3	38	317769	317940
0.91	10.90	3	38	317770	317941
0.92	11.10	3	38	317771	317942
0.93	11.20	3	38	317772	317943
0.94	11.30	3	38	317773	317944
0.95	11.40	3	38	317774	317945
0.96	11.50	3	38	317775	317946
0.97	11.70	3	38	317776	317947
0.98	11.80	3	38	317777	317948
0.99	11.90	3	38	317778	317949
1.00	12.00	3	38	317779	317950
1.01	12.10	3	38	317780	317951
1.02	12.30	3	38	317781	317952
1.03	12.40	3	38	317782	317953
1.04	12.50	3	38	317783	317954
1.05	12.60	3	38	317784	317955
1.06	12.70	3	38	317785	317956
1.07	12.90	3	38	317786	317957

DIXI 1139

$Z = 2$

$L_1 = 12 \times D_1$

P.80 P.73

TWIST DRILLS REINFORCED SHANK

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
1.08	13.00	3	38	317787	317958
1.09	13.10	3	38	317788	317959
1.10	13.20	3	38	317789	317960
1.11	13.30	3	38	317790	317961
1.12	13.50	3	38	317791	317962
1.13	13.60	3	38	317792	317963
1.14	13.70	3	38	317793	317964
1.15	13.80	3	38	317794	317965
1.16	13.90	3	38	317795	317966
1.17	14.10	3	38	317796	317967
1.18	14.20	3	38	317797	317968
1.19	14.30	3	38	317798	317969
1.20	14.40	3	38	317799	317970
1.21	14.50	3	38	317800	317971
1.22	14.70	3	38	317801	317972
1.23	14.80	3	38	317802	317973
1.24	14.90	3	38	317803	317974
1.25	15.00	3	38	317804	317975
1.26	15.10	3	50	317805	317976
1.27	15.30	3	50	317806	317977
1.28	15.40	3	50	317807	317978
1.29	15.50	3	50	317808	317979
1.30	15.60	3	50	317809	317980
1.31	15.70	3	50	317810	317981
1.32	15.90	3	50	317811	317982
1.33	16.00	3	50	317812	317983
1.34	16.10	3	50	317813	317984
1.35	16.20	3	50	317814	317985
1.36	16.30	3	50	317815	317986
1.37	16.50	3	50	317816	317987
1.38	16.60	3	50	317817	317988
1.39	16.70	3	50	317818	317989
1.40	16.80	3	50	317819	317990
1.41	16.90	3	50	317820	317991
1.42	17.10	3	50	317821	317992
1.43	17.20	3	50	317822	317993
1.44	17.30	3	50	317823	317994
1.45	17.40	3	50	317824	317995
1.46	17.50	3	50	317825	317996
1.47	17.70	3	50	317826	317997
1.48	17.80	3	50	317827	317998
1.49	17.90	3	50	317828	317999

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
1.50	18.00	3	50	317829	318000
1.51	18.10	3	50	317830	318001
1.52	18.30	3	50	317831	318002
1.53	18.40	3	50	317832	318003
1.54	18.50	3	50	317833	318004
1.55	18.60	3	50	317834	318005
1.56	18.70	3	50	317835	318006
1.57	18.90	3	50	317836	318007
1.58	19.00	3	50	317837	318008
1.59	19.10	3	50	317838	318009
1.60	19.20	3	50	317839	318010
1.61	19.30	3	50	317840	318011
1.62	19.40	3	50	317841	318012
1.63	19.60	3	50	317842	318013
1.64	19.70	3	50	317843	318014
1.65	19.80	3	50	317844	318015
1.66	19.90	3	50	317845	318016
1.67	20.10	3	50	317846	318017
1.68	20.20	3	50	317847	318018
1.69	20.30	3	50	317848	318019
1.70	20.40	3	50	317849	318020
1.71	20.50	3	50	317850	318021
1.72	20.70	3	50	317851	318022
1.73	20.80	3	50	317852	318023
1.74	20.90	3	50	317853	318024
1.75	21.00	3	50	317854	318025
1.76	21.10	3	50	317855	318026
1.77	21.30	3	50	317856	318027
1.78	21.40	3	50	317857	318028
1.79	21.50	3	50	317858	318029
1.80	21.60	3	50	317859	318030
1.81	21.70	3	50	317860	318031
1.82	21.90	3	50	317861	318032
1.83	22.00	3	50	317862	318033
1.84	22.10	3	50	317863	318034
1.85	22.20	3	50	317864	318035
1.86	22.30	3	50	317865	318036
1.87	22.50	3	50	317866	318037
1.88	22.60	3	50	317867	318038
1.89	22.70	3	50	317868	318039
1.90	22.80	3	50	317869	318040
1.91	22.90	3	50	317870	318041
1.92	23.10	3	50	317871	318042
1.93	23.20	3	50	317872	318043
1.94	23.30	3	50	317873	318044
1.95	23.40	3	50	317874	318045

TWIST DRILLS
REINFORCED SHANK

Z = 2
$L_1 = 12 \times D_1$

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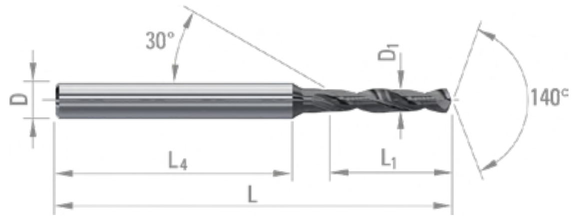
$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE	TiAlN
1.96	23.50	3	50	317875	318046
1.97	23.70	3	50	317876	318047
1.98	23.80	3	50	317877	318048
1.99	23.90	3	50	317878	318049
2.00	24.00	3	61	317879	318050
2.05	24.60	3	61	317880	318051
2.10	25.20	3	61	317881	318052
2.15	25.80	3	61	317882	318053
2.20	26.40	3	61	317883	318054
2.25	27.00	3	61	317884	318055
2.30	27.60	3	61	317885	318056
2.35	28.20	3	61	317886	318057
2.40	28.80	3	61	317887	318058
2.45	29.40	3	61	317888	318059
2.50	30.00	3	61	317889	318060
2.55	30.60	3	61	317890	318061
2.60	31.20	3	61	317891	318062
2.65	31.80	3	61	317892	318063
2.70	32.40	3	61	317893	318064
2.75	33.00	3	61	317894	318065
2.80	33.60	3	61	317895	318066
2.85	34.20	3	61	317896	318067
2.90	34.80	3	61	317897	318068
2.95	35.40	3	61	317898	318069
3.00	36.00	3	61	317899	318070

DIXI 1149 TiAlN

Z = 2

P.82 P.73 DIN 6537K

SELF-CENTERING TWIST DRILLS REINFORCED SHANK



- Self-centering twist drills with reinforced shank , according to DIN 6537K.
- High-performance tools developed for the drilling of long ship materials.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○				○	○	○	◎	◎				

$D_{1\ h6}$	L_1	L_4	D_{h5}	L	TiAlN
1.00	5	26	3	38	976857
1.10	5	26	3	38	976858
1.20	5	26	3	38	976859
1.30	5	26	3	38	976860
1.40	5	26	3	38	976861
1.50	7	25	3	38	976862
1.60	7	25	3	38	976863
1.70	7	25	3	38	976864
1.80	7	25	3	38	976865
1.90	7	25	3	38	976866
2.00	9	35	3	50	43300
2.10	9	35	3	50	43301
2.20	9	35	3	50	43302
2.30	9	35	3	50	43303
2.40	9	35	3	50	43304
2.50	9	36	3	50	43305
2.60	11	31	4	50	43306
2.70	11	31	4	50	43307
2.80	11	31	4	50	41777
2.90	11	31	4	50	43308
3.00	14	39	6	62	43309
3.10	14	39	6	62	43310
3.175	14	39	6	62	64419
3.20	14	39	6	62	43311
3.30	14	39	6	62	43312
3.40	14	39	6	62	43313
3.50	14	39	6	62	43314
3.60	14	39	6	62	43315
3.70	14	40	6	62	43316

$D_{1\ h6}$	L_1	L_4	D_{h5}	L	TiAlN
3.80	17	40	6	66	43317
3.90	17	40	6	66	43318
4.00	17	40	6	66	43319
4.10	17	40	6	66	43320
4.20	17	40	6	66	43321
4.30	17	40	6	66	43322
4.40	17	40	6	66	43323
4.50	17	40	6	66	43324
4.60	17	40	6	66	43325
4.70	17	40	6	66	43326
4.762	20	37	6	66	43673
4.80	20	37	6	66	43327
4.90	20	38	6	66	43328
5.00	20	38	6	66	43329
5.10	20	38	6	66	966749
5.20	20	38	6	66	43330
5.30	20	38	6	66	43331
5.40	20	38	6	66	966750
5.50	20	38	6	66	43332
5.60	22	37	6	66	960752
5.70	22	37	6	66	966751
5.80	22	37	6	66	43333
5.90	22	37	6	66	966752
6.00	22	37	6	66	43334
6.20	24	43	8	79	43447
6.30	24	43	8	79	43538
6.35	24	43	8	79	44585
6.40	24	43	8	79	63641
6.50	24	43	8	79	39394

Z = 2

f Vc Ap

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DIN 6537K

SELF-CENTERING TWIST DRILLS REINFORCED SHANK

$D_{1\ h6}$	L_1	D_{h5}	L	CARBIDE	TiAlN
6.60	24	43	8	79	43539
6.70	24	43	8	79	966756
6.80	24	44	8	79	43540
6.90	24	44	8	79	966757
7.00	24	43	8	79	43541
7.20	29	38	8	79	56826
7.50	29	38	8	79	43542
7.80	29	38	8	79	43543
8.00	29	-	8	79	43544
8.20	35	40	10	89	43448
8.40	35	40	10	89	55450
8.50	35	40	10	89	42654
8.70	35	41	10	89	54604
8.80	35	41	10	89	56828
9.00	35	41	10	89	43545
9.20	35	41	10	89	55451
9.50	35	41	10	89	43546
9.80	35	41	10	89	43547
10.00	35	-	10	89	43548
10.10	40	47	12	102	978563
10.20	40	47	12	102	43549
10.50	40	47	12	102	43550
10.80	40	48	12	102	59472
11.00	40	48	12	102	43551
11.50	41	47	12	102	43552
12.00	42	-	12	102	43553
13.00	46	47	14	107	43554
14.00	49	-	14	107	43556

DIXI 1147 TiAlN

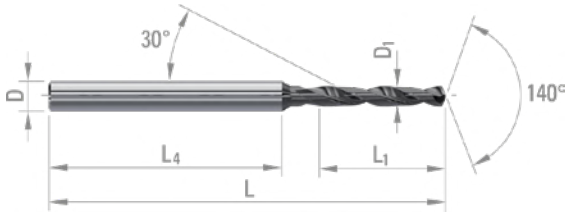
Z = 2

$L_1 = 6{,}5 \times D_1$

P.82 P.73

DIN 6537L

SELF-CENTERING TWIST DRILLS REINFORCED SHANK



- Self-centering twist drills with reinforced shank, 6.5xD_1 cutting length.
- High-performance tools developed for the drilling of short chip materials.
- TiAlN coating improves tool life in ferrous materials.

◯ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◯	◯	◯	◯	◯								◎	◎	◎	◯	◯				

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
0.50	3.30	29	3	38	960468
0.55	3.60	29	3	38	960469
0.60	3.90	29	3	38	960470
0.65	4.20	33	3	43	960471
0.70	4.60	33	3	43	960472
0.75	4.90	33	3	43	960473
0.80	5.20	32	3	43	960474
0.85	5.50	32	3	43	960475
0.90	5.90	32	3	43	960476
0.95	6.20	32	3	43	960477
1.00	6.50	31	3	43	960478
1.10	7.20	31	3	43	960479
1.20	7.80	37	3	50	960480
1.30	8.50	37	3	50	960481
1.40	9.10	36	3	50	960482
1.50	9.80	35	3	50	960483
1.60	10.40	35	3	50	960484
1.70	11.10	34	3	50	960485
1.80	11.70	34	3	50	960486
1.90	12.40	33	3	50	960487
2.00	13.00	43	4	62	960137
2.10	13.70	42	4	62	960138
2.20	14.30	42	4	62	960139
2.30	15.00	41	4	62	960140
2.40	15.60	41	4	62	960141
2.50	16.30	40	4	62	960142
2.60	16.90	39	4	62	960143
2.70	17.60	39	4	62	960144
2.80	18.20	38	4	62	960145

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
2.90	18.90	38	4	62	960146
3.00	19.50	37	4	62	960147
3.10	20.20	53	6	79	960148
3.20	20.80	52	6	79	960149
3.30	21.50	51	6	79	960150
3.40	22.10	51	6	79	960151
3.50	22.80	50	6	79	960152
3.60	23.40	50	6	79	966741
3.75	24.40	49	6	79	960153
3.80	24.70	48	6	79	960154
3.90	25.40	47	6	79	961304
4.00	26.00	47	6	79	960155
4.10	26.70	46	6	79	960156
4.20	27.30	45	6	79	960157
4.30	28.00	45	6	79	960158
4.40	28.60	44	6	79	959769
4.50	29.30	43	6	79	960159
4.60	29.90	43	6	79	960160
4.70	30.60	42	6	79	960161
4.80	31.20	42	6	79	960162
4.90	31.90	41	6	79	960163
5.00	32.50	50	6	89	959770
5.10	33.20	49	6	89	960167
5.20	33.80	49	6	89	960169
5.30	34.50	48	6	89	960170
5.40	35.10	48	6	89	966742
5.50	35.80	47	6	89	960171
5.60	36.40	46	6	89	960172
5.70	37.10	46	6	89	966743

Z = 2
$L_1 = 6{,}5 \times D_1$

P.82 P.73

DIN 6537L

SELF-CENTERING TWIST DRILLS REINFORCED SHANK

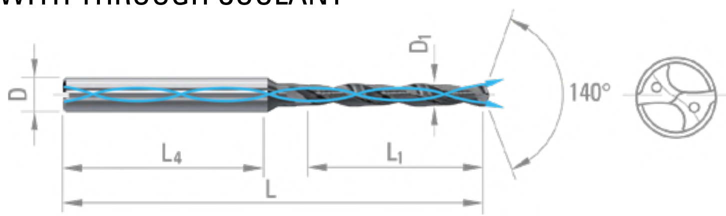
$D_{1\ h6}$	L_1	L_4	D_{h5}	L	TiAlN
5.80	37.70	45	6	89	960173
5.90	38.40	44	6	89	966744
6.00	39.00	-	6	89	960174
6.10	39.70	54	8	102	960175
6.20	40.30	53	8	102	960176
6.30	41.00	53	8	102	960177
6.35	41.30	53	8	102	960178
6.40	41.60	52	8	102	966745
6.50	42.30	51	8	102	960179
6.60	42.90	51	8	102	960180
6.70	43.60	50	8	102	966747
6.80	44.20	50	8	102	960181
6.90	44.90	49	8	102	966748
7.00	45.50	48	8	102	960182
7.20	46.80	47	8	102	960183
7.50	48.80	45	8	102	960184
7.80	50.70	43	8	102	960185
8.00	52.00	-	8	102	960186
8.20	53.30	54	10	118	960187
8.40	54.00	54	10	118	960188
8.50	55.30	52	10	118	960189
8.80	57.20	51	10	118	960190
9.00	58.50	49	10	118	960191
9.50	61.80	46	10	118	960192
9.80	63.70	44	10	118	960193
10.00	65.00	-	10	118	960194

DIXI 1145-HH TiAlN

Z = 2

P.84 P.73 DIN 6537L

SELF-CENTERING TWIST DRILLS REINFORCED SHANK WITH THROUGH COOLANT



- Self-centering twist drills with reinforced shank and through coolant, according to DIN 6537L.
- High-performance tools developed for the drilling of long chip materials.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○				○	○	○	◎	◎				

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
0.80	5	26	3	38	954321
1.40	7	25	3	38	956694
1.50	11	20	3	38	956692
1.60	11	20	3	38	956690
1.70	11	20	3	38	956688
1.80	11	20	3	38	956686
1.90	11	20	3	38	956683
2.00	15	18	3	38	954320
2.10	15	18	3	38	956325
2.20	15	18	3	38	956326
2.30	15	26	4	50	956327
2.40	15	27	4	50	956328
2.50	18	24	4	50	956329
2.60	18	24	4	50	956330
2.70	18	24	4	50	956331
2.80	18	24	4	50	956332
2.90	23	35	6	66	956333
3.00	23	35	6	66	65470
3.10	23	35	6	66	953836
3.20	23	35	6	66	953835
3.30	23	35	6	66	65471
3.40	23	35	6	66	953837
3.50	23	35	6	66	65472
3.60	29	35	6	74	966718
3.70	29	35	6	74	966719
3.75	29	36	6	74	65473
3.80	29	36	6	74	953838
3.90	29	36	6	74	966720
4.00	29	36	6	74	45540

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
4.10	29	36	6	74	953839
4.20	29	36	6	74	56829
4.30	29	36	6	74	62995
4.40	29	36	6	74	956579
4.50	35	38	6	82	953840
4.60	35	38	6	82	966721
4.70	35	38	6	82	966722
4.80	35	38	6	82	45541
4.90	35	38	6	82	966826
5.00	35	39	6	82	43272
5.10	35	39	6	82	953841
5.20	35	39	6	82	56830
5.30	35	39	6	82	59465
5.40	35	39	6	82	953842
5.50	35	39	6	82	45542
5.60	35	39	6	82	954509
5.70	35	39	6	82	966723
5.80	35	39	6	82	59466
5.90	35	39	6	82	966724
6.00	35	-	6	82	38821
6.10	43	36	8	91	953843
6.20	43	36	8	91	56831
6.30	43	36	8	91	43279
6.35	43	36	8	91	59467
6.40	43	36	8	91	953844
6.50	43	36	8	91	39758
6.60	43	36	8	91	59468
6.70	43	36	8	91	956886
6.80	43	36	8	91	45614

DIXI 1145-HH TiAlN

Z = 2

P.84 P.73

DIN 6537L

SELF-CENTERING TWIST DRILLS
REINFORCED SHANK
WITH THROUGH COOLANT

$D_{1\ h6}$	L_1	L_4	D_{h5}	L	TiAlN
6.90	43	36	8	91	966725
7.00	43	36	8	91	43283
7.20	43	36	8	91	56833
7.30	43	36	8	91	954510
7.40	43	36	8	91	59384
7.50	43	36	8	91	43284
7.60	43	36	8	91	954511
7.80	43	36	8	91	43285
8.00	43	-	8	91	39530
8.10	49	40	10	103	954512
8.20	49	40	10	103	56834
8.30	49	40	10	103	954513
8.40	49	40	10	103	59469
8.50	49	40	10	103	52633
8.60	49	40	10	103	954514
8.80	49	40	10	103	45615
9.00	49	41	10	103	43288
9.20	49	41	10	103	953849
9.40	49	41	10	103	954515
9.50	49	41	10	103	63430
9.60	49	41	10	103	954516
9.70	49	41	10	103	953846
9.80	49	41	10	103	44777
10.00	49	-	10	103	40751
10.10	56	47	12	118	954326
10.20	56	47	12	118	56837
10.30	56	47	12	118	954518
10.50	56	47	12	118	44152
10.60	56	47	12	118	954517
10.80	56	47	12	118	45616
11.00	56	48	12	118	43294
11.30	58	46	12	118	954519
11.50	58	46	12	118	45207
12.00	60	-	12	118	40752
13.00	65	45	14	124	44339
14.00	70	-	14	124	45649

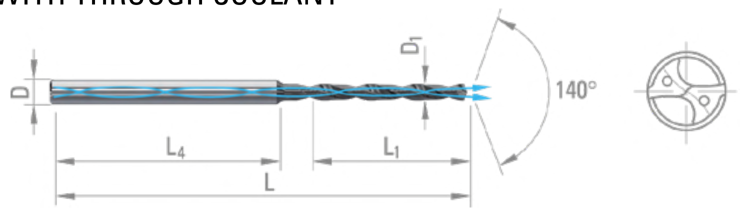
DIXI 1146-HH TiAlN

Z = 2

$L_1 = 10\times D_1$

P.84 P.73

SELF-CENTERING TWIST DRILLS REINFORCED SHANK WITH THROUGH COOLANT



- Self-centering twist drills with reinforced shank and through coolant, 10xD_1 cutting length.
- High-performance tools developed for drilling of short chip materials.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○								◎	◎	◎	○	○				

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
0.80	8.00	37	3	50	960206
0.85	8.50	37	3	50	960208
0.90	9.00	36	3	50	960209
0.95	9.50	36	3	50	960210
1.00	10.00	35	3	50	960211
1.10	11.00	34	3	50	960212
1.20	12.00	33	3	50	960214
1.30	13.00	33	3	50	960215
1.40	14.00	32	3	50	960216
1.50	15.00	43	3	62	960217
1.60	16.00	42	3	62	960218
1.70	17.00	41	3	62	960219
1.80	18.00	40	3	62	960220
1.90	19.00	39	3	62	960221
2.00	20.00	38	3	62	960222
2.10	21.00	37	3	62	960223
2.20	22.00	36	3	62	960224
2.30	23.00	51	4	79	960225
2.40	24.00	50	4	79	960226
2.50	25.00	49	4	79	960227
2.60	26.00	48	4	79	960228
2.70	27.00	47	4	79	960229
2.80	28.00	46	4	79	960230
2.90	29.00	44	6	79	960231
3.00	30.00	43	6	79	960232
3.10	31.00	52	6	89	966726
3.20	32.00	51	6	89	966727
3.30	33.00	50	6	89	960243
3.40	34.00	49	6	89	966728

$D_{1\,h6}$	L_1	L_4	D_{h5}	L	TiAlN
3.50	35.00	48	6	89	960244
3.60	36.00	47	6	89	966729
3.75	37.50	46	6	89	960245
3.90	39.00	44	6	89	966730
4.00	40.00	56	6	102	960246
4.10	41.00	55	6	102	966731
4.20	42.00	54	6	102	960247
4.30	43.00	53	6	102	960248
4.40	44.00	52	6	102	966732
4.50	45.00	51	6	102	960249
4.60	46.00	50	6	102	966733
4.70	47.00	49	6	102	966734
4.80	48.00	48	6	102	960250
4.90	49.00	47	6	102	966735
5.00	50.00	46	6	102	960251
5.10	51.00	45	6	102	966736
5.20	52.00	44	6	102	960252
5.30	53.00	43	6	102	960253
5.40	54.00	42	6	102	966737
5.50	55.00	41	6	102	960254
5.60	56.00	56	6	118	966738
5.70	57.00	55	6	118	966739
5.80	58.00	54	6	118	960255
5.90	59.00	53	6	118	963660
6.00	60.00	-	6	118	960256
6.10	61.00	49	8	118	966740
6.20	62.00	48	8	118	960257
6.30	63.00	47	8	118	960426
6.35	63.50	47	8	118	960427

DIXI 1146-HH TiAIN

Z = 2

$L_1 = 10 \times D_1$

P.84 P.73

SELF-CENTERING TWIST DRILLS
REINFORCED SHANK
WITH THROUGH COOLANT

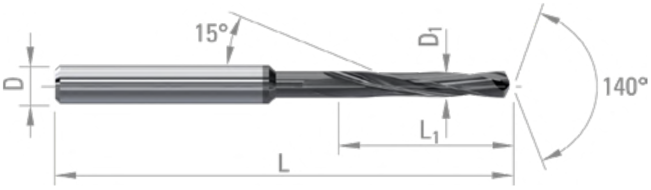
$D_{1\ h6}$	L_1	L_4	D_{h5}	L	TiAIN
6.50	65.00	45	8	118	960428
6.60	66.00	59	8	133	960429
6.80	68.00	56	8	133	960430
6.90	69.00	56	8	133	963661
7.00	70.00	55	8	133	960431
7.20	72.00	53	8	133	960432
7.50	75.00	50	8	133	960433
7.80	78.00	47	8	133	960434
8.00	80.00	-	8	133	960435
8.20	82.00	59	10	151	960436
8.40	84.00	57	10	151	960437
8.50	85.00	56	10	151	960438
8.80	88.00	53	10	151	960439
9.00	90.00	60	10	160	960440
9.20	92.00	58	10	160	960441
9.40	94.00	56	10	160	960442
9.525	95.30	55	10	160	960443
9.80	98.00	52	10	160	960444
10.00	100.00	-	10	160	960445

DIXI 1280 XIDUR

Z = 2

P.62 P.73

TWIST DRILLS FOR HARDENED STEEL
REINFORCED SHANK



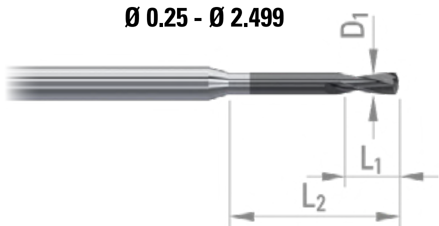
- Twist drills with reinforced shank developed for the machining hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

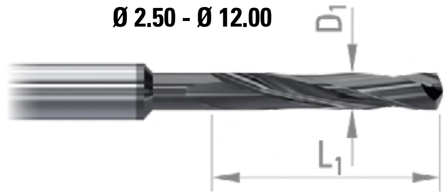
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													○	○	◎			◎	◎	◎	◎

Ø 0.25 - Ø 2.499



$D_{1\ 0/-0.004}$	L_1	L_2	D_{h5}	L	XIDUR
0.25	0.75	2.00	3	38	957466
0.30	0.90	2.50	3	38	956658
0.40	1.20	3.20	3	38	956659
0.50	1.50	4.00	3	38	956660
0.60	1.80	4.80	3	38	956661
0.70	2.10	5.60	3	38	956662
0.80	2.40	6.50	3	38	956663
0.90	2.70	7.50	3	38	956664
1.00	3.00	8.00	3	38	956665
1.10	3.30	8.00	3	50	957524
1.20	3.60	10.00	3	50	956666
1.30	3.90	12.00	3	50	957525
1.40	4.20	12.00	3	50	957467
1.50	4.50	12.00	3	50	956667
1.60	4.80	15.00	3	50	957526
1.70	5.10	15.00	3	50	957527
1.80	5.40	15.00	3	50	956668
1.90	5.80	15.00	3	50	957528
2.00	6.00	15.00	3	50	956669

Ø 2.50 - Ø 12.00



$D_{1\ 0/-0.004}$	L_1	L_2	D_{h5}	L	XIDUR
2.50	15		3	62	62529
2.60	15		3	62	62843
2.70	15		3	62	62844
2.80	15		3	62	62845
2.90	15		3	62	62846
3.00	20		4	66	62530
3.175	20		4	66	62848
3.30	20		4	66	62849
3.40	20		4	66	62850
3.50	20		4	66	62531
3.57	20		4	66	62851
3.70	20		4	66	62852
3.80	20		4	66	62853
3.90	20		4	66	62854
4.00	30		6	66	62532
4.10	30		6	66	62855
4.20	30		6	66	62533
4.30	30		6	66	62857
4.365	30		6	66	62858

DIXI 1280 XIDUR

TWIST DRILLS FOR HARDENED STEEL
REINFORCED SHANK

P.62 P.73

>45 HRC

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	XIDUR
4.50	30	6	66	62859
4.60	30	6	66	62860
4.70	30	6	66	62861
4.762	30	6	66	62862
4.90	30	6	66	62863
5.00	30	6	66	62534
5.10	30	6	66	62414
5.16	30	6	66	62864
5.50	30	6	66	62867
5.80	30	6	66	62870
6.00	40	8	79	62872
6.35	40	8	79	62874
6.50	40	8	79	62877
6.80	40	8	79	62535
7.00	40	8	79	62878
7.50	40	8	79	62880
7.80	40	8	79	62881
8.00	50	10	89	62882
8.33	50	10	89	62883
8.50	50	10	89	62536
8.73	50	10	89	62884
9.00	50	10	89	62885
9.525	50	10	89	62886
9.80	50	10	89	62887
10.00	60	12	102	62888
10.20	60	12	102	62889
10.50	60	12	102	62890
10.80	60	12	102	62891
11.00	60	12	102	62895
11.50	60	12	102	62896
12.00	60	12	102	62897

$D_1 < 5$ mm

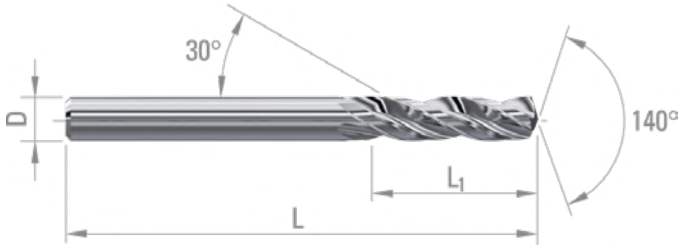
Cutting conditions : Vc = 10 - 30 m/min
$f = 0.005 \times D_1$
Pecking cycle = $0.25 \times D_1$

$D_1 \geq 5$ mm

Cutting conditions : Vc = 10 - 30 m/min
$f = 0.008 \times D_1$
Pecking cycle = $0.25 \times D_1$

3 FLUTE TWIST DRILLS

P.86 P.73



- 3 flute twist drills with cylindrical shank developed to guarantee excellent precision and straightness of the hole.
- Suitable for titanium alloys.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○									◎	◎				

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎				◎							◎	◎				

D_{h5}	L_1	L	CARBIDE
1.00	8	30	31446
1.05	8	30	47890
1.10	10	30	31573
1.15	10	30	37288
1.20	10	30	31574
1.25	10	30	34553
1.30	10	30	31575
1.35	10	30	37506
1.40	10	30	31576
1.45	10	30	47039
1.50	10	30	31560
1.55	12	38	47891
1.60	12	38	31577
1.63	12	38	41603
1.64	12	38	58867
1.65	12	38	38467
1.70	12	38	31578
1.75	12	38	43738
1.80	12	38	31579
1.85	12	38	47899
1.90	12	38	31294
1.95	12	38	47040
2.00	12	38	31580
2.04	12	38	954146
2.10	12	38	31581
2.20	13	40	41993
2.30	13	40	31583
2.40	14	43	39320
2.50	14	43	41454

D_{h5}	L_1	L	CARBIDE
2.60	14	43	42140
2.70	16	46	31295
2.80	16	46	31296
2.90	16	46	31586
3.00	16	46	29106
3.10	18	49	31197
3.20	18	49	31728
3.30	18	49	29107
3.40	20	52	33271
3.50	20	52	29108
3.60	20	52	31297
3.70	20	52	32311
3.80	22	55	29109
3.90	22	55	42942
4.00	22	55	42305
4.10	22	55	42939
4.20	22	55	29111
4.30	24	58	32871
4.40	24	58	33427
4.50	24	58	29112
4.60	24	58	32862
4.70	24	58	32312
4.80	26	62	29113
4.90	26	62	31590
5.00	26	62	29114
5.10	26	62	41455
5.20	26	62	32639
5.30	26	62	31717
5.40	28	66	34791

DIXI 1151 Z = 3

3 FLUTE TWIST DRILLS

P.86 P.73

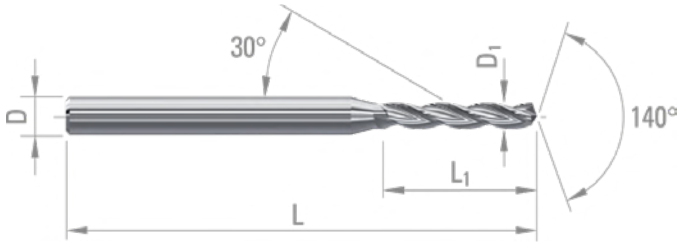
D_{h5}	L_1	L	CARBIDE
5.50	28	66	29115
5.60	28	66	41597
5.70	28	66	32313
5.80	28	66	43809
5.90	28	66	45905
6.00	28	66	41120
6.10	31	70	41620
6.20	31	70	32640
6.30	31	70	34792
6.40	31	70	33105
6.50	31	70	29118
6.60	31	70	34754
6.70	31	70	31506
6.80	34	74	29119
6.90	34	74	32860
7.00	34	74	29120
7.50	34	74	29121
7.80	37	79	29122
8.00	37	79	43769
8.20	37	79	32237
8.50	37	79	41927
8.80	40	84	29125
9.00	40	84	29126
9.50	40	84	29127
9.80	43	89	29128
10.00	43	89	29129
10.20	43	89	29130
10.50	43	89	29131
11.00	47	95	29132
11.50	47	95	29133
12.00	51	102	29134
12.50	51	102	32641
13.00	51	102	29135
13.50	54	107	32642
14.00	54	107	29136

DIXI 1152

Z = 3

P.86 P.73

3 FLUTE TWIST DRILLS
REINFORCED SHANK



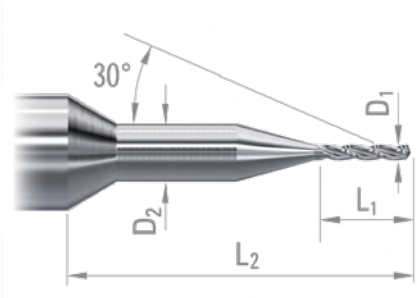
- 3 flute twist drills with reinforced shank developed to guarantee excellent precision and straightness of the hole.
- Suitable for titanium alloys.

○ good ◎ excellent

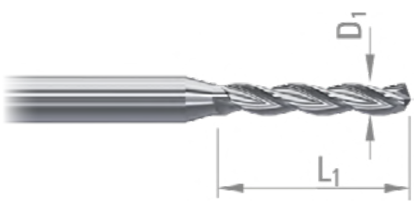
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○									◎	◎				

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎				◎							◎	◎				

$D_{1\ 0/-0.004}$	L_1	D_2	L_2	D_{h5}	L	CARBIDE
0.15	1.50	1.50	6.80	3	38	962817
0.20	1.50	1.50	6.80	3	38	962818
0.25	2.00	1.50	7.35	3	38	962819
0.30	2.00	1.50	7.35	3	38	962820
0.35	2.00	1.50	7.35	3	38	962821
0.40	2.00	1.50	7.35	3	38	962822
0.45	3.60	1.50	7.35	3	38	962850



$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE
0.50	4.00	3	38	962851
0.53	4.50	3	38	962852
0.55	4.50	3	38	962853
0.60	4.50	3	38	962854
0.62	5.00	3	38	962855
0.65	5.00	3	38	962856
0.70	5.60	3	38	962857
0.71	5.60	3	38	962858
0.75	5.60	3	38	962859
0.80	6.30	3	38	962860
0.81	6.30	3	38	962861
0.82	6.30	3	38	962862
0.83	6.30	3	38	962863
0.84	6.30	3	38	962864
0.85	6.30	3	38	962865
0.86	7.10	3	38	962866
0.87	7.10	3	38	962867
0.88	7.10	3	38	962868



DIXI 1152

Z = 3

3 FLUTE TWIST DRILLS REINFORCED SHANK

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$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE
0.89	7.10	3	38	962869
0.90	7.10	3	38	962870
0.91	7.10	3	38	962871
0.92	7.10	3	38	962872
0.93	7.10	3	38	962873
0.94	7.10	3	38	962874
0.95	7.10	3	38	962875
0.96	9.00	3	38	962876
0.97	9.00	3	38	962877
0.98	9.00	3	38	962878
0.99	9.00	3	38	962879
1.00	9.00	3	38	962880
1.01	9.00	3	38	962881
1.02	9.00	3	38	962882
1.03	9.00	3	38	962883
1.04	9.00	3	38	962884
1.05	9.00	3	38	962885
1.06	9.00	3	38	962886
1.07	9.00	3	38	962887
1.08	9.00	3	38	962888
1.09	9.00	3	38	962889
1.10	9.00	3	38	962890
1.11	9.00	3	38	962901
1.12	9.00	3	38	962902
1.13	9.00	3	38	962903
1.14	9.00	3	38	962904
1.15	9.00	3	38	962905
1.16	10.00	3	38	962906
1.17	10.00	3	38	962907
1.18	10.00	3	38	962908
1.19	10.00	3	38	962909
1.20	10.00	3	38	962910
1.21	10.00	3	38	962911
1.22	10.00	3	38	962912
1.23	10.00	3	38	962913
1.24	10.00	3	38	962914
1.25	10.00	3	38	962915
1.26	10.00	3	38	962916
1.27	10.00	3	38	962917
1.28	10.00	3	38	962918
1.29	10.00	3	38	962919
1.30	10.00	3	38	962920
1.31	11.20	3	38	962921
1.32	11.20	3	38	962922
1.33	11.20	3	38	962923
1.34	11.20	3	38	962925
1.35	11.20	3	38	962926

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L	CARBIDE
1.36	11.20	3	38	962927
1.37	11.20	3	38	962928
1.38	11.20	3	38	962930
1.39	11.20	3	38	962931
1.40	11.20	3	38	962932
1.45	11.20	3	38	962933
1.50	11.20	3	38	962934
1.55	12.00	3	38	962935
1.60	12.00	3	38	962936
1.65	12.00	3	38	962937
1.67	12.00	3	38	969259
1.70	12.00	3	38	962938
1.75	12.00	3	38	962940
1.80	12.00	3	38	962941
1.85	12.00	3	38	962942
1.90	12.00	3	38	962943
1.95	12.00	3	38	962944
2.00	12.00	3	38	962945
2.03	15.00	3	38	969260
2.04	15.00	3	38	969261
2.05	15.00	3	38	963109
2.10	15.00	3	38	963111
2.15	15.00	3	38	963115
2.20	15.00	3	38	963116
2.25	15.00	3	38	963117
2.30	15.00	3	38	963118
2.35	15.00	3	38	963119
2.40	15.00	3	38	963120
2.45	15.00	3	38	963121
2.50	15.00	3	38	963122
2.55	15.00	3	38	963123
2.60	15.00	3	38	963124
2.70	16.00	3	38	963125
2.80	16.00	3	38	963126
2.90	16.00	3	38	963127

DIXI 1290

Z = 2

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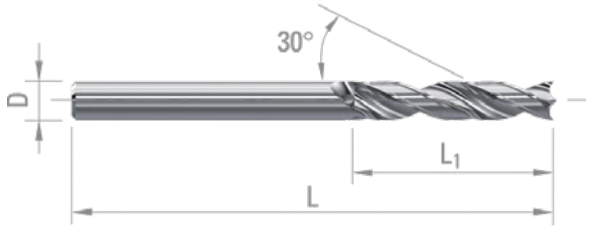
TWIST DRILLS FOR COMPOSITES / KEVLAR®



- Twist drills with cylindrical shank developed for the drilling of composite materials / Kevlar® and plastics.
- Reduces delamination phenomena.

○ good ◎ excellent

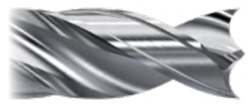
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

Ø 2.50 - Ø 5.556

D_{h5}	inches	L_1	L	CARBIDE
2.50		18	50	29322
3.00		18	50	26766
3.175	1/8″	18	50	27059
3.20		18	50	27948
3.30		18	50	28660
3.50		20	50	27949
3.80		20	50	26283
4.00		22	50	26767
4.10		22	50	29224
4.20		25	55	27951
4.50		25	58	27731
4.80		25	62	29324
5.00		25	62	29299
5.20		25	62	29072
5.50		25	66	27952
5.556	7/32″	25	60	26588

Ø 5.60 - Ø 12.00



D_{h5}	inches	L_1	L	CARBIDE
5.60		30	66	29215
6.00		30	66	43244
6.35	1/4″	30	70	27199
6.50		30	70	28661
8.00		35	75	26663
9.525	3/8″	35	75	27959
10.00		35	75	27684
11.00		50	100	29493
12.00		50	100	26723

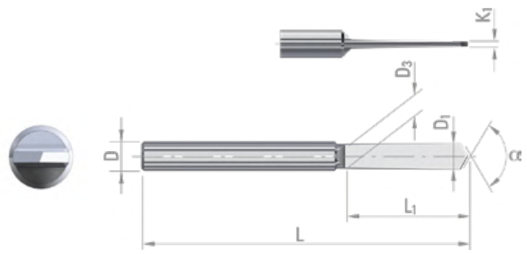
Cutting conditions : Vc = 100 - 150 m/min
f = 0.05 - 0.15 mm/rev

DIXI 1112 R+L

Z = 2

SPADE DRILLS

Ø 0.08 - 5.99



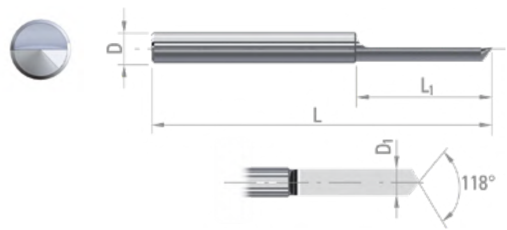
DIXI 1114 R+L

Z = 1

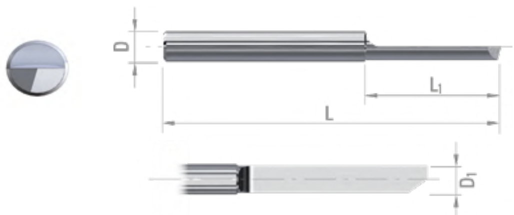
HALF-MOON BITS
EXECUTION A OR B

Ø 0.08 - 5.99

Ref A



Ref B



DIXI 1118 R+L

Z = 2

STRAIGHT FLUTE SLOT DRILLS

Ø 0.08 - 5.99

f Vc Ap

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TOOLS ON REQUEST

Indicative values to define
DIXI 1112, **1114** and **1118's** geometry.

$D_{1\ 0/-0.004}$	L_1	D_{h5}	L
0.08 - 0.14	0.70	1.00	30
0.15 - 0.29	1.00	1.00	30
0.30 - 0.39	1.50	1.00	30
0.40 - 0.44	2.00	1.00	30
0.45 - 0.48	3.60	1.00	30
0.49 - 0.53	4.00	1.00	30
0.54 - 0.60	4.50	1.00	30
0.61 - 0.67	5.00	1.00	30
0.68 - 0.75	5.60	1.00	30
0.76 - 0.79	6.30	1.00	30
0.80 - 0.85	6.30	1.50	30
0.86 - 0.95	7.10	1.50	30
0.96 - 0.99	8.00	1.50	30
1.00 - 1.18	9.00	1.50	30
1.19 - 1.32	10.00	1.50	30
1.33 - 1.49	11.20	1.50	30
1.50 - 1.99	12.00	2.00	38
2.00 - 2.49	12.00	2.50	43
2.50 - 2.99	15.00	3.00	46
3.00 - 3.49	18.00	3.50	50
3.50 - 3.99	18.00	4.00	50
4.00 - 4.49	20.00	4.50	50
4.50 - 4.99	22.00	5.00	50
5.00 - 5.49	25.00	5.50	50
5.50 - 5.99	25.00	6.00	50

DRAWINGS FOR ORDERS OF STEP DRILL

P.78 - 86

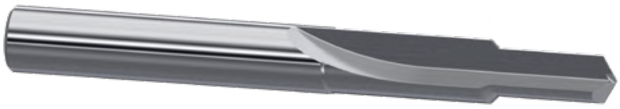
☐ **DIXI 1501**

Helix angle depending on the material to be machined.

☐ **DIXI 1514 (Z = 1)**

☐ **DIXI 1512 (Z = 2)**

☐ **DIXI 1518 (Z = 2)**



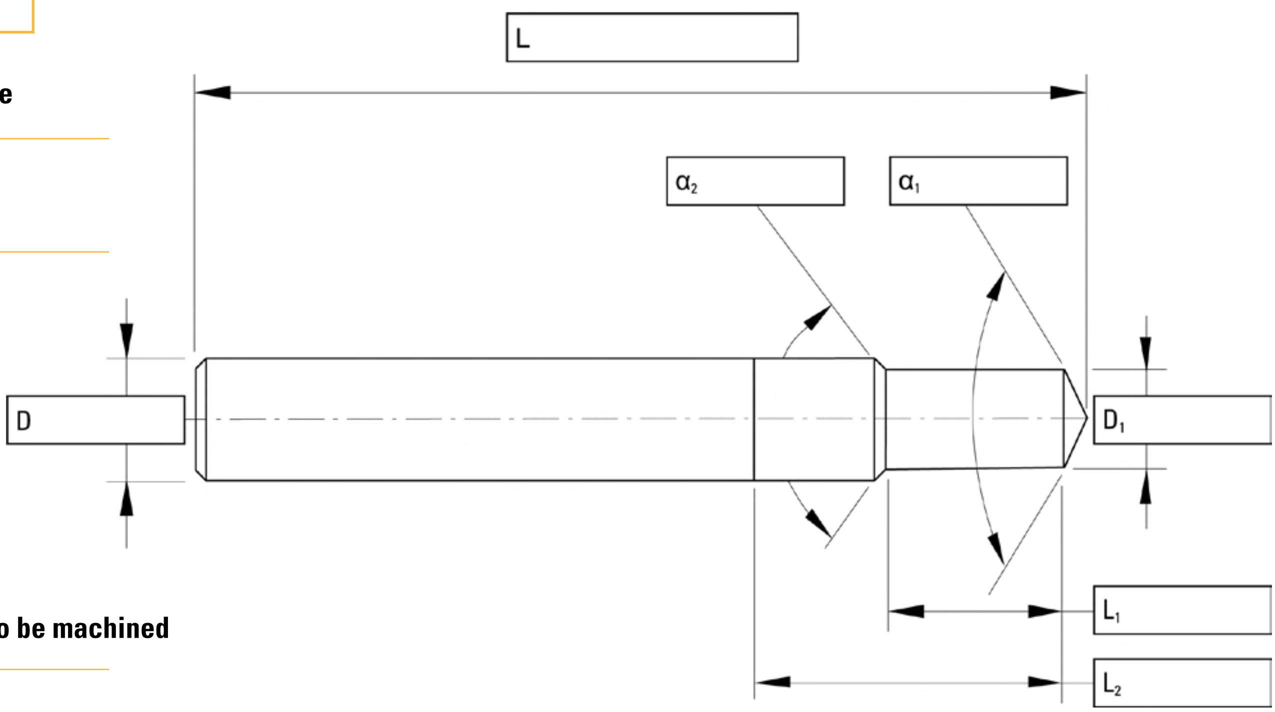
Unless specified, standard DIXI tolerances and dimensions will be used.

R ☐ **L** ☐

Z = ☐

Helix angle

Quantity



Material to be machined

Notice

VISIT OUR E-QUOTATION ON WWW.DIXIPOLYTOOL.COM

P.78 - 86

☐ **DIXI 1502**

Helix angle depending on the material to be machined.

☐ **DIXI 1514 (Z = 1)**

☐ **DIXI 1512 (Z = 2)**

☐ **DIXI 1518 (Z = 2)**

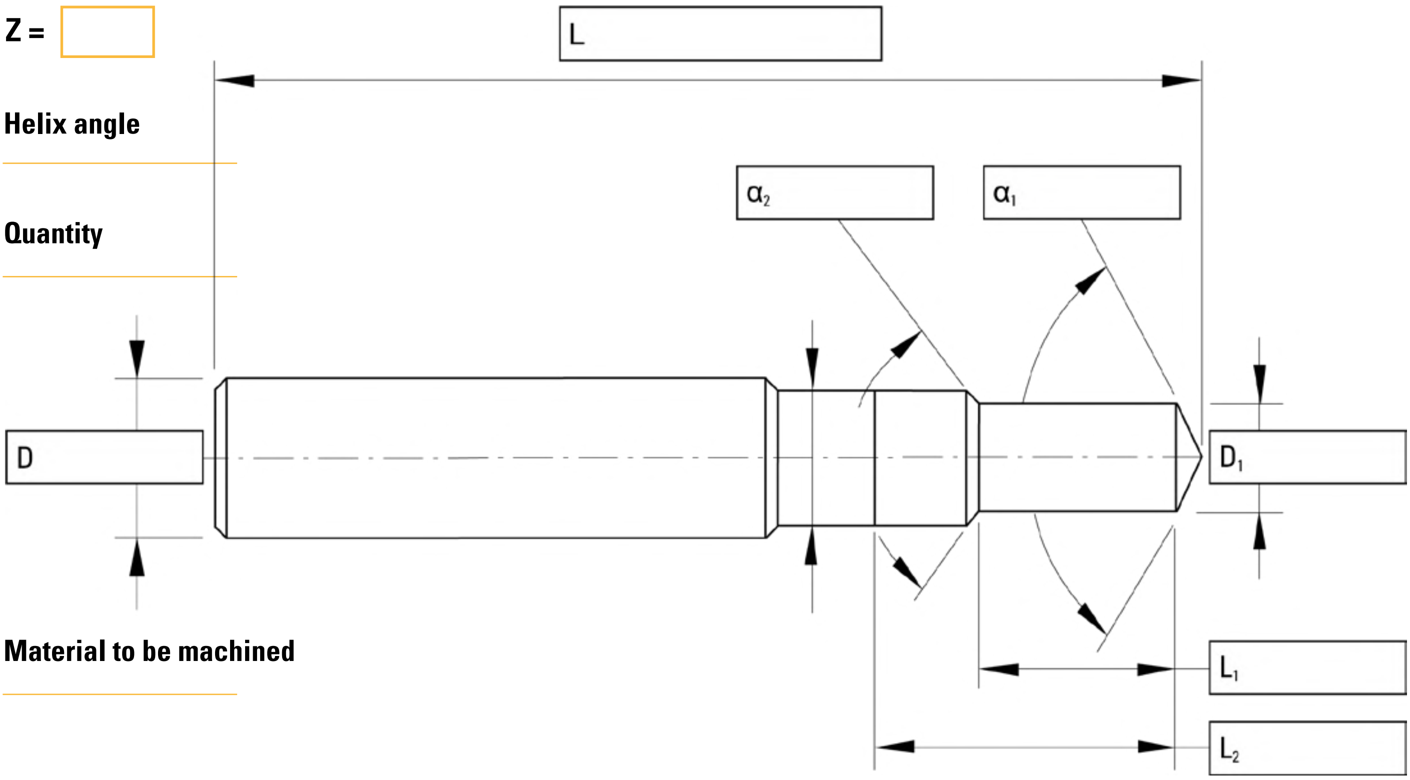
Unless specified, standard DIXI tolerances and dimensions will be used.

R ☐ **L** ☐

Z =

Helix angle

Quantity



Material to be machined

Notice

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P.78 - 86

☐ **DIXI 1503**

Helix angle depending on the material to be machined.

☐ **DIXI 1514 (Z = 1)**

☐ **DIXI 1512 (Z = 2)**

☐ **DIXI 1518 (Z = 2)**

Unless specified, standard DIXI tolerances and dimensions will be used.

R ☐ **L** ☐

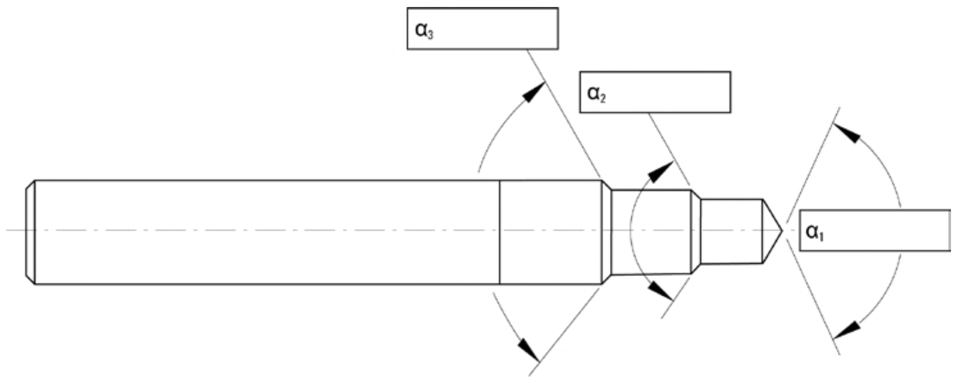
Z =

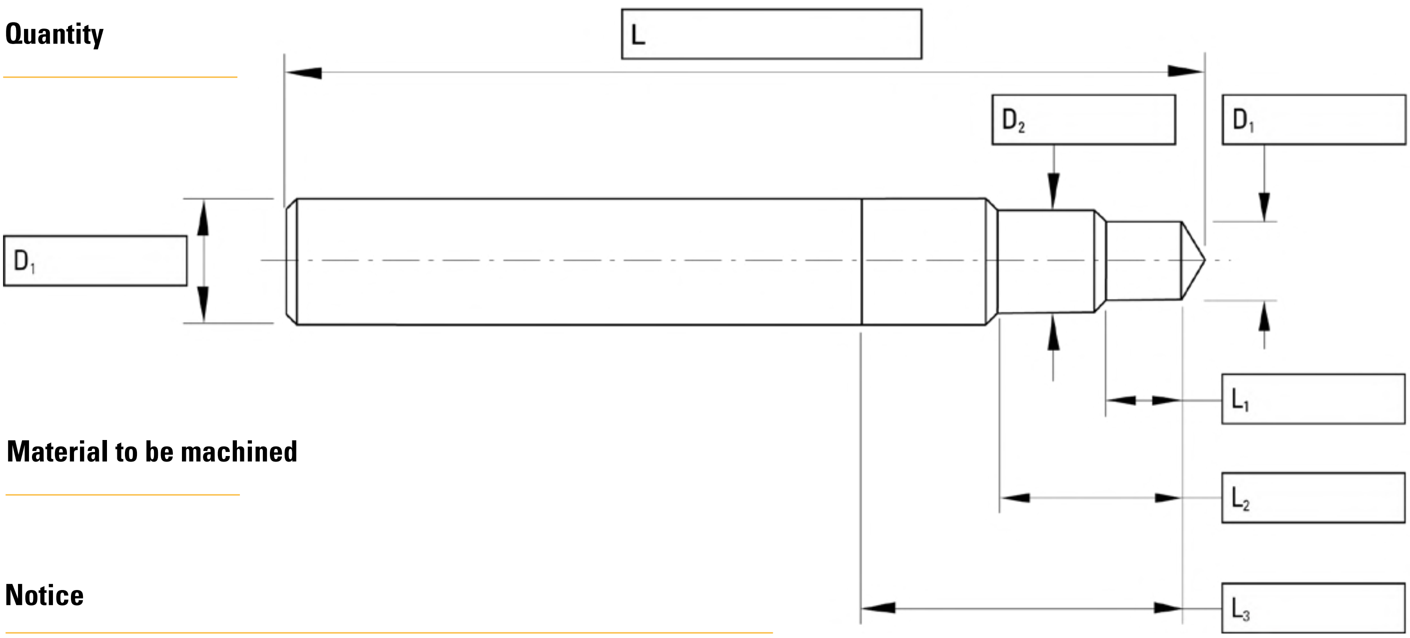
Helix angle

Quantity

Material to be machined

Notice





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P.78 - 86

☐ **DIXI 1504**

Helix angle depending on the material to be machined.

☐ **DIXI 1514 (Z = 1)**

☐ **DIXI 1512 (Z = 2)**

☐ **DIXI 1518 (Z = 2)**

Unless specified, standard DIXI tolerances and dimensions will be used.

R ☐ **L** ☐

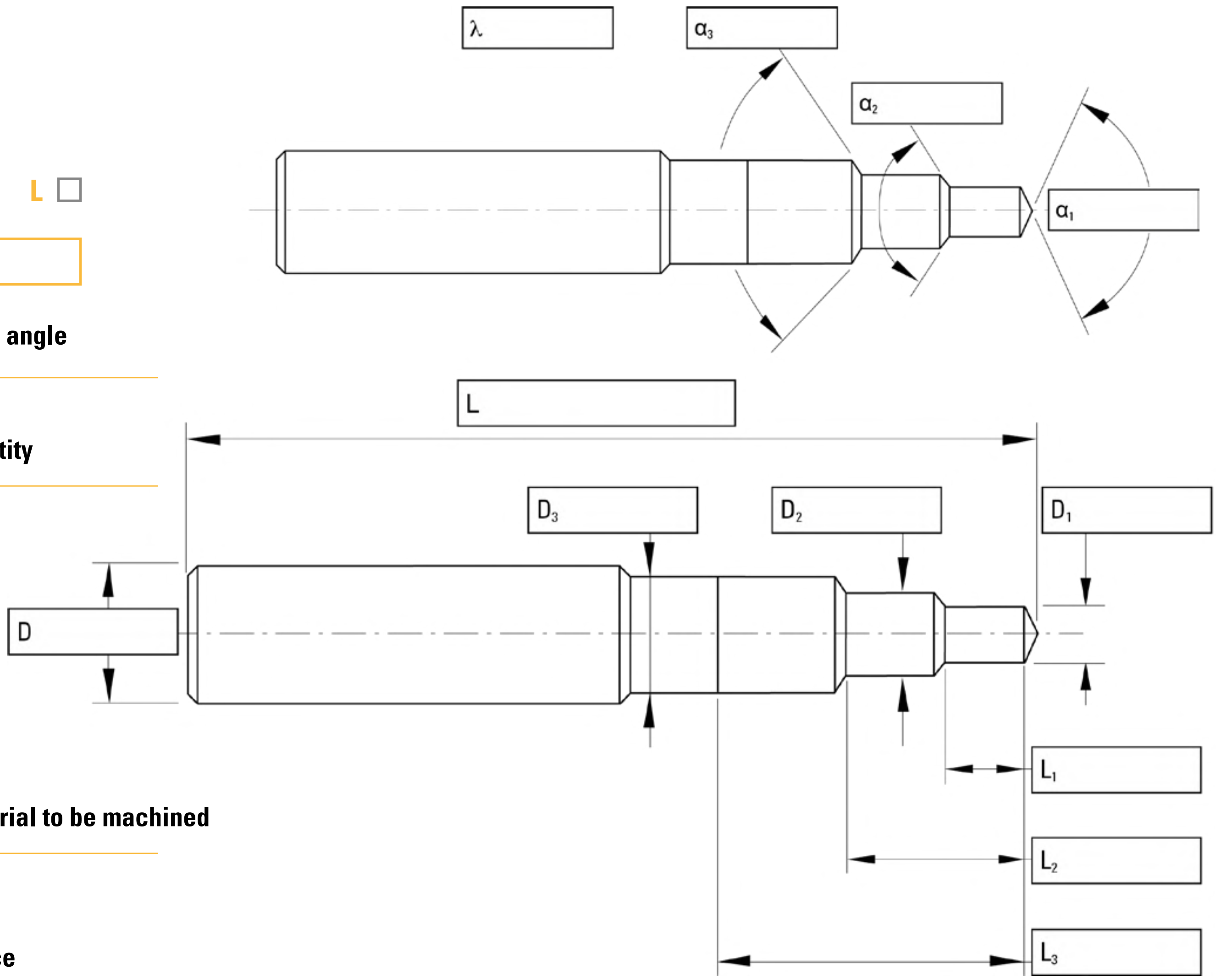
Z =

Helix angle

Quantity

Material to be machined

Notice



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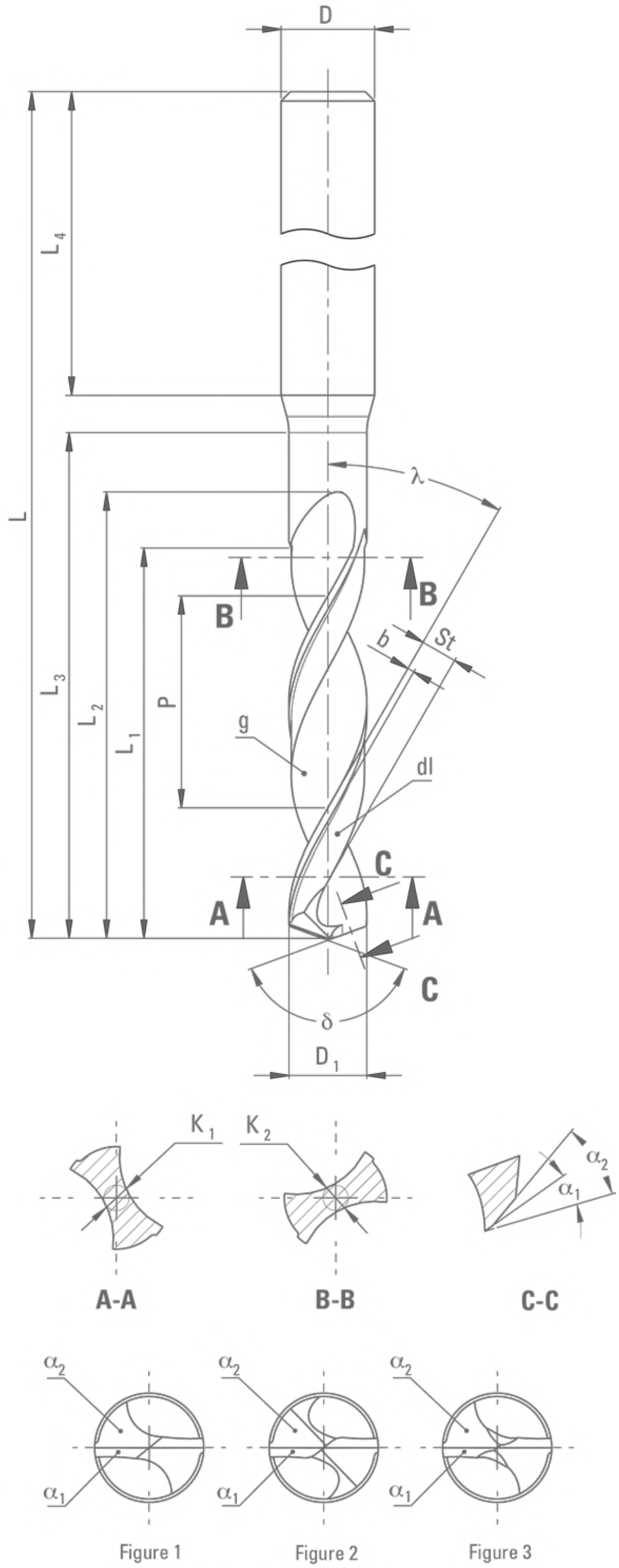


Figure 1 : Drill without web thinning

Figure 2 & 3 : Drills with web thinning

Symbol	Description
D_1	Drill diameter
D	Shank diameter
L	Overall length
L_1	Land length
L_2	Flute length
L_3	Cylindrical length
L_4	Shank length
P	Lead of helix
δ	Point angle
λ	Helix angle
α_1	Primary clearance
α_2	Secondary clearance
K_1	Primary web thickness
K_2	Secondary web thickness
b	Land width
St	Lip width
g	Flute
dl	Land clearance

DIXI 1101 - 1106 - 1107 - 1108 - 1109 - 1110

		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DICUT Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	**50** - 80	**60** - 90	**60** - 90
P	Low alloyed steel < 800 N/mm²	6 - 9	**40** - 70	**50** - 80	**50** - 80
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**30** - 50	**40** - 60	**40** - 60
M	Austenitic stainless steel < 700 N/mm²	14.1 - 14.2	**20** - 40	**30** - 50	**30** - 50
K	Grey cast iron < 250 HB	15 - 16	**30** - 50	**40** - 60	**40** - 60
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**30** - 50	**40** - 60	**40** - 60
N	Wrought aluminium alloy < 12% Si	21 - 22	**90** - 120	**100** - 130	
N	Cast aluminium alloy >12% Si	23 - 25	**80** - 100	**90** - 120	
N	Copper alloy good machinability with Pb	26	**70** - 110	**90** - 130	
N	Plastic, wood	29 - 30	**30** - 60	**50** - 80	
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 50	**20** - 50
S	Titanium, titanium alloy	36 - 37	**40** - 70		

DIXI 1111 - 1112 - 1114 - 1118

Pecking cycle

		VDI 3323	CARBIDE Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	**40** - 70	<6×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**80** - 100	<6×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**40** - 70	<8×ØD1
N	Copper alloy good machinability with Pb	26	**80** - 130	<8×ØD1
N	Copper alloy with difficult machinability	27 - 28	**70** - 110	<4×ØD1
N	Gold, silver	-	**50** - 80	<6×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.50 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 5.00	Ø D_1 5.00 - 7.00	Ø D_1 7.00 - 10.00	Ø D_1 10.00 - 14.00	Ø D_1 14.00 -16.00	Ø D_1 16.00 - 20.00
0.009 - 0.020	0.016 - 0.030	0.024 - 0.04	0.03 - 0.05	0.05 - 0.10	0.08 - 0.14	0.11 - 0.20	0.16 - 0.28	0.22 - 0.32	0.26 - 0.40
0.007 - 0.015	0.013 - 0.023	0.020 - 0.03	0.03 - 0.04	0.04 - 0.08	0.07 - 0.11	0.09 - 0.15	0.13 - 0.21	0.18 - 0.24	0.21 - 0.30
0.006 - 0.015	0.011 - 0.023	0.017 - 0.03	0.02 - 0.04	0.03 - 0.08	0.06 - 0.11	0.08 - 0.15	0.11 - 0.21	0.15 - 0.24	0.18 - 0.30
0.006 - 0.015	0.011 - 0.023	0.017 - 0.03	0.02 - 0.04	0.03 - 0.08	0.06 - 0.11	0.08 - 0.15	0.11 - 0.21	0.15 - 0.24	0.18 - 0.30
0.006 - 0.015	0.011 - 0.023	0.017 - 0.03	0.02 - 0.04	0.03 - 0.08	0.06 - 0.11	0.08 - 0.15	0.11 - 0.21	0.15 - 0.24	0.18 - 0.30
0.007 - 0.015	0.013 - 0.023	0.020 - 0.03	0.03 - 0.04	0.04 - 0.08	0.07 - 0.11	0.09 - 0.15	0.13 - 0.21	0.18 - 0.24	0.21 - 0.30
0.011 - 0.030	0.020 - 0.045	0.030 - 0.06	0.04 - 0.08	0.06 - 0.15	0.10 - 0.21	0.14 - 0.30	0.20 - 0.42	0.28 - 0.48	0.32 - 0.60
0.011 - 0.030	0.020 - 0.045	0.030 - 0.06	0.04 - 0.08	0.06 - 0.15	0.10 - 0.21	0.14 - 0.30	0.20 - 0.42	0.28 - 0.48	0.32 - 0.60
0.011 - 0.030	0.020 - 0.045	0.030 - 0.06	0.04 - 0.08	0.06 - 0.15	0.10 - 0.21	0.14 - 0.30	0.20 - 0.42	0.28 - 0.48	0.32 - 0.60
0.013 - 0.045	0.027 - 0.068	0.041 - 0.09	0.05 - 0.11	0.08 - 0.23	0.14 - 0.32	0.19 - 0.45	0.27 - 0.63	0.38 - 0.72	0.43 - 0.90
0.006 - 0.015	0.011 - 0.023	0.017 - 0.03	0.02 - 0.04	0.03 - 0.08	0.06 - 0.11	0.08 - 0.15	0.11 - 0.21	0.15 - 0.24	0.18 - 0.30
0.009 - 0.020	0.016 - 0.030	0.024 - 0.04	0.03 - 0.05	0.05 - 0.10	0.08 - 0.14	0.11 - 0.20	0.16 - 0.28	0.22 - 0.32	0.26 - 0.40

Feed per revolution f [mm]

Ø D_1 0.08 - 0.30	Ø D_1 0.30 - 0.70	Ø D_1 0.70 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 3.00	Ø D_1 3.00 - 6.00
0.0005 - 0.003	0.002 - 0.006	0.004 - 0.010	0.006 - 0.014	0.008 - 0.026	0.014 - 0.048
0.0008 - 0.004	0.002 - 0.010	0.006 - 0.014	0.010 - 0.022	0.012 - 0.040	0.022 - 0.072
0.0006 - 0.004	0.002 - 0.008	0.006 - 0.012	0.008 - 0.018	0.010 - 0.034	0.018 - 0.060
0.0006 - 0.004	0.002 - 0.008	0.006 - 0.012	0.008 - 0.018	0.010 - 0.034	0.018 - 0.060
0.0005 - 0.003	0.002 - 0.006	0.004 - 0.010	0.006 - 0.014	0.008 - 0.026	0.014 - 0.048
0.0005 - 0.003	0.002 - 0.006	0.004 - 0.010	0.006 - 0.014	0.008 - 0.026	0.014 - 0.048

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1126 - 1130

Pecking cycle

		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	40 - 60	50 - 70	<1.5×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		30 - 40	<0.8× ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13		25 - 40	<0.5×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2		45 - 60	<0.3×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		30 - 50	<0.3×ØD1
K	Grey cast iron < 250 HB	15 - 16	50 - 80	60 - 90	<2×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		30 - 50	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	80 - 130		<1×ØD1
	Cast aluminium alloy >12% Si	23 - 25	70 - 110		<1×ØD1
	Copper alloy good machinability with Pb	26	80 - 100		<3×ØD1
	Copper alloy with difficult machinability	27 - 28	40 - 70		<1×ØD1
	Plastic, wood	29 - 30	30 - 60		<2×ØD1
	Gold, silver	-	50 - 80		<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35		20 - 40	<0.3×ØD1
	Titanium, titanium alloy	36 - 37	30 - 50		<0.1×ØD1

DIXI 1131

Pecking cycle

		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	DLC Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	40 - 60	40 - 70		<2×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		30 - 40		<1×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13		25 - 40		<0.5×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2		45 - 60		<0.35×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		30 - 50		<0.35×ØD1
K	Grey cast iron < 250 HB	15 - 16	50 - 80	60 - 90		<3×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		40 - 60		<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	80 - 130		100 - 150	<1×ØD1
	Cast aluminium alloy >12% Si	23 - 25	70 - 110		90 - 130	<1×ØD1
	Copper alloy good machinability with Pb	26	80 - 100		90 - 110	<4×ØD1
	Copper alloy with difficult machinability	27 - 28	40 - 70		50 - 80	<2×ØD1
	Plastic, wood	29 - 30	30 - 60		50 - 80	<2×ØD1
	Gold, silver	-	50 - 80		70 - 100	<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35		20 - 40		<0.15×ØD1
	Titanium, titanium alloy	36 - 37	30 - 50			<0.35×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times f\ [mm]$$

Feed per revolution f [mm]

Ø D_1 0.30 - 1.00	Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 4.00	Ø D_1 4.00 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 12.00	Ø D_1 12.00 - 14.00
0.0024 - 0.012	0.008 - 0.024	0.016 - 0.050	0.030 - 0.070	0.040 - 0.110	0.060 - 0.120	0.060 - 0.140
0.0022 - 0.011	0.008 - 0.022	0.014 - 0.045	0.030 - 0.060	0.040 - 0.100	0.050 - 0.110	0.050 - 0.130
0.0019 - 0.010	0.006 - 0.020	0.012 - 0.040	0.030 - 0.060	0.030 - 0.090	0.050 - 0.100	0.050 - 0.110
0.0020 - 0.010	0.006 - 0.020	0.014 - 0.040	0.030 - 0.060	0.040 - 0.090	0.050 - 0.100	0.050 - 0.120
0.0018 - 0.009	0.006 - 0.018	0.012 - 0.035	0.020 - 0.050	0.030 - 0.080	0.050 - 0.090	0.050 - 0.110
0.0029 - 0.014	0.010 - 0.028	0.020 - 0.060	0.040 - 0.090	0.050 - 0.130	0.070 - 0.140	0.070 - 0.170
0.0024 - 0.012	0.008 - 0.024	0.016 - 0.050	0.030 - 0.070	0.040 - 0.110	0.060 - 0.120	0.060 - 0.140
0.0036 - 0.018	0.012 - 0.036	0.024 - 0.070	0.050 - 0.120	0.060 - 0.170	0.090 - 0.180	0.090 - 0.210
0.0036 - 0.018	0.012 - 0.036	0.024 - 0.070	0.050 - 0.120	0.060 - 0.170	0.090 - 0.180	0.090 - 0.210
0.0041 - 0.020	0.014 - 0.040	0.028 - 0.080	0.050 - 0.120	0.070 - 0.190	0.100 - 0.200	0.100 - 0.240
0.0029 - 0.014	0.010 - 0.028	0.020 - 0.060	0.040 - 0.090	0.050 - 0.130	0.070 - 0.140	0.070 - 0.170
0.0031 - 0.016	0.010 - 0.028	0.020 - 0.060	0.040 - 0.090	0.050 - 0.130	0.080 - 0.160	0.080 - 0.180
0.0024 - 0.012	0.008 - 0.024	0.016 - 0.050	0.030 - 0.070	0.040 - 0.110	0.060 - 0.120	0.060 - 0.140
0.0012 - 0.006	0.004 - 0.012	0.008 - 0.025	0.020 - 0.040	0.020 - 0.060	0.030 - 0.060	0.030 - 0.070
0.0024 - 0.012	0.008 - 0.024	0.016 - 0.050	0.030 - 0.070	0.040 - 0.110	0.060 - 0.120	0.060 - 0.140

Feed per revolution f [mm]

Ø D_1 0.05 - 0.15	Ø D_1 0.15 - 0.30	Ø D_1 0.30 - 0.60	Ø D_1 0.60 - 1.00	Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 2.45
0.0004 - 0.0018	0.0012 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.029
0.0004 - 0.0016	0.0011 - 0.0032	0.002 - 0.006	0.004 - 0.011	0.007 - 0.022	0.014 - 0.026
0.0003 - 0.0014	0.0010 - 0.0029	0.002 - 0.006	0.004 - 0.010	0.006 - 0.019	0.013 - 0.024
0.0003 - 0.0014	0.0010 - 0.0029	0.002 - 0.006	0.004 - 0.010	0.006 - 0.019	0.013 - 0.024
0.0003 - 0.0013	0.0008 - 0.0025	0.002 - 0.005	0.003 - 0.008	0.006 - 0.017	0.011 - 0.021
0.0005 - 0.0022	0.0014 - 0.0043	0.003 - 0.009	0.006 - 0.014	0.010 - 0.029	0.019 - 0.035
0.0004 - 0.0018	0.0012 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.029
0.0007 - 0.0031	0.0020 - 0.0061	0.004 - 0.012	0.008- 0.020	0.014 - 0.041	0.027 - 0.050
0.0005 - 0.0023	0.0016 - 0.0047	0.003 - 0.009	0.006 - 0.014	0.010 - 0.031	0.021 - 0.038
0.0008 - 0.0036	0.0024 - 0.0072	0.005 - 0.014	0.010 - 0.024	0.016 - 0.048	0.032 - 0.059
0.0005 - 0.0022	0.0014 - 0.0043	0.003 - 0.009	0.006 - 0.014	0.010 - 0.029	0.019 - 0.035
0.0006 - 0.0027	0.0018 - 0.0054	0.004 - 0.011	0.007 - 0.018	0.012 - 0.036	0.024 - 0.044
0.0004 - 0.0018	0.0012 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.029
0.0002 - 0.0009	0.0006 - 0.0018	0.001 - 0.004	0.002 - 0.006	0.004 - 0.012	0.008 - 0.015
0.0004 - 0.0018	0.0012 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.029

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1137-5D - 8D

		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	DRYCUT Vc [m/min]	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5	**40** - 80	**50** - 110		<3×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		**45** - 100		<1.5×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13		**45** - 90		<1.5×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2		**35** - 60		<0.3×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		**30** - 55		<0.5×ØD1
K	Grey cast iron < 250 HB	15 - 16	**80** - 150	**90** - 160		<2×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**40** - 80	**50** - 100		<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**80** - 150		**90** - 200	<3×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**50** - 90		**80** - 150	<3×ØD1
N	Copper alloy good machinability with Pb	26	**60** - 150		**65** - 180	<4×ØD1
N	Copper alloy with difficult machinability	27 - 28	**50** - 120		**55** - 130	<3×ØD1
N	Gold, silver	-	**60** - 120		**70** - 150	<3×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		<0.5×ØD1
S	Titanium, titanium alloy	36 - 37	**30** - 60	**35** - 70		<0.3×ØD1

DIXI 1512 - 1514 - 1518

		VDI 3323	CARBIDE Vc [m/min	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5	**50** - 80	<6×ØD1
K	Grey cast iron < 250 HB	15 - 16	**50** - 80	<6×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**40** - 70	<3×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**80** - 130	<5×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**70** - 110	<5×ØD1
N	Copper alloy good machinability with Pb	26	**80** - 100	<6×ØD1
N	Copper alloy with difficult machinability	27 - 28	**40** - 70	<3×ØD1
N	Gold, silver	-	**50** - 80	<2×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times f\ [mm]$$

Feed per revolution f [mm]

Ø D_1 0.15 - 0.40	Ø D_1 0.40 - 0.70	Ø D_1 0.70 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 4.00	Ø D_1 4.00 - 6.00
0.0026 - 0.0100	0.007 - 0.017	0.012 - 0.025	0.017 - 0.037	0.026 - 0.050	0.034 - 0.074	0.050 - 0.096	0.060 - 0.135
0.0024 - 0.0090	0.006 - 0.016	0.011 - 0.023	0.016 - 0.035	0.024 - 0.046	0.032 - 0.070	0.046 - 0.090	0.056 - 0.125
0.0021 - 0.0080	0.006 - 0.014	0.010 - 0.020	0.014 - 0.030	0.021 - 0.040	0.028 - 0.060	0.040 - 0.076	0.048 - 0.110
0.0016 - 0.0060	0.004 - 0.010	0.007 - 0.015	0.010 - 0.022	0.016 - 0.030	0.020 - 0.044	0.030 - 0.058	0.036 - 0.080
0.0014 - 0.0055	0.004 - 0.009	0.006 - 0.013	0.009 - 0.020	0.014 - 0.026	0.018 - 0.040	0.026 - 0.052	0.032 - 0.070
0.0035 - 0.0130	0.009 - 0.023	0.016 - 0.033	0.023 - 0.050	0.035 - 0.066	0.046 - 0.100	0.066 - 0.128	0.080 - 0.180
0.0017 - 0.0065	0.005 - 0.012	0.008 - 0.017	0.012 - 0.025	0.017 - 0.033	0.024 - 0.050	0.034 - 0.064	0.040 - 0.090
0.0035 - 0.0130	0.009 - 0.023	0.016 - 0.033	0.023 - 0.050	0.035 - 0.066	0.046 - 0.100	0.066 - 0.128	0.080 - 0.180
0.0030 - 0.0115	0.008 - 0.020	0.014 - 0.029	0.020 - 0.043	0.030 - 0.058	0.040 - 0.086	0.058 - 0.112	0.070 - 0.160
0.0043 - 0.0165	0.012 - 0.029	0.020 - 0.041	0.029 - 0.062	0.043 - 0.083	0.058 - 0.124	0.082 - 0.160	0.100 - 0.225
0.0033 - 0.0125	0.009 - 0.022	0.015 - 0.031	0.022 - 0.047	0.033 - 0.063	0.044 - 0.094	0.062 - 0.122	0.076 - 0.170
0.0030 - 0.0115	0.008 - 0.020	0.014 - 0.029	0.020 - 0.043	0.030 - 0.058	0.040 - 0.086	0.058 - 0.112	0.070 - 0.160
0.0009 - 0.0035	0.002 - 0.006	0.004 - 0.008	0.006 - 0.012	0.009 - 0.017	0.012 - 0.024	0.016 - 0.032	0.020 - 0.045
0.0017 - 0.0065	0.005 - 0.012	0.008 - 0.017	0.012 - 0.025	0.017 - 0.033	0.024 - 0.050	0.034 - 0.064	0.040 - 0.090

Feed per revolution f [mm]

Ø D_1 0.40 - 1.00	Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 4.00	Ø D_1 4.00 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 12.00	Ø D_1 12.00 - 14.00
0.0005 - 0.003	0.002 - 0.006	0.004 - 0.010	0.006 - 0.014	0.008 - 0.026	0.110 - 0.220	0.014 - 0.048
0.0058 - 0.022	0.014 - 0.044	0.028 - 0.085	0.060 - 0.130	0.080 - 0.200	0.110 - 0.220	0.110 - 0.250
0.0048 - 0.018	0.012 - 0.036	0.024 - 0.070	0.050 - 0.110	0.060 - 0.170	0.090 - 0.180	0.090 - 0.210
0.0096 - 0.036	0.024 - 0.072	0.048 - 0.145	0.100 - 0.220	0.130 - 0.330	0.180 - 0.360	0.180 - 0.420
0.0064 - 0.024	0.016 - 0.048	0.032 - 0.095	0.060 - 0.140	0.080 - 0.220	0.120 - 0.240	0.120 - 0.280
0.0080 - 0.030	0.020 - 0.060	0.040 - 0.120	0.080 - 0.180	0.110 - 0.280	0.150 - 0.300	0.150 - 0.350
0.0064 - 0.024	0.016 - 0.048	0.032 - 0.095	0.060 - 0.140	0.080 - 0.220	0.120 - 0.240	0.120 - 0.280
0.0064 - 0.024	0.016 - 0.048	0.032 - 0.095	0.060 - 0.140	0.080 - 0.220	0.120 - 0.240	0.120 - 0.280

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !
If the lubrication is emulsion or MQL, DRYCUT coating is preferred for non-ferrous materials.

DIXI 1132 - 1134 - 1135
1136 - 1138 - 1139

Pecking cycle

		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	TiAIN Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	**40** - 60	**40** - 70	**40** - 70	<2×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		**30** - 40	**30** - 40	<1×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13		**25** - 40	**25** - 40	<0.6×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2		**45** - 60	**45** - 60	<0.4×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		**30** - 50	**30** - 50	<0.4×ØD1
K	Grey cast iron < 250 HB	15 - 16	**50** - 80	**60** - 90	**60** - 90	<3×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**40** - 60	**40** - 60	**40** - 60	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**80** - 130			<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**70** - 110			<1×ØD1
N	Copper alloy good machinability with Pb	26	**80** - 100			<4×ØD1
N	Copper alloy with difficult machinability	27 - 28	**40** - 70			<1×ØD1
N	Plastic, wood	29 - 30	**30** - 60			<2×ØD1
N	Gold, silver	-	**50** - 80			<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**20** - 40	**20** - 40	**20** - 40	<0.15×ØD1
S	Titanium, titanium alloy	36 - 37	**30** - 50			<0.35×ØD1

DIXI 1133

Pecking cycle

		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	**40** - 60	**70** - 100	<1.5×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		**50** - 70	<0.8×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13		**40** - 60	<0.5×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2		**45** - 60	<0.3×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		**30** - 50	<0.3×ØD1
K	Grey cast iron < 250 HB	15 - 16	**50** - 80	**60** - 90	<2×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**30** - 50	**30** - 50	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**80** - 130		<2×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**70** - 110		<3×ØD1
N	Copper alloy good machinability with Pb	26	**80** - 100		<4×ØD1
N	Copper alloy with difficult machinability	27 - 28	**40** - 70		<2×ØD1
N	Gold, silver	-	**50** - 80		<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	36 - 37	**30** - 50		<0.3×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.05 - 0.15	Ø D_1 0.15 - 0.30	Ø D_1 0.30 - 0.60	Ø D_1 0.60 - 1.00	Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 2.50	Ø D_1 2.50 - 3.00
0.0004 - 0.0020	0.0013 - 0.0048	0.003 - 0.010	0.006 - 0.016	0.010 - 0.033	0.019 - 0.041	0.024 - 0.049
0.0003 - 0.0018	0.0012 - 0.0044	0.003 - 0.009	0.005 - 0.015	0.009 - 0.030	0.018 - 0.037	0.022 - 0.045
0.0003 - 0.0017	0.0011 - 0.0040	0.002 - 0.008	0.005 - 0.014	0.008 - 0.027	0.016 - 0.034	0.020 - 0.041
0.0003 - 0.0017	0.0011 - 0.0040	0.003 - 0.009	0.005 - 0.014	0.008- 0.029	0.017 - 0.036	0.021 - 0.043
0.0003 - 0.0016	0.0010 - 0.0038	0.002 - 0.008	0.005 - 0.013	0.008 - 0.026	0.015 - 0.032	0.019 - 0.039
0.0004 - 0.0023	0.0015 - 0.0056	0.003 - 0.011	0.007 - 0.019	0.011- 0.038	0.022 - 0.048	0.028 - 0.057
0.0004 - 0.0020	0.0013 - 0.0048	0.003 - 0.010	0.006 - 0.016	0.010 - 0.033	0.019 - 0.041	0.024 - 0.049
0.0005 - 0.0028	0.0018 - 0.0068	0.004 - 0.014	0.008 - 0.023	0.014 - 0.046	0.027 - 0.058	0.034 - 0.069
0.0005 - 0.0025	0.0016 - 0.0060	0.004 - 0.012	0.007 - 0.020	0.012 - 0.041	0.024 - 0.051	0.030 - 0.061
0.0005 - 0.0028	0.0018 - 0.0068	0.004 - 0.014	0.008 - 0.023	0.014 - 0.046	0.027 - 0.058	0.034 - 0.069
0.0004 - 0.0023	0.0015 - 0.0056	0.003 - 0.011	0.007 - 0.019	0.011 - 0.038	0.022 - 0.048	0.028 - 0.057
0.0005 - 0.0028	0.0018 - 0.0068	0.004 - 0.014	0.080 - 0.023	0.014 - 0.046	0.027 - 0.058	0.034 - 0.069
0.0004 - 0.0020	0.0013 - 0.0048	0.003 - 0.010	0.006 - 0.016	0.010 - 0.033	0.019 - 0.041	0.024 - 0.049
0.0002 - 0.0012	0.0007 - 0.0028	0.002 - 0.006	0.003 - 0.010	0.006 - 0.019	0.011- 0.024	0.014 - 0.029
0.0004 - 0.0020	0.0013 - 0.0048	0.003 - 0.010	0.006 - 0.016	0.010 - 0.033	0.019 - 0.041	0.024 - 0.049

Feed per revolution f [mm]

Ø D_1 0.50 - 0.70	Ø D_1 0.70 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 4.00	Ø D_1 4.00 - 6.00
0.0035 - 0.009	0.004 - 0.014	0.008 - 0.020	0.010 - 0.026	0.014 - 0.040	0.018 - 0.048	0.020 - 0.066
0.0032 - 0.008	0.004 - 0.012	0.006 - 0.018	0.010 - 0.024	0.012 - 0.036	0.016 - 0.044	0.018 - 0.060
0.0028 - 0.007	0.004 - 0.010	0.006 - 0.016	0.008 - 0.020	0.012 - 0.032	0.014 - 0.038	0.016 - 0.052
0.0030 - 0.008	0.004 - 0.012	0.006 - 0.016	0.008 - 0.022	0.012 - 0.034	0.016 - 0.040	0.018 - 0.056
0.0026 - 0.007	0.004 - 0.010	0.006 - 0.014	0.008 - 0.020	0.010 - 0.030	0.014 - 0.036	0.016 - 0.050
0.0042 - 0.011	0.006 - 0.016	0.008 - 0.024	0.012 - 0.032	0.016 - 0.046	0.022 - 0.058	0.024 - 0.080
0.0035 - 0.009	0.004 - 0.014	0.008 - 0.020	0.010 - 0.026	0.014 - 0.040	0.018 - 0.048	0.020 - 0.066
0.0060 - 0.015	0.008 - 0.022	0.012 - 0.034	0.018 - 0.044	0.024 - 0.066	0.030 - 0.082	0.034 - 0.112
0.0046 - 0.012	0.006 - 0.016	0.010 - 0.026	0.014 - 0.034	0.018 - 0.050	0.024 - 0.062	0.028 - 0.086
0.0060 - 0.0015	0.008 - 0.020	0.012 - 0.034	0.018 - 0.044	0.024 - 0.066	0.030 - 0.082	0.034 - 0.112
0.0042 - 0.011	0.006 - 0.016	0.008 - 0.024	0.012 - 0.032	0.016 - 0.046	0.022 - 0.058	0.024 - 0.080
0.0035 - 0.009	0.004- 0.014	0.008 - 0.020	0.010 - 0.026	0.014 - 0.040	0.018 - 0.048	0.020 - 0.066
0.0035 - 0.009	0.004- 0.014	0.008 - 0.020	0.010 - 0.026	0.014 - 0.040	0.018 - 0.048	0.020 - 0.066

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1147 TiAlN

Pecking cycle

		VDI 3323	TiAlN Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	**70** - 100	<4×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9	**60** - 90	<4×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13	**40** - 70	<2×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2	**30** - 50	<0.5×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4	**20** - 40	<0.6×ØD1
K	Grey cast iron < 250 HB	15 - 16	**90** - 130	<4×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**70** - 100	<2×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**15** - 30	<3×ØD1
S	Titanium, titanium alloy	36 - 37	**30** - 60	<0.5×ØD1

DIXI 1149 TiAlN

Pecking cycle

		VDI 3323	TiAlN Vc [m/min]	Q1
P	Unalloyed steel, leaded steel	1 - 5	**70** - 100	<3×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9	**60** - 90	<1.5×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13	**40** - 70	<2×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2	**40** - 60	<0.75×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4	**30** - 50	<0.75×ØD1
K	Grey cast iron < 250 HB	15 - 16	**70** - 100	<4×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**30** - 50	<2×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**130** - 180	<3×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**100** - 150	<3×ØD1
N	Copper alloy good machinability with Pb	26	**80** - 130	<3×ØD1
N	Copper alloy with difficult machinability	27 - 28	**60** - 80	<1.5×ØD1
N	Gold, silver	-	**70** - 90	<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**15** - 30	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**30** - 60	<0.5×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.50 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 5.00	Ø D_1 5.00 - 7.00	Ø D_1 7.00 - 10.00
0.030 - 0.082	0.062 - 0.124	0.080 - 0.145	0.090 - 0.190	0.110 - 0.260	0.150 - 0.290	0.160 - 0.310
0.028 - 0.074	0.054 - 0.110	0.072 - 0.130	0.080 - 0.170	0.100 - 0.230	0.140 - 0.260	0.140 - 0.280
0.028 - 0.074	0.054 - 0.110	0.072 - 0.130	0.080 - 0.170	0.100 - 0.230	0.140 - 0.260	0.140 - 0.280
0.012 - 0.030	0.022 - 0.044	0.030 - 0.050	0.030 - 0.070	0.040 - 0.090	0.060 - 0.100	0.060 - 0.110
0.010 - 0.026	0.020 - 0.040	0.026 - 0.045	0.030 - 0.060	0.040 - 0.080	0.050 - 0.090	0.050 - 0.100
0.034 - 0.092	0.068 - 0.138	0.090 - 0.160	0.100 - 0.210	0.130 - 0.290	0.170 - 0.320	0.180 - 0.350
0.026 - 0.070	0.052 - 0.104	0.066 - 0.120	0.080 - 0.160	0.100 - 0.220	0.130 - 0.240	0.130 - 0.260
0.008 - 0.024	0.018 - 0.034	0.022 - 0.040	0.030 - 0.050	0.030 - 0.070	0.040 - 0.080	0.040 - 0.090
0.012 - 0.032	0.024 - 0.048	0.032 - 0.055	0.040 - 0.070	0.040 - 0.100	0.060 - 0.110	0.060 - 0.120

Feed per revolution f [mm]

Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 4.50	Ø D_1 4.50 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 12.00	Ø D_1 12.00 - 14.00
0.012 - 0.024	0.024 - 0.036	0.036 - 0.055	0.050 - 0.070	0.060 - 0.100	0.100 - 0.120	0.120 - 0.150
0.013 - 0.026	0.026 - 0.038	0.038 - 0.055	0.060 - 0.080	0.070 - 0.110	0.110 - 0.130	0.130 - 0.150
0.012 - 0.024	0.024 - 0.036	0.036 - 0.055	0.050 - 0.070	0.060 - 0.100	0.100 - 0.120	0.120 - 0.150
0.011 - 0.021	0.021 - 0.032	0.032 - 0.045	0.050 - 0.060	0.050 - 0.090	0.090 - 0.110	0.110 - 0.130
0.010 - 0.020	0.020 - 0.029	0.030 - 0.045	0.040 - 0.060	0.050 - 0.080	0.080 - 0.100	0.100 - 0.120
0.023 - 0.045	0.045 - 0.068	0.068 - 0.100	0.100 - 0.140	0.120 - 0.200	0.200 - 0.230	0.230 - 0.270
0.020 - 0.039	0.039 - 0.059	0.058 - 0.090	0.090 - 0.120	0.100 - 0.170	0.170 - 0.200	0.200 - 0.240
0.020 - 0.039	0.039 - 0.059	0.058 - 0.090	0.090 - 0.120	0.100 - 0.170	0.170 - 0.200	0.200 - 0.240
0.015 - 0.030	0.030 - 0.045	0.046 - 0.070	0.070 - 0.090	0.080 - 0.130	0.130 - 0.160	0.160 - 0.180
0.020 - 0.039	0.039 - 0.059	0.058 - 0.090	0.090 - 0.120	0.100 - 0.170	0.170 - 0.200	0.200 - 0.240
0.015 - 0.030	0.030 - 0.045	0.046 - 0.070	0.070 - 0.090	0.080 - 0.130	0.130 - 0.160	0.160 - 0.180
0.014 - 0.027	0.027 - 0.0405	0.040 - 0.060	0.060 - 0.080	0.070 - 0.120	0.120 - 0.140	0.140 - 0.160
0.011 - 0.023	0.023 - 0.034	0.034 - 0.050	0.050 - 0.070	0.060 - 0.100	0.100 - 0.120	0.120 - 0.140
0.015 - 0.030	0.030 - 0.045	0.046 - 0.070	0.070 - 0.090	0.080 - 0.130	0.130 - 0.160	0.160 - 0.180

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1145-HH TiAlN

		VDI 3323	TiAlN Vc [m/min]	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5	**90** - 130	
P	Low alloyed steel < 800 N/mm2	6 - 9	**80** - 115	
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13	**50** - 90	
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2	**50** - 80	< 3×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4	**40** - 65	< 3×ØD1
K	Grey cast iron < 250 HB	15 - 16	**90** - 130	
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**40** - 65	
N	Wrought aluminium alloy < 12% Si	21 - 22	**170** - 235	
N	Cast aluminium alloy >12% Si	23 - 25	**130** - 195	
N	Copper alloy good machinability with Pb	26	**90** - 115	
N	Copper alloy with difficult machinability	27 - 28	**80** - 105	
N	Gold, silver	-	**105** - 130	
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**20** - 40	
S	Titanium, titanium alloy	36 - 37	**40** - 80	< 3×ØD1

DIXI 1146-HH TiAlN

		VDI 3323	TiAlN Vc [m/min]	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5	**90** - 130	
P	Low alloyed steel < 800 N/mm2	6 - 9	**80** - 115	
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13	**50** - 90	
M	Austenitic stainless steel < 700 N/mm2	14.1 - 14.2	**40** - 65	< 3×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4	**25** - 50	< 3×ØD1
K	Grey cast iron < 250 HB	15 - 16	**115** - 170	
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**105** - 145	
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**20** - 40	
S	Titanium, titanium alloy	36 - 37	**40** - 80	< 3×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.80 - 1.10	Ø D_1 1.10 - 2.50	Ø D_1 2.50 - 4.00	Ø D_1 4.00 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 12.00	Ø D_1 12.00 - 14.00
0.013 - 0.024	0.020 - 0.055	0.046 - 0.090	0.070 - 0.130	0.110 - 0.220	0.160 - 0.240	0.170 - 0.250
0.011 - 0.022	0.018 - 0.050	0.040 - 0.080	0.060 - 0.120	0.100 - 0.200	0.140 - 0.220	0.150 - 0.230
0.010 - 0.019	0.016 - 0.044	0.036 - 0.070	0.060 - 0.110	0.090 - 0.180	0.130 - 0.190	0.130 - 0.200
0.011 - 0.021	0.017 - 0.047	0.038 - 0.075	0.060 - 0.110	0.090 - 0.190	0.140 - 0.200	0.140 - 0.210
0.009 - 0.018	0.015 - 0.041	0.034 - 0.065	0.050 - 0.100	0.080 - 0.170	0.120 - 0.180	0.130 - 0.190
0.015 - 0.029	0.024 - 0.066	0.054 - 0.105	0.090 - 0.160	0.130 - 0.260	0.190 - 0.290	0.200 - 0.170
0.013 - 0.024	0.020 - 0.055	0.046 - 0.090	0.070 - 0.130	0.110 - 0.220	0.160 - 0.240	0.170 - 0.250
0.019 - 0.036	0.030 - 0.083	0.068 - 0.130	0.110 - 0.200	0.160 - 0.330	0.240 - 0.360	0.250 - 0.380
0.016 - 0.031	0.026 - 0.072	0.058 - 0.115	0.090 - 0.170	0.140 - 0.290	0.210 - 0.310	0.220 - 0.330
0.019 - 0.036	0.030 - 0.083	0.068 - 0.130	0.110 - 0.200	0.160 - 0.330	0.240 - 0.360	0.250 - 0.380
0.015 - 0.029	0.024 - 0.066	0.054 - 0.105	0.090 - 0.160	0.130 - 0.260	0.190 - 0.290	0.200 - 0.300
0.013 - 0.024	0.020 - 0.055	0.046 - 0.090	0.070 - 0.130	0.110 - 0.220	0.160 - 0.240	0.170 - 0.250
0.006 - 0.012	0.010 - 0.028	0.022 - 0.045	0.040 - 0.070	0.050 - 0.110	0.080- 0.120	0.080 - 0.130
0.013 - 0.024	0.020 - 0.055	0.046 - 0.090	0.070 - 0.130	0.110 - 0.220	0.160 - 0.240	0.170 - 0.250

Feed per revolution f [mm]

Ø D_1 0.80 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 2.00- 3.00	Ø D_1 3.00 - 5.00	Ø D_1 5.00 - 7.00	Ø D_1 7.00 - 10.00
0.049 - 0.083	0.061 - 0.124	0.080 - 0.145	0.010 - 0.026	0.092 - 0.185	0.110 - 0.260	0.150 - 0.290	0.160 - 0.310
0.044 - 0.074	0.054 - 0.110	0.071 - 0.129	0.010 - 0.024	0.082 - 0.165	0.100 - 0.230	0.140 - 0.260	0.140 - 0.280
0.044 - 0.074	0.054 - 0.110	0.071 - 0.129	0.008 - 0.020	0.082 - 0.165	0.100 - 0.230	0.140 - 0.260	0.140 - 0.280
0.018 - 0.030	0.022 - 0.045	0.029 - 0.052	0.008 - 0.022	0.034 - 0.065	0.040 - 0.090	0.060 - 0.100	0.060 - 0.110
0.016 - 0.027	0.020 - 0.040	0.026 - 0.047	0.008 - 0.020	0.030 - 0.060	0.040 - 0.080	0.050 - 0.090	0.050 - 0.100
0.054 - 0.092	0.068 - 0.138	0.089 - 0.161	0.012 - 0.032	0.102 - 0.205	0.130 - 0.290	0.170 - 0.320	0.180 - 0.350
0.041 - 0.069	0.051 - 0.104	0.067 - 0.121	0.010 - 0.026	0.076 - 0.155	0.100 - 0.220	0.130 - 0.240	0.130 - 0.260
0.014 - 0.023	0.017- 0.035	0.022 - 0.040	0.010 - 0.026	0.026 - 0.050	0.030 - 0.070	0.040 - 0.080	0.040 - 0.090
0.022 - 0.037	0.027- 0.055	0.036 - 0.064	0.010 - 0.026	0.040 - 0.085	0.050 - 0.120	0.070 - 0.130	0.070 - 0.140

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1151 - 1152

		VDI 3323		CARBIDE Vc [m/min]	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5	 n [rpm]	**90** - 130	<1×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		**80** - 115	<1×ØD1
K	Grey cast iron < 250 HB	15 - 16		**90** - 130	<4×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**40** - 65	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25		**130** - 195	<4×ØD1
	Copper alloy good machinability with Pb	26		**90** - 115	<4×ØD1
	Gold, silver	-	f [mm/rev]	**105** - 130	<1×ØD1
S	Titanium, titanium alloy	36 - 37		**40** - 80	<0.75×ØD1

DIXI 1501 - 1502 - 1503 - 1504

		VDI 3323		CARBIDE Vc [m/min]	TiAlN Vc [m/min]	Pecking cycle Q1
P	Unalloyed steel, leaded steel	1 - 5		**40** - 60	**40** - 70	<2×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9	n [rpm]		**40** - 60	<1×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.-marten.	10 - 13			**30** - 60	<0.5×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.3 - 14.4			**40** - 60	<0.35×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4			**35** - 55	<0.35×ØD1
K	Grey cast iron < 250 HB	15 - 16		**60** - 100	**60** - 100	<3×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**40** - 70	**40** - 70	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22		**80** - 130		<1×ØD1
	Cast aluminium alloy >12% Si	23 - 25		**70** - 110		<1×ØD1
	Copper alloy good machinability with Pb	26		**80** - 100		<4×ØD1
	Copper alloy with difficult machinability	27 - 28	f [mm/rev]	**40** - 70		<2×ØD1
	Plastic, wood	29 - 30		**100** - 150		<2× ØD1
	Gold, silver	-		**50** - 80		<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35			**20** - 40	<0.15×ØD1
	Titanium, titanium alloy	36 - 37		**30** - 50		<0.35×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.15 - 0.50	Ø D_1 0.50 - 1.00	Ø D_1 1.00 - 1.50	Ø D_1 1.50 - 3.00	Ø D_1 3.00 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 14.00
0.0014 - 0.008	0.005 - 0.016	0.010 - 0.022	0.014 - 0.045	0.020 - 0.080	0.040 - 0.120	0.050 - 0.140
0.0012 - 0.007	0.004 - 0.014	0.008 - 0.020	0.012 - 0.040	0.020 - 0.070	0.030 - 0.110	0.050 - 0.130
0.0016 - 0.009	0.005 - 0.018	0.010 - 0.028	0.016 - 0.055	0.025 - 0.095	0.040 - 0.140	0.060 - 0.170
0.0014 - 0.008	0.005 - 0.016	0.010 - 0.022	0.014 - 0.045	0.020 - 0.080	0.040 - 0.120	0.050 - 0.140
0.0018 - 0.010	0.006 - 0.020	0.012 - 0.030	0.018 - 0.060	0.025 - 0.100	0.050 - 0.160	0.070 - 0.180
0.0020 - 0.011	0.007 - 0.022	0.014 - 0.034	0.020 - 0.070	0.030 - 0.115	0.050 - 0.180	0.080 - 0.210
0.0014 - 0.008	0.005 - 0.016	0.010 - 0.022	0.014 - 0.045	0.020 - 0.080	0.040 - 0.120	0.050 - 0.140
0.0014 - 0.008	0.005 - 0.016	0.010 - 0.022	0.014 - 0.045	0.020 - 0.080	0.040 - 0.120	0.050 - 0.140

Feed per revolution f [mm]

Ø D_1 0.05 - 0.30	Ø D_1 0.30 - 0.60	Ø D_1 0.60 - 1.00	Ø D_1 1.00 - 2.00	Ø D_1 2.00 - 3.00	Ø D_1 3.00 - 4.00	Ø D_1 4.00 - 6.00	Ø D_1 6.00 - 12.00	Ø D_1 12.00 - 20.00
0.0004 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.036	0.024 - 0.048	0.032 - 0.070	0.040 - 0.080	0.070 - 0.120
0.0004 - 0.0032	0.002 - 0.006	0.004 - 0.011	0.007 - 0.022	0.014 - 0.032	0.022 - 0.043	0.028 - 0.065	0.040 - 0.080	0.060 - 0.110
0.0003 - 0.0029	0.002 - 0.006	0.004 - 0.010	0.006 - 0.019	0.013 - 0.029	0.019 - 0.038	0.026 - 0.060	0.030 - 0.070	0.060 - 0.100
0.0003 - 0.0029	0.002 - 0.006	0.004 - 0.010	0.006 - 0.019	0.013 - 0.029	0.019 - 0.038	0.026 - 0.060	0.030 - 0.070	0.060 - 0.100
0.0003 - 0.0025	0.002 - 0.005	0.003 - 0.008	0.006 - 0.017	0.011 - 0.025	0.017 - 0.034	0.022 - 0.050	0.030 - 0.060	0.050 - 0.080
0.0005 - 0.0043	0.003 - 0.009	0.006 - 0.014	0.010 - 0.029	0.019 - 0.043	0.029 - 0.058	0.038 - 0.085	0.050 - 0.100	0.090 - 0.140
0.0004 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.036	0.024 - 0.048	0.032 - 0.070	0.040 - 0.080	0.070 - 0.120
0.0006 - 0.0054	0.004 - 0.011	0.007 - 0.018	0.012- 0.036	0.024 - 0.054	0.036 - 0.072	0.048 - 0.110	0.060 - 0.130	0.110 - 0.180
0.0005 - 0.0047	0.003 - 0.009	0.006 - 0.016	0.010 - 0.031	0.021 - 0.047	0.031 - 0.062	0.042 - 0.095	0.050 - 0.110	0.090 - 0.160
0.0006 - 0.0054	0.004 - 0.011	0.007 - 0.018	0.012 - 0.036	0.024 - 0.054	0.036 - 0.072	0.048 - 0.110	0.060 - 0.130	0.110 - 0.180
0.0005 - 0.0043	0.003 - 0.009	0.006 - 0.014	0.010 - 0.029	0.019 - 0.043	0.029 - 0.058	0.038 - 0.085	0.050 - 0.100	0.090 - 0.140
0.0006 - 0.0054	0.004 - 0.011	0.007 - 0.018	0.012 - 0.036	0.024 - 0.054	0.036 - 0.072	0.048 - 0.100	0.060 - 0.130	0.110 - 0.180
0.0004 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.036	0.024 - 0.048	0.032 - 0.070	0.040 - 0.080	0.070 - 0.120
0.0002 - 0.0018	0.001 - 0.004	0.002 - 0.006	0.004 - 0.012	0.008 - 0.018	0.012 - 0.024	0.016 - 0.035	0.020 - 0.040	0.040 - 0.060
0.0004 - 0.0036	0.002 - 0.007	0.005 - 0.012	0.008 - 0.024	0.016 - 0.036	0.024 - 0.048	0.032 - 0.070	0.040 - 0.080	0.070 - 0.120

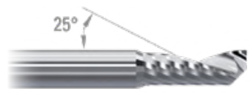
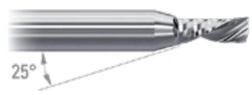
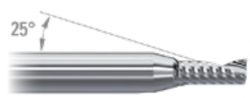
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

MILLING

SELECTION OF END MILLS

✓ = item from stock
* for non-ferrous material

STRAIGHT FLUTE SLOT DRILLS		Z	Page	Roughing Finishing		☐ CARBIDE	■ DLC*	
DIXI 7060 Ø0.50 - Ø6.00		1	106	Roughing ●●○○○ Finishing ●●●●○		✓		
DIXI 7063 Ø0.40 - Ø4.00		1	107	Roughing ●●●○○ Finishing ●●●●●		✓		
DIXI 7232 Ø2.00 - Ø8.00		2	108	Roughing ●●○○○ Finishing ●●●○○	DIN 6528	✓		
DIXI 7233 Ø0.50 - Ø6.00		3	109	Roughing ●●●○○ Finishing ●●●●●		✓		

END MILLS Z=1								
DIXI 7561 Ø2.00 - Ø12.00		1	110	Roughing ●●●○○ Finishing ●●○○○		✓	✓*	
DIXI 7305 Ø1.00 - Ø12.00		1	111	Roughing ●●●●○ Finishing ●●●●○		✓		
DIXI 7315 Ø2.00 - Ø12.00		1	112	Roughing ●●●●○ Finishing ●●●●○		✓		
DIXI 7306 Ø1.00 - Ø12.00		1	113	Roughing ●●●●○ Finishing ●●●●○		✓		
DIXI 7307 Ø1.00 - Ø12.00		1	114	Roughing ●●●●○ Finishing ●●●●○		✓	✓*	
DIXI 7308 Ø6.00 - Ø8.00		1	115	Roughing ●●●●○ Finishing ●●●●○	± 0.02	✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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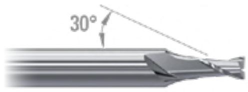
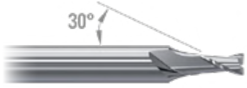
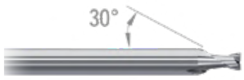
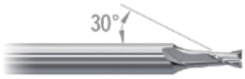
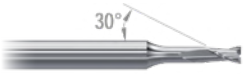
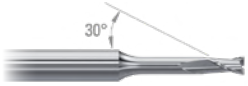
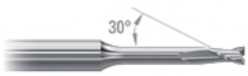
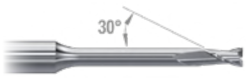
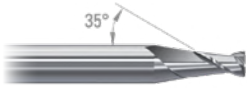
○ good ◎ excellent

SELECTION OF END MILLS

✓ = item from stock
* for non-ferrous material

END MILLS Z=2		Z	Page	Roughing / Finishing		☐ CARBIDE	TiAlN	C-TOP	DIAMANT*
DIXI 7242 Ø0.10 - Ø20.00		2	116	Roughing ●●●○○ Finishing ●●●○○	D1>6 DIN 6527	✓	✓		
DIXI 7342 Ø0.10 - Ø12.00		2	118	Roughing ●●●●○ Finishing ●●●●○		✓		✓	
DIXI 7202 Ø1.50 - Ø12.00		2	119	Roughing ●○○○○ Finishing ●●●●○		✓	✓		✓*
DIXI 7222 Ø3.00 - Ø20.00		2	120	Roughing ●○○○○ Finishing ●●●●○		✓	✓		✓*
DIXI 7240 Ø0.04 - Ø5.50		2	121	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-3D Ø0.15 - Ø3.00		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-5D Ø0.30 - Ø3.00		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-8D Ø0.40 - Ø3.00		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-10D Ø0.50 - Ø3.00		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-12D Ø0.50 - Ø1.70		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7240-15D Ø0.50 - Ø1.35		2	122	Roughing ●●●●○ Finishing ●●●○○		✓	✓		
DIXI 7582 Ø1.00 - Ø20.00		2	126	Roughing ●●●○○ Finishing ●●●○○	D1≥2.8	✓	✓		
DIXI 7572 Ø3.00 - Ø12.00		2	127	Roughing ●●○○○ Finishing ●●●○○		✓	✓		✓*

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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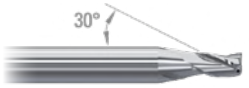
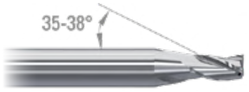
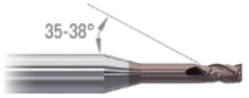
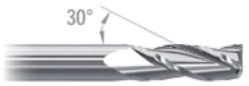
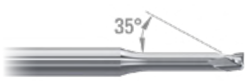
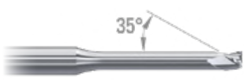
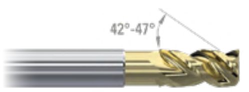
○ good ◎ excellent

✓ = item from stock
* for non-ferrous material

END MILLS Z=3		Z	Page	Roughing Finishing		CARBIDE	TiAlN	C-TOP	XIDUR	CUTINOX	DIXAL	DLC*	DIAMANT*
DIXI 7243 Ø0.35 - Ø20.00		3	128	Roughing ●●○○○ Finishing ●●●○○	$D_1>6$ DIN 6527	✓	✓						
DIXI 7343 Ø0.30 - Ø16.00		3	129	Roughing ●●●●● Finishing ●●●●○	λ2 λ1	✓		✓					
DIXI 7343-5D Ø0.30 - Ø12.00		3	130	Roughing ●●●●● Finishing ●●●●○	λ2 λ1			✓					
DIXI 7203 Ø2.00 - Ø20.00		3	131	Roughing ●●○○○ Finishing ●●●●○		✓	✓						
DIXI 7223 Ø3.00 - Ø12.00		3	132	Roughing ●○○○○ Finishing ●●●●○		✓	✓						✓*
DIXI 7333 Ø0.30 - Ø10.00		3	133	Roughing ●●●●● Finishing ●●●●○		✓				✓			
DIXI 7333-3D Ø0.30 - Ø4.00		3	134	Roughing ●●●●● Finishing ●●●●○		✓				✓			
DIXI 7333-5D Ø0.30 - Ø3.00		3	134	Roughing ●●●●● Finishing ●●●●○		✓				✓			
DIXI 7333-8D Ø0.30 - Ø3.00		3	134	Roughing ●●●●● Finishing ●●●●○		✓				✓			
DIXI 7543 Ø1.00 - Ø12.00		3	136	Roughing ●●●○○ Finishing ●●●●○					✓				
DIXI 7583 Ø0.30 - Ø6.00		3	137	Roughing ●●●○○ Finishing ●●●●○		✓	✓					✓*	
DIXI 7253 Ø3.00 - Ø16.00		3	138	Roughing ●●●●● Finishing ●●●●○	$D_1\geq10$ λ2 λ1					✓			
DIXI 7563 Ø4.00 - Ø20.00		3	139	Roughing ●●●●○ Finishing ●●●●●	λ2 λ1						✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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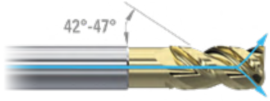
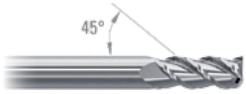
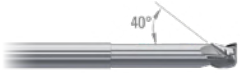
○ good ◎ excellent

SELECTION OF END MILLS

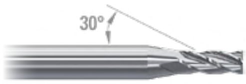
✓ = item from stock

* for non-ferrous material

END MILLS Z=3

END MILLS Z=3		Z	Page	Roughing / Finishing		□ CARBIDE	■ TiAlN	■ CUTINOX	■ DIXAL	■ DIAMANT*
DIXI 7563-FC Ø6.00 - Ø20.00		3	139	Roughing ●●●●○ Finishing ●●●●●	λ2 λ1				✓	
DIXI 7273 Ø3.00 - Ø16.00		3	140	Roughing ●●●○○ Finishing ●●●●●	D1≥12	✓	✓			
DIXI 7323 Ø3.00 - Ø12.00		3	141	Roughing ●●●●● Finishing ●●○○○		✓				
DIXI 7593 Ø6.00 - Ø20.00		3	142	Roughing ●●●●○ Finishing ●●●○○		✓				

END MILLS Z=4

END MILLS Z=4		Z	Page	Roughing / Finishing		□ CARBIDE	■ TiAlN	■ CUTINOX	■ DIXAL	■ DIAMANT*
DIXI 7244 Ø0.40 - Ø20.00		4	143	Roughing ●●○○○ Finishing ●●●●○	DIN 6527	✓	✓			✓*
DIXI 7204 Ø2.00 - Ø6.00		4	144	Roughing ●●○○○ Finishing ●●●●○	D1≥6	✓	✓			
DIXI 7224 Ø3.00 - Ø20.00		4	145	Roughing ●○○○○ Finishing ●●●●○	D1≥6	✓	✓			✓*
DIXI 7264 Ø1.50 - Ø20.00		4	146	Roughing ●●●●○ Finishing ●●●●●	D1≥10 λ2 λ1			✓		
DIXI 7264-3D Ø6.00 - Ø20.00		4	146	Roughing ●●●●○ Finishing ●●●●●	D1≥10 λ2 λ1			✓		
DIXI 7254 Ø3.00 - Ø12.00		4	147	Roughing ●●●●● Finishing ●●●●○	D1≥10 λ2 λ1			✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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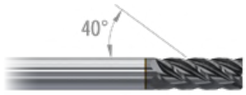
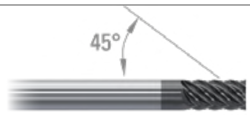
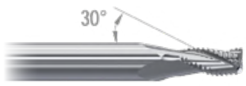
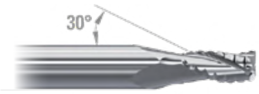
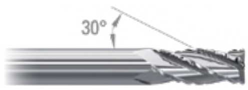
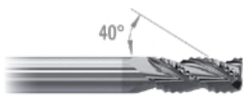
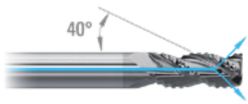
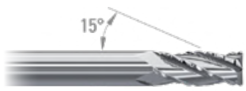
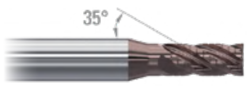
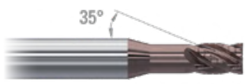
○ good ◎ excellent

✓ = item from stock
* for non-ferrous material

MULTI-TOOTH END MILLS

		Z	Page	Roughing / Finishing		CARBIDE	TiAlN	C-TOP	XIDUR	CUTINOX	DAC*	DLC*
DIXI 7560 Ø0.35 - Ø20.00		3-8	148	Roughing ●○○○○ Finishing ●●●●●	D1≥1.9 D1>6	✓	✓					✓*
DIXI 7520 Ø0.40 - Ø16.00		3-10	149	Roughing ●○○○○ Finishing ●●●●●	D1≥1.5 D1>6				✓			
DIXI 7800 Ø12.00 - Ø35.00		4-6	150	Roughing ●●○○○ Finishing ●●●●○		✓						

ROUGHING END MILLS

		Z	Page	Roughing / Finishing		CARBIDE	TiAlN	C-TOP	XIDUR	CUTINOX	DAC*	DLC*
DIXI 7210 Ø3.00 - Ø12.00		3	151	Roughing ●●●●● Finishing ○○○○○		✓				✓		
DIXI 7213 Ø4.00 - Ø20.00		3	152	Roughing ●●●●○ Finishing ○○○○○		✓	✓					
DIXI 7214 Ø6.00 - Ø20.00		4	153	Roughing ●●●●○ Finishing ○○○○○		✓	✓					
DIXI 7215 Ø6.00 - Ø16.00		3	154	Roughing ●●●●● Finishing ○○○○○							✓	
DIXI 7215-FC Ø6.00 - Ø16.00		3	154	Roughing ●●●●● Finishing ○○○○○							✓	
DIXI 7217 Ø6.00 - Ø12.00		4	155	Roughing ●●●●● Finishing ○○○○○		✓						
DIXI 7220 Ø3.00 - Ø16.00		3-4	156	Roughing ●●●●● Finishing ●●○○○				✓				
DIXI 7220-3D Ø3.00 - Ø8.00		3-4	156	Roughing ●●●●● Finishing ●●○○○				✓				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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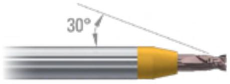
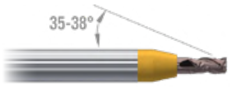
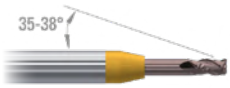
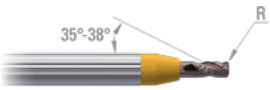
○ good ◎ excellent

✓ = item from stock

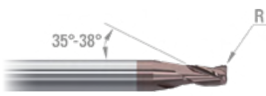
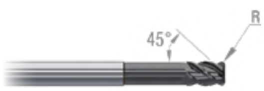
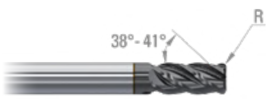
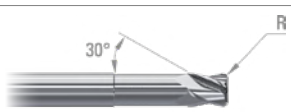
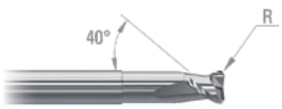
COOL+ TECHNOLOGY END MILLS

COOL+ TECHNOLOGY END MILLS		Z	Page	Roughing / Finishing		CARBIDE	TiAIN	C-TOP	DICUT	XIDUR	CUTINOX
DIXI 7442 COOL+ Ø0.30 - Ø5.00		2	157	Roughing ●●●●● Finishing ●●●●●		✓		✓			
DIXI 7443 COOL+ Ø0.30 - Ø10.00		3	158	Roughing ●●●●● Finishing ●●●●●		✓		✓			
DIXI 7443-5D COOL+ Ø0.30 - Ø10.00		3	159	Roughing ●●●●● Finishing ●●●●●				✓			
DIXI 7453 COOL+ Ø0.40 - Ø10.00		3	160	Roughing ●●●●● Finishing ●●●●●				✓			

HIGH FEED END MILLS

HIGH FEED END MILLS		Z	Page	Roughing / Finishing		CARBIDE	TiAIN	C-TOP	DICUT	XIDUR	CUTINOX
DIXI 7702 Ø0.50 - Ø12.00		2	161	Roughing ●●●●○ Finishing ●●●○○						✓	

END MILLS WITH CORNER RADIUS

END MILLS WITH CORNER RADIUS		Z	Page	Roughing / Finishing		CARBIDE	TiAIN	C-TOP	DICUT	XIDUR	CUTINOX
DIXI 7250-3D Ø0.40 - Ø3.00		2	162	Roughing ●●●●○ Finishing ●●●○○	± 0.02	✓	✓				
DIXI 7353 Ø0.40 - Ø12.00		3	164	Roughing ●●●●● Finishing ●●●●○		✓		✓			
DIXI 7070 Ø3.00 - Ø12.00		4-6	165	Roughing ●●○○○ Finishing ●●●●●	± 0.02					✓	
DIXI 7265 Ø2.00 - Ø12.00		4	166	Roughing ●●●●○ Finishing ●●●●●	± 0.02						✓
DIXI 7554 Ø2.00 - Ø12.00		4	167	Roughing ●●●○○ Finishing ●●●●○	D1≥6 ± 0.02	✓	✓				
DIXI 7552 Ø3.00 - Ø16.00		2	168	Roughing ●●●○○ Finishing ●●●●○	± 0.02	✓			✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

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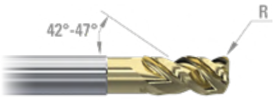
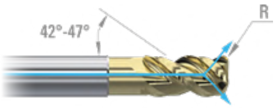
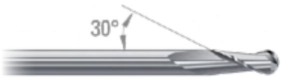
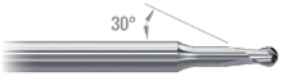
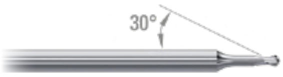
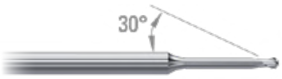
○ good ◎ excellent

✓ = item from stock
* for non-ferrous material

END MILLS WITH CORNER RADIUS

		Z	Page	Roughing Finishing		☐ CARBIDE	TiAlN	C-TOP	DICUT	DIXAL	DIAMANT*
DIXI 7565 Ø4.00 - Ø20.00		3	169	Roughing ●●●●○ Finishing ●●●●●	± 0.02 λ2 λ1					✓	
DIXI 7565-FC Ø6.00 - Ø20.00		3	169	Roughing ●●●●○ Finishing ●●●●●	± 0.02 λ2 λ1					✓	

BALL-NOSE END MILLS

		Z	Page	Roughing Finishing		☐ CARBIDE	TiAlN	C-TOP	DICUT	DIXAL	DIAMANT*
DIXI 7032 Ø0.06 - Ø16.00		2	170	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7042 Ø2.00 - Ø20.00		2	172	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓				✓*
DIXI 7046 Ø0.20 - Ø12.00		2	173	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7045 Ø0.20 - Ø12.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7047-8D Ø0.20 - Ø12.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7047-10D Ø0.20 - Ø12.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7047-12D Ø0.20 - Ø5.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7047-15D Ø0.20 - Ø4.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*
DIXI 7047-18D Ø0.20 - Ø3.00		2	174	Roughing ●○○○○ Finishing ●●●●○	R = D1/2	✓	✓		✓		✓*

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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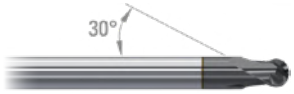
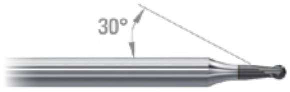
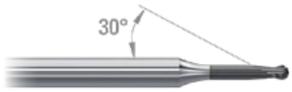
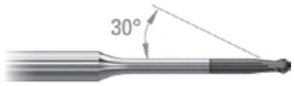
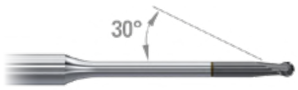
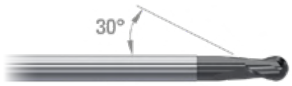
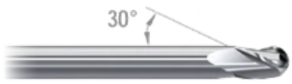
○ good ◎ excellent

✓ = item from stock
* for non-ferrous material

BALL-NOSE END MILLS

BALL-NOSE END MILLS		Z	Page	Roughing Finishing		☐ CARBIDE	TiAlN	XIDUR	DLC*
DIXI 7532 Ø0.20 - Ø10.00		2	176	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-3D Ø0.20 - Ø10.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-5D Ø0.20 - Ø10.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-8D Ø0.20 - Ø4.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-10D Ø0.40 - Ø3.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-12D Ø0.50 - Ø2.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7532-15D Ø0.60 - Ø2.00		2	177	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7542 Ø1.00 - Ø12.00		2	178	Roughing ●○○○○ Finishing ●●●●○				✓	
DIXI 7033 Ø1.00 - Ø10.00		3	179	Roughing ●○○○○ Finishing ●●●●○		✓	✓		

ROUTERS FOR COMPOSITES / KEVLAR®

ROUTERS FOR COMPOSITES / KEVLAR®		Z	Page	Roughing Finishing		☐ CARBIDE	TiAlN	XIDUR	DLC*
DIXI 7102 Ø6.00 - Ø12.00		2	180	Roughing ●●●○○ Finishing ●●●●○		✓			✓*
DIXI 7112 Ø5.00 - Ø12.70		2	181	Roughing ●●●●○ Finishing ●●○○○		✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
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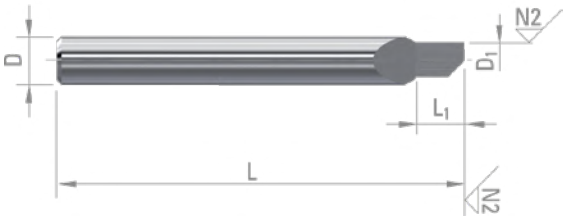
									○			

○ good ◎ excellent

Z = 1

P.184

STRAIGHT FLUTE END MILLS



- Straight flute end mills with flat bottom and polished flute and reliefs. Tools dedicated to burr-free and deformation-free machining of materials with good machinability.
- A typical application, the finishing of watch components. (micromecanics, watch and medical industries,etc.)

Roughing ●●○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎	◎	○	○				○	○				

$D_{1 \pm 0.01}$	L_1	D_{h5}	L	CARBIDE
0.50	1.00	4	35	965456
0.60	1.20	4	35	965457
0.70	1.50	4	35	965458
0.80	1.50	4	35	960645
0.90	1.50	4	35	960646
1.00	1.50	4	35	960647
1.00 >	2.50	4	35	964328
1.10	2.00	4	35	960648
1.20	2.00	4	35	960649
1.30	2.00	4	35	960650
1.40	2.00	4	35	960651
1.50	2.00	4	35	960652
1.60	2.00	4	35	960653
1.70	2.50	4	35	960654
1.80	2.50	4	35	960655
1.90	2.50	4	35	960656
2.00	2.50	4	35	960657
2.50	3.00	4	35	960658
3.00	3.50	4	42	960659
3.50	4.00	4	42	960660
4.00	5.00	4	42	960661
4.50	6.00	6	50	960662
5.00	7.00	6	50	960663
6.00	7.00	8	50	960664

DIXI 7063

Z = 1

3/4 SINGLE FLUTE END MILLS

P.184

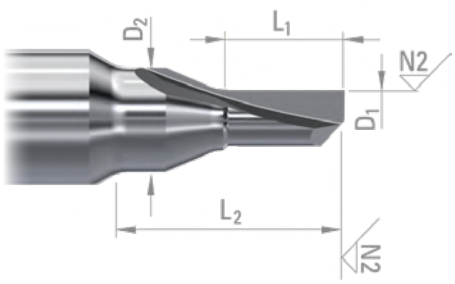
- Left hand end mills, right hand cut, with polished flute faces and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in plastics, woods and HPL.
  The left-hand helix reduces burrs and improves the workpiece stability.

Roughing ●●●○○ Finishing ●●●●● ○ good ◎ excellent

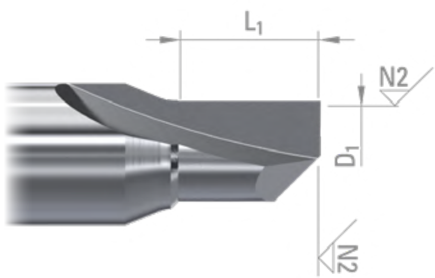
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎	◎	○	○				○	○				

$D_{1 \pm 0.01}$	L_1	D_2	L_2	D_{h5}	L	CARBIDE
0.40	0.80	1.50	4.60	4	35	987593
0.50	1.00	1.50	4.60	4	35	983250
0.60	1.20	1.50	4.60	4	35	987594
0.70	1.50	1.50	4.60	4	35	987595
0.80	1.50	1.50	4.60	4	35	987596
0.90	1.50	2.00	5.10	4	35	987581
1.00	1.50	2.00	5.10	4	35	983251
1.00 >	2.50	2.00	5.10	4	35	987582
1.10	2.50	2.00	6.00	4	35	987597
1.20	2.50	2.00	6.00	4	35	987598
1.30	2.50	3.00	6.00	4	35	987599
1.40	2.50	3.00	6.00	4	35	987583
1.50	2.50	3.00	6.00	4	35	983252
1.50 >	3.50	3.00	6.50	4	35	987600
1.60	3.50	3.00	6.50	4	35	987585
1.70	3.50	3.00	6.50	4	35	987586



$D_{1 \pm 0.01}$	L_1	D_{h5}	L	CARBIDE
1.80	3.50	4	35	987601
1.90	3.50	4	35	987602
2.00	4.00	4	35	983253
2.20	4.00	4	35	987603
2.50	4.00	4	35	987604
2.80	4.00	4	35	987605
3.00	4.00	4	35	983254
4.00	5.00	4	35	987584



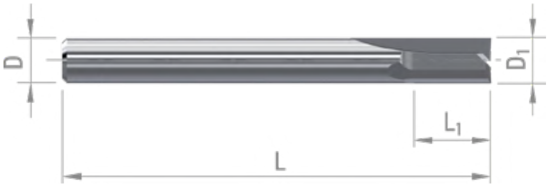
DIXI 7232

Z = 2

STRAIGHT FLUTE SLOT DRILLS

DIN 6528

P.186



- Straigth flute slot drills developed for the machining of thin, vibration-prone workpieces with low hardness.

Roughing ●●●○○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎		○	○									

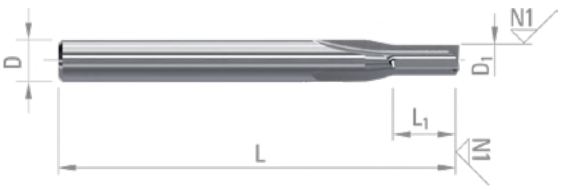
D_{1e8}	L_1	D_{h5}	L	CARBIDE
2	6	2	38	42540
3	7	3	38	42541
4	8	4	50	42542
6	10	6	57	42543
8	16	8	63	42544

DIXI 7233

Z = 3

P.186

STRAIGHT FLUTE END MILLS



- Straight flute end mills with polished flute and reliefs.
- Tools dedicated to burr-free and deformation-free machining of materials with good machinability. A typical application, the finishing of watch components.

Roughing ●●●○○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○				◎	◎	◎	◎		○	○				○	○				

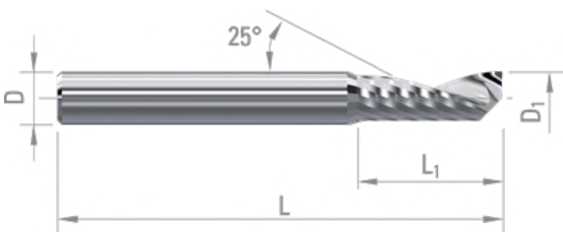
D_1 Ø<2.00 - 0/-0.01 Ø≥2.00 - 0/-0.02 D1=D - e8	L_1	D_{h5}	L	CARBIDE
0.50	1.50	3	38	378215
0.60	1.80	3	38	378216
0.70	2.10	3	38	378217
0.80	2.40	3	38	378218
0.90	2.70	3	38	378219
1.00	3.00	3	38	378220
1.10	3.00	3	38	378221
1.20	3.00	3	38	378222
1.30	3.00	3	38	378223
1.40	3.00	3	38	378224
1.50	4.00	3	38	378225
1.60	4.00	3	38	378226
1.70	4.00	3	38	378227
1.80	4.00	3	38	378228
1.90	4.00	3	38	378229
2.00	5.00	3	38	378230
3.00	6.00	4	38	378231
4.00	6.00	4	38	378232
5.00	8.00	6	51	378233
6.00	8.00	6	51	378234

DIXI 7561

Z = 1

SINGLE FLUTE END MILLS FOR ALUMINIUM

P.186



- End mills developed for the machining of aluminium profiles and thin plates.
- DLC coating improves tool life in non-ferrous materials in case of dry machining or using emulsion.

Roughing ●●●○○ Finishing ●●○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	○	○	○	○												

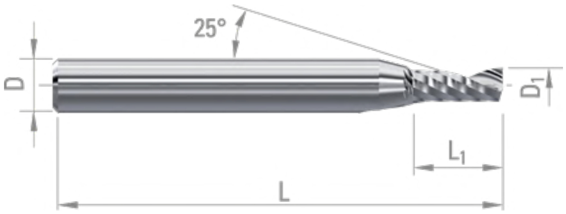
$D_{1\ e8}$		L_1	D_{h5}	L	CARBIDE	DLC *
2	0.10 × 45°	4	3	38	46560	971284
3	0.15 × 45°	6	3	38	46561	971285
4	0.15 × 45°	12	4	50	46562	971286
5	0.15 × 45°	14	5	50	46563	960345
6	0.20 × 45°	16	6	50	46564	967038
8	0.20 × 45°	20	8	60	46565	992675
10	0.20 × 45°	22	10	70	46566	996345
12	0.20 × 45°	25	12	70	46567	965525

* for non-ferrous material

DIXI 7305 Z = 1

P.188

SINGLE FLUTE END MILLS FOR PLASTIC
RIGHT HAND HELIX



- right hand end mills, right hand cut, with polished flute and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in plastics, woods and HPL.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

$D_{1\ e8}$	D_{h5}	L_1	L	CARBIDE
1.00	3.00	4	30	372568
		4	38	372569
1.50	3.00	6	30	372570
		6	38	372571
1.50	3.00	8	60	372572
2.00	2.00	8	30	372573
2.00	3.00	8	30	372574
		8	38	372575
		8	60	372576
2.00	4.00	8	60	372577
2.00	6.00	8	50	372578
2.50	2.50	8	38	372579
2.50	3.00	8	30	372580
		8	38	372581
		8	60	372582
3.00	3.00	8	60	372583
		10	30	372584
		10	38	372585
		15	50	372586
3.00	4.00	8	60	372587
		10	40	372588
		15	50	372589
3.00	6.00	10	50	372590
		10	60	372591
		12	60	372592
		20	60	372593
3.50	3.50	12	50	372594
3.50	4.00	10	60	372595
		12	50	372596
3.50	5.00	12	50	376933
4.00	4.00	8	50	376934
		12	50	372597
		12	60	372598
		16	60	372599
		22	60	372600
		25	60	376935
		30	70	372601

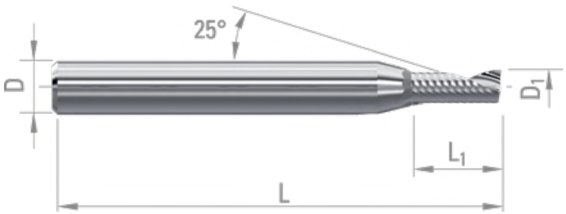
$D_{1\ e8}$	D_{h5}	L_1	L	CARBIDE
4.00	6.00	12	50	372602
		12	60	372603
		12	80	372604
		12	101	376936
		21	60	372605
5.00	5.00	16	50	372606
		16	60	372607
		30	70	372608
5.00	6.00	12	60	376937
		16	60	372609
		20	60	372610
		25	60	372611
5.00	8.00	25	80	372612
6.00	6.00	12	60	376938
		20	50	372613
		20	60	372614
		24	70	372615
		30	70	372616
		38	80	372617
		42	80	423984
6.00	8.00	20	80	372618
		25	80	372619
		30	80	372620
		32	80	372621
		38	80	372622
8.00	8.00	23	60	372623
		25	80	372624
		32	80	372625
		33	80	372626
		38	80	372627
8.00	10.00	33	75	423985
10.00	10.00	24	75	372628
		30	75	372629
12.00	12.00	30	80	372630
		51	100	372631

DIXI 7315

Z = 1

P.188

SINGLE FLUTE END MILLS FOR PLASTIC
RIGHT HAND HELIX, REINFORCED



- right hand end mills, right hand cut, with polished flute and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in plastics, woods and HPL.
  The right-hand helix reduces burrs and improves the workpiece stability.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

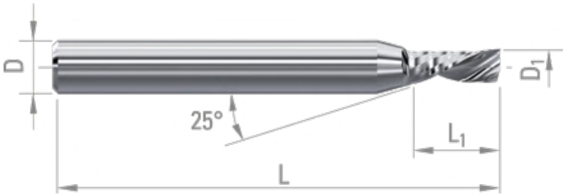
$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE
2	8	3	30	414392
2	6	6	50	414393
3	9	3	30	414394
3	9	6	50	414395
4	13	4	50	414396
4	13	6	50	414397
5	16	5	60	414398
5	16	6	50	414399
6	16	6	50	414400
6	22	6	60	414401
6	32	6	70	414402
8	12	8	60	414403
8	22	8	60	414404
8	32	8	80	414405
10	23	10	60	414406
10	32	10	75	414407
12	42	12	100	414408

DIXI 7306

Z = 1

P.188

SINGLE FLUTE END MILLS FOR PLASTIC
LEFT HAND HELIX, RIGHT HAND CUTTING



- Left hand end mills, right hand cut, with polished flute and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in plastics, woods and HPL.
  The left-hand helix reduces burrs and improves the workpiece stability.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

$D_{1\ e8}$	D_{h5}	L_1	L	CARBIDE
1.00	3.00	4	30	379705
		4	38	372632
1.50	3.00	6	30	379706
		6	38	372633
1.50	3.00	8	60	372634
2.00	2.00	8	30	372635
2.00	3.00	8	30	379707
		8	38	372636
		8	60	372637
2.00	4.00	8	60	379708
2.00	6.00	8	50	379709
2.50	2.50	8	38	379710
2.50	3.00	8	30	379711
		8	38	372639
		8	60	372640
3.00	3.00	8	60	372641
		10	30	379712
		10	38	372642
		15	50	372643
3.00	4.00	8	60	372644
		10	40	372645
		15	50	372646
3.00	6.00	10	50	372647
		10	60	372648
		12	60	372649
		20	60	372650
3.50	3.50	12	50	372651
3.50	4.00	10	60	372652
		12	50	379713
3.50	5.00	12	50	379717
4.00	4.00	8	50	379718
		12	50	372653
		12	60	372654
		16	60	372655
		22	60	372656
		25	60	379720
		30	70	372657

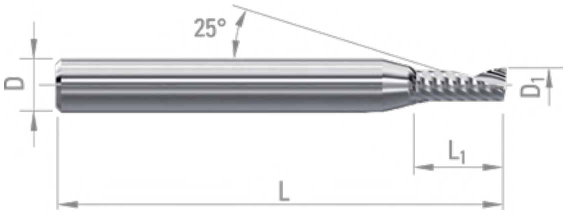
$D_{1\ e8}$	D_{h5}	L_1	L	CARBIDE
4.00	6.00	12	50	372658
		12	60	372659
		12	80	372660
		12	101	379721
		21	60	379723
5.00	5.00	16	50	379724
		16	60	372661
		30	70	372662
5.00	6.00	12	60	379726
		16	60	372663
		20	60	372664
		25	60	379727
5.00	8.00	25	80	372665
6.00	6.00	12	60	379728
		20	50	372666
		20	60	372667
		24	70	372668
		30	70	372669
		38	80	372670
6.00	8.00	20	80	372671
		25	80	372672
		30	80	372673
		32	80	379729
		38	80	379730
8.00	8.00	23	60	372674
		25	80	372675
		32	80	379731
		33	80	372676
		38	80	372677
10.00	10.00	24	75	372678
		30	75	372679
12.00	12.00	30	80	372680
		51	100	379732

DIXI 7307

Z = 1

SINGLE FLUTE END MILLS

P.188



- Right hand end mills with polished flute and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in aluminium, composites (Dibond®, Alucobond®).
- DLC coating improves tool life in non-ferrous materials in case of dry machining or with emulsion.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○						○										

$D_{1\ e8}$	D_{h5}	L_1	L	CARBIDE	DLC*
1.00	3	3	30	372681	372719
		3	38	372682	372720
1.50	3	4	30	372683	372721
		4	38	372684	372722
2.00	3	5	30	372685	372723
		5	38	372686	372724
2.00	6	5	38	372687	372725
2.50	3	6	30	372688	372726
		6	38	372689	372727
3.00	3	5	38	372690	372728
		8	30	372691	372729
		8	38	372692	372730
3.00	4	8	40	372693	372731
3.00	6	5	50	414409	414415
		10		372694	372732
4.00	4	5	40	372695	372733
		10	50	372696	372734
		20	60	372697	372735
		30	70	372698	372736
4.00	6	5	50	381024	381025
		10	50	372699	372737
		20	60	372700	372738
5.00	5	7	50	414410	414416
		15	60	372701	372739
		30	70	372702	372740
5.00	6	12	50	372703	372741
5.00	8	25	80	372704	372742
6.00	6	9	50	414411	414417
		12	50	372705	372743
		15	70	372706	372744
		21	60	372707	372745
		30	70	372708	372746
		38	80	372709	372747
6.00	8	12	60	372710	372748
		22	80	372711	372749
		30	80	372712	372750
8.00	8	12	60	414412	414418
		24	60	372713	372751
		38	80	372714	372752
10.00	10	15	60	414413	414419
		24	60	372715	372753
		30	75	372716	372754
		40	100	372717	372755
12.00	12	18	64	414414	414420
		30	80	372718	372756
		38	100	376944	376945

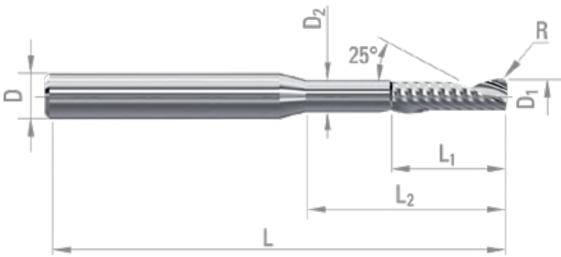
* for non-ferrous material

DIXI 7308-xD

Z = 1

P.188

SINGLE FLUTE END MILLS, NECKED DOWN, FOR ALUMINUM PROFILE



- Necked down right hand end mills with polished flute and reliefs.
- Tools with high cutting and chip removal abilities. Recommended for excellent surface finishes in aluminium profiles.

Roughing ●●●●○ Finishing ●●●●○ ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◯	◯	◯																

$D_{1\ e8}$	L_1	D_2	L_2	D_{h5}	L	R	CARBIDE
6	20	5.6	35	8	80	1.5	372757
8	22	7.6	50	10	90	1.5	372758

DIXI 7242

Z = 2

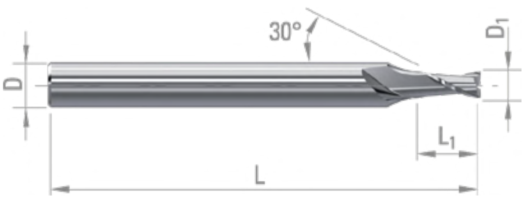
SLOT DRILLS WITH REINFORCED SHANK

P.190

$D_1 > 6$

DIN 6527

0.20x45°



- Slot drills with reinforced shank, for general machining.
- TiAIN coating improves tool life in ferrous materials.

Roughing ●●●○○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron		
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
0.10	0.25	3	38	334534	
0.15	0.30	3	38	52628	64920
0.20	0.40	3	38	45705	60021
0.25	0.60	3	38	47916	64921
0.30	0.60 1.00	3	38	42172 48850	60121 60122
0.35	0.80	3	38	47917	950699
0.40	0.80 2.00	3	38	42126 48851	60123 60124
0.45	1.00	3	38	47918	952421
0.50	1.00 2.50	3	38	35241 48852	36230 60125
0.55	1.20	3	38	47921	952422
0.60	1.20 3.00	3	38	35242 48853	36231 60126
0.65	1.40	3	38	47922	952423
0.70	1.40 3.50	3	38	35243 48854	36232 57162
0.75	1.60	3	38	47923	57163
0.80	1.60 4.00	3	38	35244 48855	36233 57164
0.85	1.80	3	38	47066	57165
0.90	1.80 4.50	3	38	35245 48856	36234 57166
0.95	2.00	3	38	42846	57167
1.00	2.00 5.00	3	38	35246 42735	36235 55950
1.05	2.20	3	38	47924	57168
1.10	2.20	3	38	35247	57169

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
1.15	2.40	3	38	47925	57170
1.20	2.40 6.00	3	38	35248 48857	36237 57171
1.25	2.60	3	38	47926	57172
1.30	2.60	3	38	35249	57173
1.35	2.80	3	38	47927	57174
1.40	2.80	3	38	35250	36239
1.45	3.00	3	38	47928	57175
1.50	3.00 7.00	3	38	38489 48858	36240 57176
1.60	3.20	3	38	38490	57177
1.70	3.40	3	38	38491	44939
1.80	3.60	3	38	42096	38613
1.90	4.00	3	38	38493	57178
2.00	6.00	3	38	42784	39577
2.10	7.00	3	38	44058	64794
2.20	7.00	3	38	43956	64795
2.30	7.00	3	38	44877	60627
2.40	7.00	3	38	43527	64796
2.50	7.00	3	38	42201	36242
3.00	7.00	6	57	41806	46440
3.50	7.00	6	57	43353	57179
4.00	8.00	6	57	41856	57180
4.50	8.00	6	57	42202	57181
5.00	10.00	6	57	41996	36247
5.50	10.00	6	57	41807	57182
6.00	10.00	6	57	41907	57183

DIXI 7242

SLOT DRILLS WITH REINFORCED SHANK

P.190

0.20x45°

$D_1 > 6$

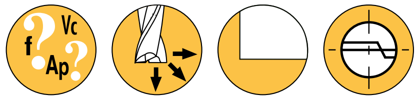
DIN 6527

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
6.50	13.00	8	63	28932	57184
7.00	13.00	8	63	28933	57185
7.50	16.00	8	63	28934	57186
8.00	16.00	8	63	42271	57187
8.50	16.00	10	72	28936	57195
9.00	16.00	10	72	28937	57196
9.50	19.00	10	72	43038	57197
10.00	19.00	10	72	42352	57198
12.00	22.00	12	83	39944	57199
16.00	26.00	16	92	42354	57201
20.00	32.00	20	104	42356	57203

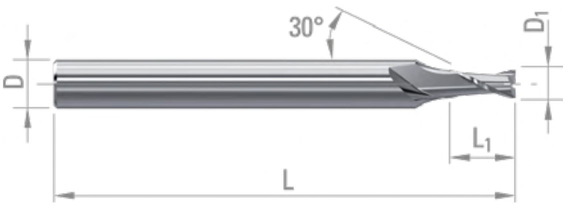
DIXI 7342

Z = 2

SLOT DRILLS WITH REINFORCED SHANK



P.192



- High performance slot drills with reinforced shank developed for the machining of tough materials.
- The extra smooth C-TOP coating improves tool life even at high temperatures in difficult to machine materials.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

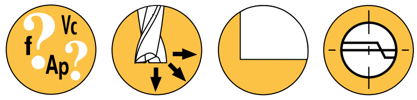
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	C-TOP
0.10	0.15	4	38	334850	334910
0.15	0.25	4	38	334851	334911
0.20	0.30	4	38	334852	334912
0.25	0.40	4	38	334853	334913
0.30	0.45	4	38	334854	334914
0.35	0.55	4	38	334855	334915
0.40	0.60	4	38	334856	334916
0.50	0.80	4	38	334857	334917
0.60	0.90	4	38	334858	334918
0.70	1.10	4	38	334859	334919
0.80	1.20	4	38	334860	334920
0.90	1.40	4	38	334861	334921
1.00	1.50	4	38	334862	334922
1.10	1.70	4	38	334863	334923
1.20	1.80	4	38	334864	334924
1.30	2.00	4	38	334865	334925
1.40	2.10	4	38	334866	334926
1.50	2.30	4	38	334867	334927
1.60	2.40	4	38	334868	334928
1.70	2.60	4	38	334869	334929
1.80	2.70	4	38	334870	334930

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	C-TOP
2.00	3.00	4	38	334872	334932
2.50	4.00	4	38	334873	334933
3.00	4.50	6	55	334874	334934
4.00	6.00	6	55	334875	334935
5.00	7.50	6	55	334876	334936
6.00	9.00	6	55	334877	334937
8.00	12.00	8	64	334878	334938
10.00	15.00	10	67	334879	334939
12.00	18.00	12	74	334880	334940

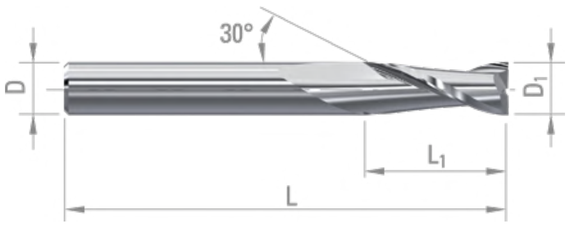
DIXI 7202

Z = 2



P.196

SLOT DRILLS



- Slot drills for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

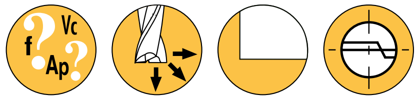
ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	○	○	◎	◎	○	○				○	○				

$D_{1\ e8}$ Ø<2.00 - 0/-0.01 Ø≥ 2.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
1.50	6	2.00	32	690	57063	
2.00	8	2.00	32	691	57064	61616
2.50	8	2.50	32	692	57065	
3.00	10	3.00	38	693	57066	36199
3.50	12	3.50	38	34760	57067	
4.00	12	4.00	50	694	57068	63847
4.50	12	4.50	50	41135	57069	
5.00	14	5.00	50	34623	57070	
6.00	16	6.00	50	34624	57071	
7.00	18	7.00	60	29769	57072	
8.00	20	8.00	63	698	57073	67513
9.00	20	9.00	67	43726		
10.00	22	10.00	72	699	57075	
12.00	22	12.00	73	30940	57077	

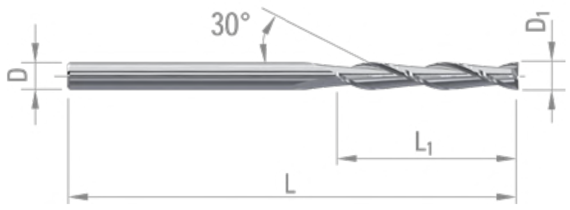
DIXI 7222

Z = 2



P.212

SLOT DRILLS LONG SERIES



- Long length slot drills for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●●●●○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○	◎	○	○				○	○				

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
3	30	3	60	44756	57124	60231
4	30	4	60	44757	57125	60232
5	35	5	75	44758	57133	60233
6	40	6	100	44759	57134	60234
8	40	8	100	44760	57135	60235
10	40	10	100	44761	57136	60236
12	45	12	100	44762	57137	60237
20	65	20	150	44766	57140	

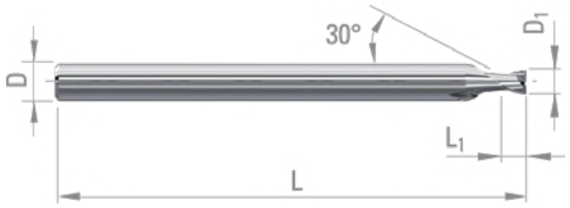
* for non-ferrous material

DIXI 7240

Z = 2

SLOT DRILLS, EXTRA SHORT REINFORCED SHANK

P.198



- Extra short slot drills with reinforced shank for general machining.
- TiAIN coating improves tool life in ferrous materials.

Roughing ●○○○○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

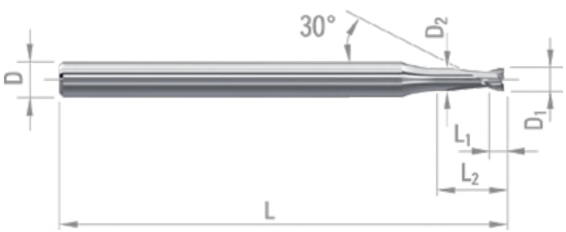
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	○	○	◎		○	○	○	○	○	○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAIN
0.04	0.04	3	38	954084	
0.05	0.05	3	38	954085	
0.06	0.06	3	38	951973	
0.07	0.07	3	38	954087	
0.08	0.08	3	38	954086	
0.09	0.09	3	38	954089	
0.10	0.10	3	38	63609	64354
0.12	0.12	3	38	954090	956316
0.15	0.15	3	38	63608	64355
0.20	0.20	3	38	63610	64356
0.25	0.25	3	38	63678	64357
0.30	0.30	3	38	63679	64253
0.35	0.35	3	38	63680	64358
0.40	0.40	3	38	56551	61443
0.45	0.45	3	38	63681	64359
0.50	0.50	3	38	63682	64254
0.55	0.55	3	38	63683	64360
0.60	0.60	3	38	45571	64361
0.65	0.65	3	38	63684	64362
0.70	0.70	3	38	63685	64363
0.75	0.75	3	38	63686	64364
0.80	0.80	3	38	63687	64255
0.85	0.85	3	38	63688	64365
0.90	0.90	3	38	63689	62538
0.95	0.95	3	38	63690	64366
1.00	1.00	3	38	50547	64367
1.05	1.05	3	38	63691	64368
1.10	1.10	3	38	63692	64369
1.15	1.15	3	38	63805	64370

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAIN
1.20	1.20	3	38	63806	64371
1.25	1.25	3	38	63807	64372
1.30	1.30	3	38	63808	64373
1.35	1.35	3	38	63809	64374
1.40	1.40	3	38	63810	64375
1.45	1.45	3	38	63811	64376
1.50	1.50	3	38	50548	56840
1.55	1.55	3	38	63812	64377
1.60	1.60	3	38	63813	64378
1.65	1.65	3	38	63814	64379
1.70	1.70	3	38	63815	64380
1.75	1.75	3	38	63816	64381
1.80	1.80	3	38	63817	64382
1.85	1.85	3	38	63818	64383
1.90	1.90	3	38	63819	64384
1.95	1.95	3	38	63820	64385
2.00	2.00	6	50	63821	64386
2.10	2.10	6	50	63823	64387
2.20	2.20	6	50	63824	64388
2.30	2.30	6	50	63825	64389
2.40	2.40	6	50	63826	64390
2.50	2.50	6	50	63827	64391
3.00	3.00	6	50	63828	64392
3.50	3.50	6	50	63829	64393
4.00	4.00	6	50	63830	64394
4.50	4.50	6	50	63831	64395
5.00	5.00	6	50	63832	64397
5.50	5.50	6	50	63833	64398

Z = 2

EXTRA SHORT SLOT DRILLS NECKED DOWN



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- 3xD_1, 5xD_1, 8xD_1, 10xD_1, 12xD_1, 15xD_1 extra short slot drills for general machining.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●●●○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	○	○	◎		○	○	○	○	○	○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	DIXI	CARBIDE	TiALN
0.15	0.15	0.13	3	38	0.45	7240-3D	66047	66149
0.20	0.20	0.17	3	38	0.60	7240-3D	66068	66150
0.25	0.25	0.22	3	38	0.75	7240-3D	66070	66151
0.30	0.30	0.27	3	38	0.90 1.50	7240-3D 7240-5D	66071 66196	66152 66254
0.35	0.35	0.32	3	38	1.05 1.75	7240-3D 7240-5D	66072 66197	66153 66255
0.40	0.40	0.37	3	38	1.20 2.00 3.20	7240-3D 7240-5D 7240-8D	66073 66199 66296	66154 66256 66355
0.45	0.45	0.42	3	38	1.35 2.25 3.60	7240-3D 7240-5D 7240-8D	66074 66201 66297	66155 66257 66356
0.50	0.50	0.45	3	38	1.50 2.50 4.00 5.00 6.00 7.50	7240-3D 7240-5D 7240-8D 7240-10D 7240-12D 7240-15D	66075 66202 66298 978569 979313 979475	66156 66258 66357 979371 979447 979497
0.55	0.55	0.50	3	38	1.65 2.75 4.40 5.50 6.60 8.25	7240-3D 7240-5D 7240-8D 7240-10D 7240-12D 7240-15D	66076 66203 66299 979332 979413 979478	66157 66259 66358 979373 979448 979498
0.60	0.60	0.55	3	38	1.80 3.00 4.80 6.00 7.20 9.00	7240-3D 7240-5D 7240-8D 7240-10D 7240-12D 7240-15D	66077 66205 66300 979333 979416 979480	66158 66260 66366 979374 979449 979499

DIXI 7240-xD

Z = 2

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EXTRA SHORT SLOT DRILLS NECKED DOWN

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	DIXI	CARBIDE	TiALN
0.65	0.65	0.60	3	38	1.95	7240-3D	66078	66159
					3.25	7240-5D	66206	66261
					5.20	7240-8D	66301	66367
					6.50	7240-10D	979334	979375
					7.80	7240-12D	979417	979450
					9.75	7240-15D	979482	979500
0.70	0.70	0.65	3	38	2.10	7240-3D	66079	66160
					3.50	7240-5D	66207	66262
					5.60	7240-8D	66302	66368
					7.00	7240-10D	979335	979376
					8.40	7240-12D	979419	979451
					10.50	7240-15D	979483	979503
0.75	0.75	0.70	3	38	2.25	7240-3D	66080	66161
					3.75	7240-5D	66208	66263
					6.00	7240-8D	66303	66369
					7.50	7240-10D	979336	979377
					9.00	7240-12D	979420	979452
					11.25	7240-15D	979484	979505
0.80	0.80	0.75	3	38	2.40	7240-3D	66081	66162
					4.00	7240-5D	66209	66264
					6.40	7240-8D	66304	66370
					8.00	7240-10D	979337	979378
					9.60	7240-12D	979421	979453
					12.00	7240-15D	979485	979506
0.85	0.85	0.80	3	38	2.55	7240-3D	66082	66164
					4.25	7240-5D	66210	66265
					6.80	7240-8D	66305	66371
					8.50	7240-10D	979338	979409
					10.20	7240-12D	979423	979454
					12.75	7240-15D	979486	979507
0.90	0.90	0.85	3	38	2.70	7240-3D	66083	66165
					4.50	7240-5D	66211	66266
					7.20	7240-8D	66306	66372
					9.00	7240-10D	979339	979379
					10.80	7240-12D	979430	979455
					13.50	7240-15D	979487	979509
0.95	0.95	0.90	3	38	2.85	7240-3D	66084	66166
					4.75	7240-5D	66212	66267
					7.60	7240-8D	66307	66373
					9.50	7240-10D	979340	979380
					11.40	7240-12D	979431	979456
					14.25	7240-15D	979488	979510
1.00	1.00	0.95	3	38	3.00	7240-3D	66110	66167
					5.00	7240-5D	66213	66268
					8.00	7240-8D	66308	66374
					10.00	7240-10D	979341	979381
					12.00	7240-12D	979206	979457
					15.00	7240-15D	979489	979511
1.05	1.05	1.00	3	38	3.15	7240-3D	66113	66168
					5.25	7240-5D	66214	66269
					8.40	7240-8D	66309	66375
					10.50	7240-10D	979342	979382
					12.60	7240-12D	979432	979458
					15.75	7240-15D	979490	979512
1.10	1.10	1.05	3	38	3.30	7240-3D	66115	66169
					5.50	7240-5D	66218	66270
					8.80	7240-8D	66310	66376
					11.00	7240-10D	979343	979383
					13.20	7240-12D	979433	979459
					16.50	7240-15D	979491	979513

DIXI 7240-xD

Z = 2

EXTRA SHORT SLOT DRILLS
NECKED DOWN

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D_1 (Ø<2.00 - 0/-0.01, Ø<3.00 - 0/-0.02, Ø≥3.00 - e8)	L_1	D_2	D_{h5}	L	L_2	DIXI	CARBIDE	TiALN
1.15	1.15	1.10	3	38	3.45	7240-3D	66116	66170
					5.75	7240-5D	66219	66271
					9.20	7240-8D	66313	66377
					11.50	7240-10D	979344	979384
					13.80	7240-12D	979434	979460
					17.25	7240-15D	979492	979514
1.20	1.20	1.15	3	38	3.60	7240-3D	66117	66171
					6.00	7240-5D	66220	66272
					9.60	7240-8D	66314	66378
					12.00	7240-10D	979345	979385
					14.40	7240-12D	979435	979461
					18.00	7240-15D	979493	979515
1.25	1.25	1.20	3	38	3.75	7240-3D	66118	66172
					6.25	7240-5D	66221	66273
					10.00	7240-8D	66315	66379
					12.50	7240-10D	979346	979386
					15.00	7240-12D	979437	979462
					18.75	7240-15D	979494	979516
1.30	1.30	1.25	3	38	3.90	7240-3D	66119	66173
					6.50	7240-5D	66222	66274
					10.40	7240-8D	66316	66380
					13.00	7240-10D	979347	979387
					15.60	7240-12D	979438	979463
					19.50	7240-15D	979495	979517
1.35	1.35	1.30	3	38	4.05	7240-3D	66120	66174
					6.75	7240-5D	66223	66275
					10.80	7240-8D	66317	66381
					13.50	7240-10D	979348	979388
					16.20	7240-12D	979439	979464
					20.25	7240-15D	979496	979518
1.40	1.40	1.35	3	38	4.20	7240-3D	66123	66175
					7.00	7240-5D	66224	66276
					11.20	7240-8D	66318	66382
					14.00	7240-10D	979349	979389
					16.80	7240-12D	979440	979465
1.45	1.45	1.40	3	38	4.35	7240-3D	66124	66176
					7.25	7240-5D	66225	66277
					11.60	7240-8D	66319	66383
					14.50	7240-10D	979350	979390
					17.40	7240-12D	979441	979466
1.50	1.50	1.45	3	38	4.50	7240-3D	66125	66177
					7.50	7240-5D	66226	66278
					12.00	7240-8D	66320	66384
					15.00	7240-10D	979351	979391
					18.00	7240-12D	979442	979467
1.55	1.55	1.50	3	38	4.65	7240-3D	66126	66178
					7.75	7240-5D	66227	66279
					12.40	7240-8D	66323	66385
					15.50	7240-10D	979352	979392
					18.60	7240-12D	979443	979468
1.60	1.60	1.55	3	38	4.80	7240-3D	66127	66179
					8.00	7240-5D	66228	66280
					12.80	7240-8D	66324	66386
					16.00	7240-10D	979353	979393
					19.20	7240-12D	979444	979469

DIXI 7240-xD

Z = 2

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EXTRA SHORT SLOT DRILLS NECKED DOWN

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	**DIXI**	CARBIDE	TiALN
1.65	1.65	1.60	3	38	4.95 8.25 13.20 16.50 19.80	7240-3D 7240-5D 7240-8D 7240-10D 7240-12D	66128 66229 66325 979354 979445	66180 66281 66387 979394 979470
1.70	1.70	1.65	3	38	5.10 8.50 13.60 17.00 20.40	7240-3D 7240-5D 7240-8D 7240-10D 7240-12D	66129 66230 66326 979355 979446	66182 66282 66388 979395 979471
1.75	1.75	1.70	3	38	5.25 8.75 14.00 17.50	7240-3D 7240-5D 7240-8D 7240-10D	66130 66231 66327 979356	66183 66283 66389 979396
1.80	1.80	1.75	3	38	5.40 9.00 14.40 18.00	7240-3D 7240-5D 7240-8D 7240-10D	66133 66232 66328 979357	66184 66284 66390 979398
1.85	1.85	1.80	3	38	5.55 9.25 14.80 18.50	7240-3D 7240-5D 7240-8D 7240-10D	66134 66233 66329 979358	66185 66285 66391 979399
1.90	1.90	1.85	3	38	5.70 9.50 15.20 19.00	7240-3D 7240-5D 7240-8D 7240-10D	66135 66234 66330 979359	66186 66286 66392 979400
1.95	1.95	1.90	3	38	5.85 9.75 15.60 19.50	7240-3D 7240-5D 7240-8D 7240-10D	66136 66235 66333 979360	66187 66287 66393 979401
2.00	2.00	1.90	6	50	6.00 10.00 16.00 20.00	7240-3D 7240-5D 7240-8D 7240-10D	66137 66236 66334 979361	66188 66288 66394 979402
2.10	2.10	2.00	6	50	6.30 10.50 16.80 21.00	7240-3D 7240-5D 7240-8D 7240-10D	66138 66237 66335 979362	66189 66289 66395 979403
2.20	2.20	2.10	6	50	6.60 11.00 17.60 22.00	7240-3D 7240-5D 7240-8D 7240-10D	66194 66238 66350 979363	66195 66290 66396 979404
2.30	2.30	2.20	6	50	6.90 11.50 18.40 23.00	7240-3D 7240-5D 7240-8D 7240-10D	66139 66239 66351 979364	66190 66291 66397 979405
2.40	2.40	2.30	6	50	7.20 12.00 19.20 24.00	7240-3D 7240-5D 7240-8D 7240-10D	66140 66240 66352 979368	66191 66292 66398 979406
2.50	2.50	2.40	6	50	7.50 12.50 20.00 25.00	7240-3D 7240-5D 7240-8D 7240-10D	66143 66241 66353 979369	66192 66293 66399 979407
3.00	3.00	2.90	6	50	9.00 15.00 24.00 30.00	7240-3D 7240-5D 7240-8D 7240-10D	66144 66294 66354 979370	66193 66295 66400 979408

DIXI 7582

Z = 2

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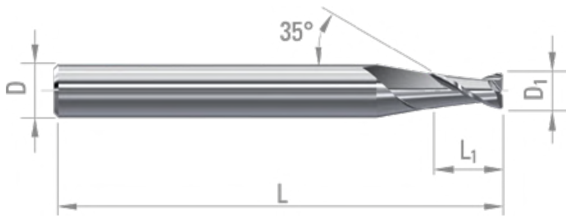
$D_1 \geq 2.8$

SLOT DRILLS WITH REINFORCED SHANK



- Slot drills with reinforced shank developed for the machining of soft materials.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●●○○ Finishing ●●●○○ ○ good ◎ excellent

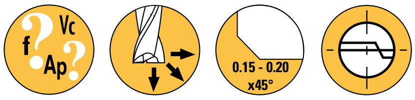
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	◎		○	○									

$D_{1\ e8}$ Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
1.00	2	3	38	47357	56304
1.50	3	3	38	47358	56305
2.00	4	4	50	47359	56306
2.50	5	4	50	47360	56307
2.80	6	6	50	35734	36304
3.00	6	6	50	30298	36305
3.80	8	6	50	34973	36306
4.00	8	6	50	30299	36607
4.50	10	6	50	35709	56983
5.00	10	6	50	30300	36309
5.50	10	6	50	35735	56303
6.00	10	6	50	29100	36299
8.00	15	8	60	29101	36300
10.00	18	10	66	29102	56334
12.00	20	12	73	30521	36302
16.00	25	16	82	30523	56318
20.00	35	20	104	31858	56335

DIXI 7572

Z = 2



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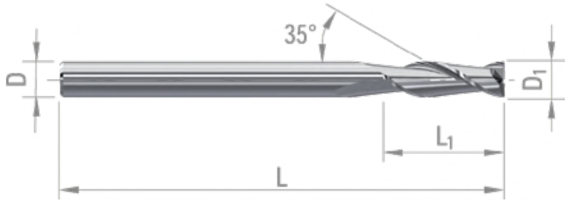
SLOT DRILLS
LONG SERIES



- Long length slot drills developed for the machining of soft materials.
- TiAIN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●●○○○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

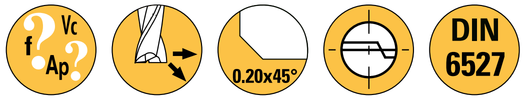
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	◎	◎	○	○									

D_{1e8}	L_1	D_{h5}	L	CARBIDE	TiAIN	DIAMANT*
3	14	3	50	32484	56320	57045
4	16	4	50	32485	56321	57046
5	18	5	60	32486	56322	57047
6	20	6	75	32487	56337	57048
7	22	7	75	32488		
8	25	8	75	32489	56336	57050
10	30	10	90	32491	56341	
12	36	12	100	32492	56342	

* for non-ferrous material

DIXI 7243

Z = 3



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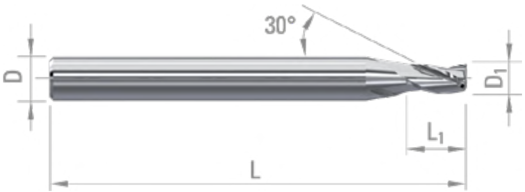
$D_1 > 6$

END MILLS WITH REINFORCED SHANK



- End mills with reinforced shank for general machining.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●○○○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

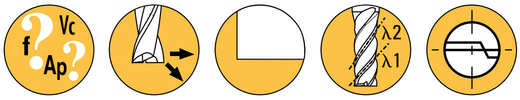
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	○	○	○		○	○	○	○	○	○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
0.35	1.00	3	38	956955	956956
0.40	1.20	3	38	956957	956958
0.50	1.50	3	38	48089	60914
0.60	1.80	3	38	61842	61841
0.70	2.10	3	38	61843	61844
0.75	2.40	3	38	48090	57205
0.80	2.40	3	38	66799	61845
0.90	2.70	3	38	60383	952308
1.00	3.00	3	38	48091	57206
1.10	3.30	3	38	59356	950790
1.20	3.60	3	38	39932	61352
1.25	3.90	3	38	48092	57207
1.30	3.90	3	38	49835	950044
1.40	4.20	3	38	60201	952191
1.50	4.50	3	38	48093	57208
1.60	4.80	3	38	64985	950045
1.70	5.10	3	38	57785	67283
1.75	5.40	3	38	48094	57209
1.80	5.40	3	38	50297	66988
1.90	5.70	3	38	66798	952309
2.00	6.00	3	38	42203	40868
2.10	7.00	3	38	45168	64847
2.20	7.00	3	38	57873	67276
2.30	7.00	3	38	40848	67277
2.40	7.00	3	38	42329	64809
2.50	7.00	3	38	41909	42105
3.00	7.00	6	57	41855	42106
3.50	7.00	6	57	41928	57210
4.00	8.00	6	57	41880	42341

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN
4.50	8.00	6	57	41808	57211
5.00	10.00	6	57	41858	42107
5.50	10.00	6	57	41910	57690
6.00	10.00	6	57	41908	35589
6.00 >	12.00	8	63	43409	57214
6.50	13.00	8	63	28948	57691
7.00	13.00	8	63	42562	57217
7.50	16.00	8	63	43920	57218
8.00	16.00	8	63	41809	36267
8.00 >	15.00	10	63	28951	57692
8.50	16.00	10	72	43215	57220
9.00	16.00	10	72	28953	57221
9.50	19.00	10	72	28954	57222
10.00	19.00	10	72	42357	57223
12.00	22.00	12	83	39945	57224
14.00	22.00	14	83	27781	57225
16.00	26.00	16	92	42358	57226
20.00	32.00	20	104	42360	57228

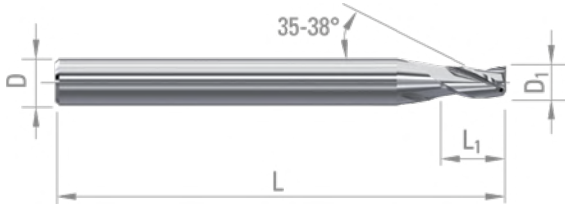
DIXI 7343

Z = 3



P.204

END MILLS WITH REINFORCED SHANK AND VARIABLE HELIX



- High performance end mills with reinforced shank and variable helix.
- Tools developed for the machining of tough materials.
- The extra smooth C-TOP coating improves tool life even at high temperatures in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1 Ø<0.30 - 0/-0.01 Ø<2.00 - 0/-0.02 Ø≥6.00 - e8	L_1	D_{h5}	L	CARBIDE	C-TOP
0.30	0.70	4	38	334881	334941
0.35	0.80	4	38	334882	334942
0.40	0.90	4	38	334883	334943
0.45	1.00	4	38	334884	334944
0.50	1.10	4	38	334885	334945
0.60	1.40	4	38	334886	334946
0.70	1.60	4	38	334887	334947
0.80	1.80	4	38	334888	334948
0.90	2.00	4	38	334889	334949
1.00	2.20	4	38	334890	334950
1.10	2.40	4	38	334891	334951
1.20	2.60	4	38	334892	334952
1.30	2.80	4	38	334893	334953
1.40	3.00	4	38	334894	334954
1.50	3.20	4	38	334895	334955
1.60	3.40	4	38	334896	334956
1.70	3.60	4	38	334897	334957
1.80	3.80	4	38	334898	334958
1.90	4.00	4	38	334899	334959
2.00	4.30	4	38	334900	334960
2.50	5.30	4	38	334901	334961
3.00	6.30	6	55	334902	334962
4.00	8.30	6	55	334903	334963
5.00	10.30	6	55	334904	334964
6.00	13.00	6	55	334905	334965
8.00	18.00	8	64	334906	334966
10.00	22.00	10	67	334907	334967
12.00	26.00	12	74	334908	334968
16.00	30.00	16	83	334909	334969

DIXI 7343-5D C-TOP

Z = 3

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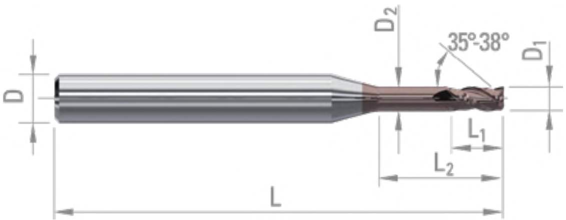
END MILLS WITH REINFORCED SHANK AND VARIABLE HELIX



- High performance end mills with reinforced shank and variable helix and 5xD_1 necked down.
- Tools developed for the machining of tough materials.
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

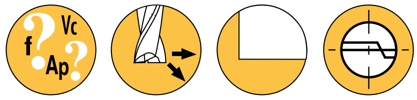
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1 Ø ≤ 2.00 - 0/-0.01 Ø < 6.00 - 0/-0.02 Ø ≥ 6.00 - e8	L_1	D_2	L_2	D_{h5}	L	C-TOP
0.30	0.70	0.27	1.60	4	38	412124
0.40	0.90	0.36	2.20	4	38	412125
0.50	1.10	0.45	2.70	4	38	412126
0.60	1.40	0.54	3.20	4	38	412127
0.70	1.60	0.63	3.80	4	38	412128
0.80	1.80	0.72	4.30	4	38	412129
0.90	2.00	0.81	4.80	4	38	412130
1.00	2.20	0.90	5.20	4	38	412131
1.10	2.40	0.99	5.80	4	38	412132
1.20	2.60	1.08	6.30	4	38	412133
1.30	2.80	1.17	6.70	4	38	412134
1.40	3.00	1.26	7.30	4	38	412135
1.50	3.20	1.39	7.80	4	38	412136
1.60	3.40	1.48	8.30	4	38	412137
1.70	3.60	1.58	8.70	4	38	412138
1.80	3.80	1.67	9.20	4	38	412139
1.90	4.00	1.76	9.70	4	38	412140
2.00	4.50	1.85	10.30	6	55	412141
2.50	5.50	2.35	12.80	6	55	412142
3.00	6.50	2.80	15.30	6	55	412143
4.00	8.50	3.75	20.40	6	55	412144
5.00	10.60	4.65	25.40	6	66	412145
6.00	13.30	5.55	30.50	6	66	412146
8.00	18.30	7.40	40.70	8	80	412147
10.00	22.50	9.25	50.80	10	100	412148
12.00	26.40	11.10	61.00	12	120	412149

DIXI 7203

Z = 3

END MILLS



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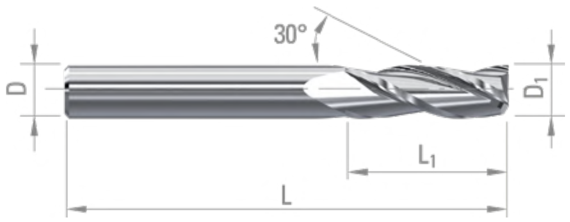


- End mills for general machining.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○		○	○				○	○				

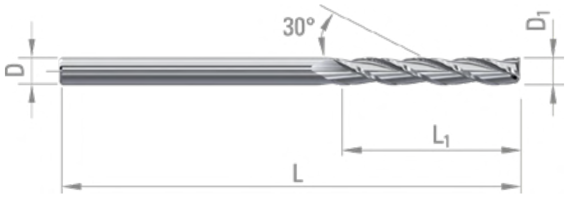
$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN
2.00	8	2.00	32	701	57082
2.50	8	2.50	32	702	57089
3.00	10	3.00	38	703	57090
3.50	12	3.50	38	34761	57101
4.00	12	4.00	50	704	57102
5.00	15	5.00	50	34626	57103
6.00	18	6.00	50	34627	57104
7.00	20	7.00	60	27097	57105
8.00	25	8.00	63	707	57106
9.00	25	9.00	67	43184	57107
10.00	30	10.00	72	30853	57108
11.00	30	11.00	73	30938	57109
12.00	30	12.00	73	30854	57110
13.00	30	13.00	75	23885	57111
16.00	30	16.00	92	27072	57114
18.00	40	18.00	125	26086	57115
20.00	40	20.00	130	26087	57117

DIXI 7223

Z = 3

P.212

END MILLS LONG SERIES



- Long length end mills for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

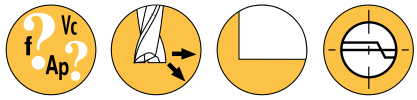
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○	◎	◎	◎				○	○				

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
3	30	3	60	44695	57141	60249
4	30	4	60	44696	57142	60250
5	35	5	75	44697	57143	60251
6	40	6	100	44698	57144	59009
8	40	8	100	44699	57145	60252
10	40	10	100	44700	57146	60253
12	45	12	100	44701	57147	60254

* for non-ferrous material

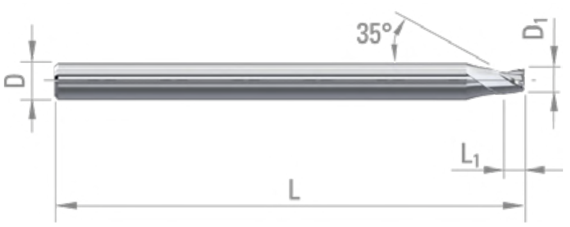
DIXI 7333

Z = 3



P.200

EXTRA SHORT END MILLS



- Extra short end mills with reinforced shank for general machining.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎				○	○	○	◎	◎				

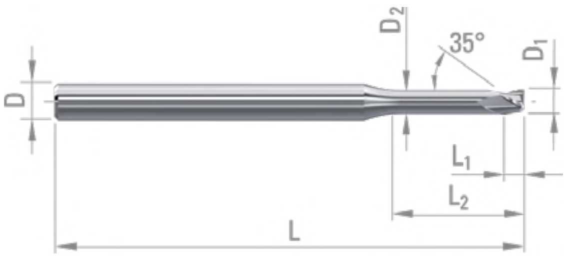
$D_{1\ e8}$ Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	CUTINOX
0.30	0.30	3	38	977779	977815
0.35	0.70	3	38	986521	373287
0.40	0.40	3	38	977780	977816
0.50	0.50	3	38	977781	977817
0.60	0.60	3	38	977782	977818
0.70	0.70	3	38	977783	977819
0.80	0.80	3	38	977784	977820
0.90	0.90	3	38	977785	977821
1.00	1.00	3	38	977786	977822
1.10	1.10	3	38	977787	977823
1.20	1.20	3	38	977788	977825
1.30	1.30	3	38	977789	977826
1.40	1.40	3	38	977790	977827
1.50	1.50	3	38	977791	977828
1.60	1.60	3	38	977792	977829
1.70	1.70	3	38	977793	977830
1.80	1.80	3	38	977794	977831
1.90	1.90	3	38	977795	977832
2.00	2.00	3	38	977796	977833
2.50	2.50	3	38	977797	977834
3.00	3.00	3	38	977798	977835
4.00	4.00	4	42	977799	977836
5.00	5.00	5	50	977800	977837
6.00	6.00	6	50	977801	977838
8.00	8.00	8	63	977802	977839
10.00	10.00	10	72	977803	977840

DIXI 7333-xD

Z = 3

P.200

EXTRA SHORT END MILLS NECKED DOWN



- 3xD$_1$, 5xD$_1$, 8xD$_1$ necked down extra short end mills with reinforced shank, for general machining.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎				○	○	○	◎	◎				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	DIXI	CARBIDE	CUTINOX
0.30	0.30	0.27	3	38	0.90 1.50 2.40	7333-3D 7333-5D 7333-8D	978791 978895 978591	978793 978896 978922
0.40	0.40	0.37	3	38	1.20 2.00 3.20	7333-3D 7333-5D 7333-8D	978794 978897 978928	978795 978898 979009
0.50	0.50	0.45	3	38	1.50 2.50 4.00	7333-3D 7333-5D 7333-8D	978796 978899 979010	978798 978900 979011
0.60	0.60	0.55	3	38	1.80 3.00 4.80	7333-3D 7333-5D 7333-8D	978799 978901 979012	978800 978902 979014
0.70	0.70	0.65	3	38	2.10 3.50 5.60	7333-3D 7333-5D 7333-8D	978801 978903 979016	978802 978904 979017
0.80	0.80	0.75	3	38	2.40 4.00 6.40	7333-3D 7333-5D 7333-8D	978803 978905 979018	978804 978906 979019
0.90	0.90	0.85	3	38	2.70 4.50 7.20	7333-3D 7333-5D 7333-8D	978805 978907 979020	978806 978908 979021
1.00	1.00	0.95	3	38	3.00 5.00 8.00	7333-3D 7333-5D 7333-8D	978807 978909 979022	978808 978910 979023
1.10	1.10	1.05	3	38	3.30 5.50 8.80	7333-3D 7333-5D 7333-8D	978809 978911 979024	978811 978912 979025
1.20	1.20	1.15	3	38	3.60 6.00 9.60	7333-3D 7333-5D 7333-8D	978812 978913 979026	978813 978914 979027
1.30	1.30	1.25	3	38	3.90 6.50 10.40	7333-3D 7333-5D 7333-8D	978814 978915 979028	978815 978916 979029

DIXI 7333-xD Z = 3

EXTRA SHORT END MILLS NECKED DOWN

P.200

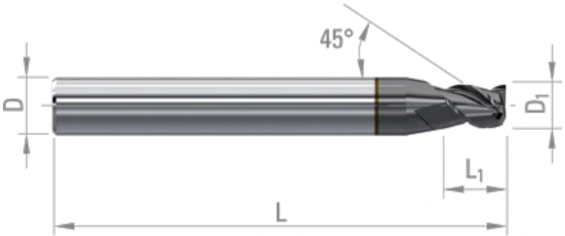
D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	**DIXI**	CARBIDE	CUTINOX
1.30	1.30	1.25	3	38	3.90	7333-3D	978814	978815
					6.50	7333-5D	978915	978916
					10.40	7333-8D	979028	979029
1.40	1.40	1.35	3	38	4.20	7333-3D	978816	978817
					7.00	7333-5D	978917	978918
					11.20	7333-8D	979030	979031
1.50	1.50	1.45	3	38	4.50	7333-3D	978818	978819
					7.50	7333-5D	978919	978920
					12.00	7333-8D	979032	979033
1.60	1.60	1.55	3	38	4.80	7333-3D	978820	978821
					8.00	7333-5D	978921	978923
					12.80	7333-8D	979034	979035
1.70	1.70	1.65	3	38	5.10	7333-3D	978823	978824
					8.50	7333-5D	978924	978925
					13.60	7333-8D	979036	979037
1.80	1.80	1.75	3	38	5.40	7333-3D	978826	978828
					9.00	7333-5D	978926	978927
					14.40	7333-8D	979038	979039
1.90	1.90	1.85	3	38	5.70	7333-3D	978829	978830
					9.50	7333-5D	978929	978930
					15.20	7333-8D	979041	979040
2.00	2.00	1.90	3	38	6.00	7333-3D	978848	978849
					10.00	7333-5D	978931	978932
					16.00	7333-8D	979042	979043
2.50	2.50	2.40	3	38	7.50	7333-3D	978850	978851
					12.50	7333-5D	978933	978934
					20.00	7333-8D	979044	979045
3.00	3.00	2.90	3	38	9.00	7333-3D	978852	978853
					15.00	7333-5D	978935	978936
					24.00	7333-8D	979046	979047
4.00	4.00	3.80	4	42	12.00	7333-3D	978854	978855

DIXI 7543 XIDUR

Z = 3

P.214

EXTRA SHORT END MILLS REINFORCED SHANK



- Extra short end mills with reinforced shank developed for the high-speed machining of stainless steel.
- XIDUR coating improves tool life even at high temperatures in low machinability materials.

Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

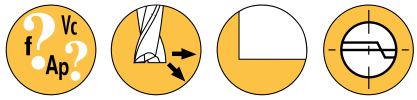
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations																◎	◎				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	XIDUR
1.00	2.00	4	50	51704
1.50	3.00	4	50	63945
2.00	3.00	4	50	51705
2.50	3.00	4	50	63946
3.00	4.50	6	57	51706
4.00	6.00	6	57	51707
5.00	7.00	6	57	51708
6.00	8.00	8	63	51709
8.00	10.00	10	72	51710
10.00	12.00	10	72	51711
12.00	15.00	12	83	51712

DIXI 7583

Z = 3



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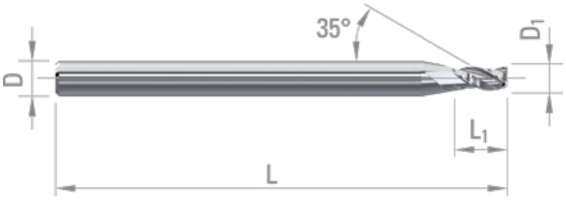
END MILLS WITH REINFORCED SHANK



- End mills with reinforced shank developed for the machining of soft materials.
- TiAlN coating improves tool life in ferrous materials.
- DLC coating improves tool life in non-ferrous materials.

Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

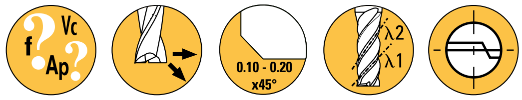
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○				○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN	DLC *
0.30	0.60	3	38	972403	972404	975572
0.40	0.80	3	38	972405	972406	982427
0.50	1.00	3	38	52565	963644	977361
0.60	1.20	3	38	963676	963678	982428
0.70	1.40	3	38	963677	963679	973037
0.80	1.60	3	38	954650	963680	982429
0.90	1.80	3	38	951666	963681	983104
1.00	2.00	3	38	31445	44659	960097
1.10	2.20	3	38	66496	66497	983105
1.20	2.40	3	38	66498	66499	973027
1.30	2.60	3	38	66500	66501	983106
1.40	2.80	3	38	66502	66503	983107
1.50	3.00	3	38	29407	40913	957103
1.60	3.20	3	38	41962	66510	983108
1.70	3.40	3	38	66504	66505	983109
1.80	3.60	3	38	66506	66507	983111
1.90	3.80	3	38	66508	66509	983112
2.00	4.00	3	38	39304	40081	61971
2.50	5.00	3	38	39213	40580	61973
3.00	6.00	6	50	40739	41954	61974
4.00	8.00	6	50	34377	53324	984169
5.00	10.00	6	50	48700	53325	984170
6.00	12.00	6	50	978074	978075	984171

* for non-ferrous material

DIXI 7253 CUTINOX

Z = 3



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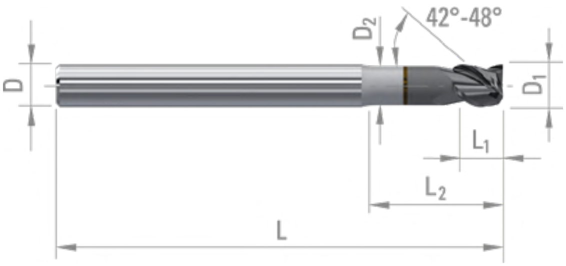
$D_1 \geq 10$

END MILLS WITH VARIABLE HELIX NECKED DOWN



- Necked down extra short end mills with variable helix.
- High-performance tools developed for the machining of tough materials.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

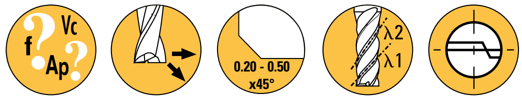
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◎	◎	◎	◎	◎				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	L_2	D_{h5}	L	CUTINOX
3	4	2.80	9	6	57	968764
4	5	3.70	12	6	57	968765
5	6	4.60	15	6	57	968766
6	7	5.50	18	8	63	968767
8	9	7.50	24	10	72	968768
10	11	9.30	30	10	72	968769
12	13	11.20	36	12	83	968770
16	17	15.20	48	16	92	968771

DIXI 7563 - 7563-FC DIXAL

Z = 3



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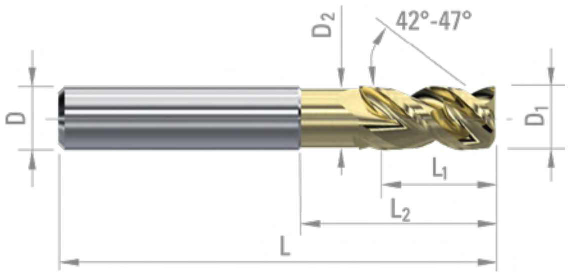
END MILLS WITH VARIABLE HELIX



- Necked down end mills with variable helix and double-groove geometry developed for the machining of non-ferrous materials.
- DIXI 7565-FC with coolant in the flutes.
- DIXAL coating improves tool life in non-ferrous materials and prevents built-up edges.

Roughing ●●●●○ Finishing ●●●●● ○ good ◎ excellent

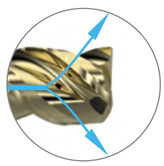
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

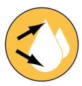
ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	○												

$D_{1\ h10}$	D_2	D_{h5}	L_1	L_2	L	7563 DIXAL	7563-FC DIXAL
4	3.60	4	9	14	57	991388	-
6	5.60	6	13 13	21 42	57 76	991389 -	321899 374028
8	7.40	8	19 21	26 62	63 100	991390 -	321900 374029
10	9.30	10	22 22	30 58	72 100	991391 -	321901 374030
12	11.00	12	26 26	37 73	83 120	991392 -	321902 374031
16	15.00	16	32 36	42 100	92 150	991393 -	321903 374032
20	19.00	20	38 41	50 98	104 150	991394 -	322866 374033

DIXI 7563

DIXI 7563-FC

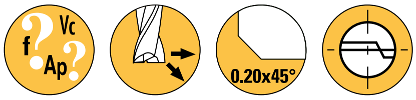




DIXI 7273

Z = 3

FINISHING END MILLS



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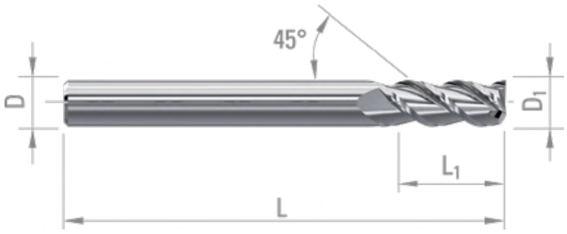
$D_1 \geq 12$



- End mills developed for the finishing of soft materials.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●●○○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	○		○	○				○	○				

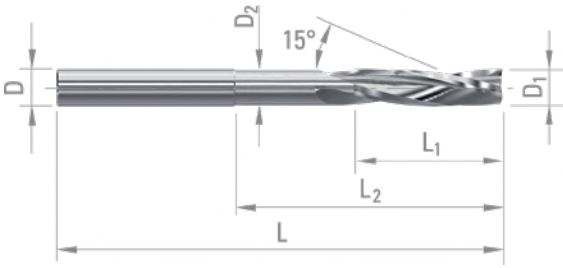
$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN
3	10	3	38	35741	57254
4	12	4	50	35742	57255
5	14	5	50	34225	57256
6	16	6	57	35743	57258
8	20	8	63	34227	57259
10	22	10	72	34228	57260
12	22	12	73	34229	57261
16	27	16	82	35745	

DIXI 7323

Z = 3

FOAM MILLING CUTTER

P.216



- End mills developed for soft materials machining.
- Recommended tools for obtaining surfaces without tearing of dense foams.

Roughing ●●●●○ Finishing ●●○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎										

$D_{1\ e8}$	L_1	D_2	L_2	D	L	CARBIDE
3	12	2.40	20	3	50	389845
3	20	2.40	45	3	75	389846
4	30	3.60	45	4	75	389847
6	25	5.60	45	6	75	389848
6	40	5.60	70	6	100	389849
8	25	7.60	45	8	75	389850
8	40	7.60	70	8	100	389851
10	40	9.60	70	10	100	389852
10	50	9.60	85	10	120	389853
12	50	11.60	115	12	150	389854

DIXI 7593

Z = 3-4

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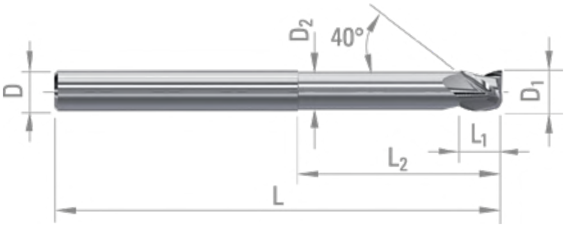
END MILLS NECKED DOWN



- Necked down end mills developed for the machining of deep pockets and grooves in aluminium alloys.

Roughing ●●●●○ Finishing ●●●○○ ○ good ◎ excellent

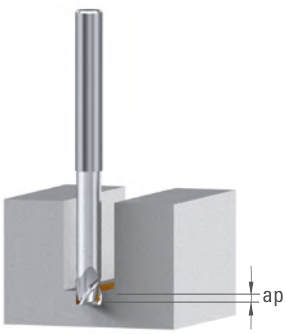
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎																

$D_{1\ h5}$	L_1	D_2	L_2	D_{h5}	L	Z	CARBIDE
6	6	5.60	30	6	66	3	49281
8	8	7.60	45	8	81	3	49282
10	10	9.60	50	10	90	3	49283
12	12	11.60	55	12	100	3	49284
16	16	15.60	72	16	120	3	49285
20	20	19.60	80	20	130	4	49286

CUTTING CONDITIONS

D_1	Z	Vc [m/min]	n [tr/min]	Vf [mm/min]	ap [mm]	ae [mm]	fz [mm]
6.00	3	400	21220	570	3	6	0.009
8.00	3	400	15920	570	4	8	0.012
10.00	3	400	12730	760	5	10	0.020
12.00	3	400	10610	760	6	12	0.024
16.00	3	400	7960	760	8	16	0.032
18.00	3	400	7070	760	9	18	0.036
20.00	4	400	5370	1020	10	20	0.040



DIXI 7244

Z = 4

DIN 6527

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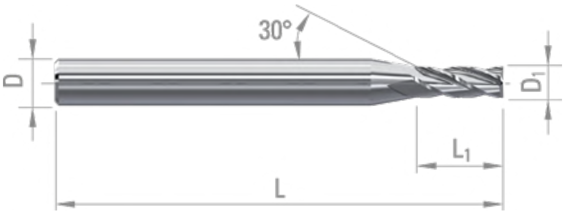
END MILLS WITH REINFORCED SHANK



- End mills with reinforced shank developed for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●●○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○	◎	○	○				○	○				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
0.40	1.20	3	38	45695	61846	
0.50	1.50	3	38	45696	61345	
1.00	3.00	3	38	55964	57230	63697
1.50	4.00	3	38	56731	57231	63698
2.00	7.00	3	38	52357	57232	63699
3.00	8.00	6	57	28959	57233	63700
4.00	11.00	6	57	42123	57239	63701
4.50	11.00	6	57	42124	57241	
5.00	13.00	6	57	41881	57242	63703
6.00	13.00	6	57	28965	57243	36278
7.00	16.00	8	63	28967	57244	
8.00	19.00	8	63	42906	57245	
9.00	19.00	10	72	28971	57246	
10.00	22.00	10	72	42361	57247	
12.00	26.00	12	83	39946	57248	
14.00	26.00	14	83	42362	57249	
16.00	32.00	16	92	42363	57251	
20.00	38.00	20	104	42227	57253	

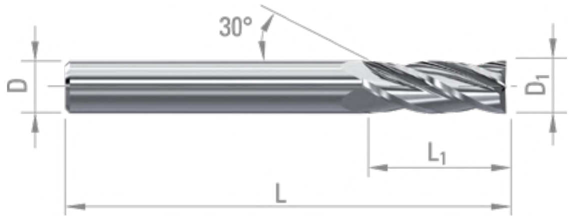
* for non-ferrous material

DIXI 7204

Z = 4

P.196 | $D_1 \geq 6$

END MIILLS



- End mills developed for general machining.
- TiAIN coating improves tool life in ferrous materials.

Roughing ●●○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○	◎	○	○				○	○				

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAIN
2.00	8	2.00	32	32944	57118
2.50	8	2.50	32	32945	57119
3.00	10	3.00	38	710	57120
4.00	12	4.00	50	711	57121
5.00	14	5.00	50	34629	57122
6.00	16	6.00	50	34630	57123

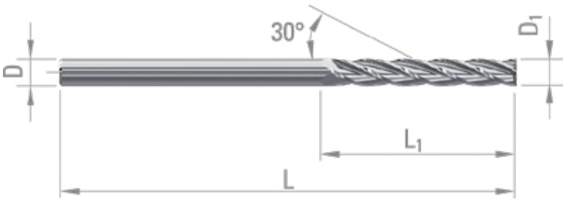
DIXI 7224

Z = 4

END MILLS LONG SERIES

P.212

$D_1 \geq 6$



- Long length end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○	◎	○	○				○					

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
3	30	3	60	44769	57152	60255
4	30	4	60	44770	57154	60258
5	35	5	75	44771	57155	60259
6	40	6	100	44706	57156	60260
8	40	8	100	44772	57157	60003
10	40	10	100	44707	57158	60004
12	45	12	100	44773	57159	60261
14	65	14	150	44708	57160	
16	65	16	150	44709	55770	
20	65	20	150	44776	57161	

* for non-ferrous material

DIXI 7264 - 7264-3D CUTINOX

Z = 4

END MILLS WITH VARIABLE HELIX AND IRREGULAR TEETH

P.268

$D_1 \geq 10$

- 3xD_1 necked down end mills with variable helix and irregular teeth developed for the machining of tough materials.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

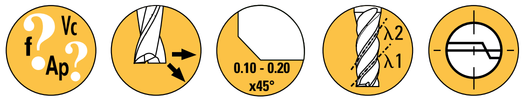
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◎	◎	◎	◎	◎				

D_1 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	CUTINOX
1.50	3	3	38	974805
2.00	4	3	38	974804
3.00	8	6	57	968672
4.00	11	6	57	968678
5.00	13	6	57	968679
6.00	13	6	57	968680
8.00	19	8	63	968681
10.00	22	10	72	968682
12.00	26	12	83	968683
16.00	32	16	92	968684
20.00	38	20	104	968685

D_1 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	L_2	D_{h5}	L	CUTINOX
6.00	13	5.70	18	6	57	997930
8.00	19	7.70	24	8	63	997931
10.00	22	9.60	30	10	72	997932
12.00	26	11.60	36	12	83	997933
16.00	32	15.50	48	16	92	997934
20.00	38	19.50	60	20	104	997935

DIXI 7254 CUTINOX

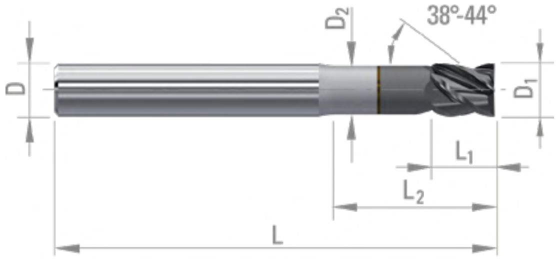
Z = 4



P.268

$D_1 \geq 10$

END MILLS WITH VARIABLE HELIX NECKED DOWN



- Necked down short length end mills with variable helix developed for the machining of tough materials.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

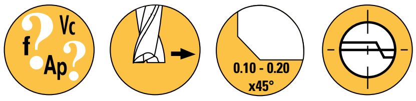
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◎	◎	◎	◎	◎				

$D_{1\ e8}$	L_1	D_2	L_2	D_{h5}	L	CUTINOX
3	4	2.80	9	6	57	968686
4	5	3.70	12	6	57	968687
5	6	4.60	15	6	57	968688
6	7	5.50	18	8	63	968689
8	9	7.50	24	10	72	968690
10	11	9.30	30	10	72	968691
12	13	11.20	36	12	83	968692

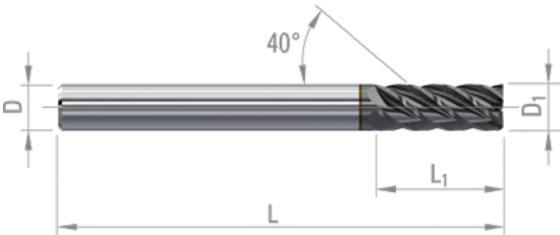
DIXI 7560

Z = 3-8

MULTI-TOOTH END MILLS



P.220 D$_1$ > 6 D$_1$ ≤ 1.90



- Multi-tooth end mills developed for finishing.
- TiAlN coating improves tool life in ferrous materials.
- DLC coating improves tool life in non-ferrous materials.

Roughing ●○○○○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				○	○	○	○	○				

D$_1$ Ø<2.00 - 0/-0.01 Ø≥ 2.00 - e8	L$_1$	D$_{h5}$	L	Z	CARBIDE	TiAlN (D$_1$ > 6)	DLC*
0.35	0.90	3	38	3	964114	966117	966057
0.40	1.00	3	38	3	964115	966118	966058
0.45	1.10	3	38	3	964116	966119	966059
0.50	1.25	3	38	3	964117	966120	966060
0.55	1.40	3	38	3	964118	966121	966061
0.60	1.50	3	38	3	964119	966122	966062
0.65	1.70	3	38	3	964120	966123	966063
0.70	1.75	3	38	3	964121	966124	966064
0.75	1.90	3	38	3	964122	966125	966065
0.80	2.00	3	38	3	964123	966126	966066
0.85	2.15	3	38	3	964124	966127	966067
0.90	2.25	3	38	3	964125	966128	966068
0.95	2.40	3	38	3	964126	966129	966069
1.00	2.50	3	38	3	964127	966130	966070
1.10	2.75	3	38	3	964128	966131	966071
1.20	3.00	3	38	3	964129	966132	966072
1.30	3.25	3	38	3	964130	966133	966073
1.40	3.50	3	38	3	964131	966134	966074
1.50	3.75	3	38	3	964132	966136	966075
1.60	4.00	3	38	3	964133	966138	966076
1.70	4.25	3	38	3	964134	966139	966094
1.80	4.50	3	38	3	964135	966140	966095
1.90	4.75	3	38	3	964136	966142	966096
2.00	8.00	3	38	5	964108	964112	964113

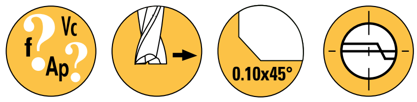
D$_1$ Ø<2.00 - 0/-0.01 Ø≥ 2.00 - e8	L$_1$	D$_{h5}$	L	Z	CARBIDE	TiAlN (D$_1$ > 6)	DLC*
2.10	5.25	3	38	5	964137	966145	966097
2.20	5.50	3	38	5	964140	966146	966098
2.30	5.75	3	38	5	964141	966147	966099
2.40	6.00	3	38	5	964142	966148	966101
2.50	8.00	3	38	5	964109	964110	964111
2.60	6.50	3	38	5	964143	966149	966102
2.70	6.75	3	38	5	964144	966150	966104
2.80	7.00	3	38	5	964145	966151	966105
2.90	7.00	3	38	5	964146	966152	966106
3.00	10.00	3	38	5	45657	49683	966107
4.00	12.00	4	50	5	45658	49684	964325
5.00	14.00	5	50	5	45659	49685	966115
6.00	16.00	6	57	5	45546	49686	966116
8.00	19.00	8	63	5	45547	49688	
9.00	22.00	9	67	5	45661	49689	
10.00	22.00	10	72	6	45548	49690	
12.00	26.00	12	83	6	45662	49691	
16.00	32.00	16	92	6	45549	49693	
20.00	38.00	20	104	8	45550	49694	

* for non-ferrous material

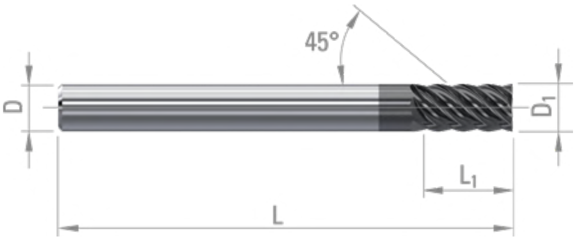
DIXI 7520 XIDUR

Z = 3-10

MULTI-TOOTH END MILLS



P.222 D$_1$ > 6 D$_1$ ≤ 1.50



- Multi-tooth end mills developed for the finishing of hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●○○○○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations										○	○	○	○										

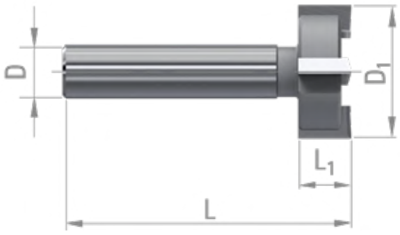
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													○	○	○			◎	◎	◎	◎

D$_1$ Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L$_1$	D$_{h5}$	L	Z	XIDUR
0.40	0.80	3	38	3	956595
0.50	1.00	3	38	3	956596
0.60	1.20	3	38	3	956597
0.70	1.40	3	38	3	956598
0.80	1.60	3	38	3	956599
0.90	1.80	3	38	3	956600
1.00	2.00	3	38	4	956601
1.50	3.00	3	38	4	956602
2.00	4.00	3	38	5	956603
2.50	5.00	3	38	5	957465
3.00	6.00	3	38	5	49107
4.00	8.00	4	50	5	49108
6.00	12.00	6	57	6	49109
8.00	16.00	8	63	6	49110
10.00	20.00	10	72	6	49111
12.00	24.00	12	83	8	49112
16.00	32.00	16	92	10	49113

DIXI 7800 **Z = 4-6**

FACE MILLING CUTTERS BRAZED INSERTS

P.224



- Face milling cutters with brazed inserts developed for material surfacing work as well as machine tables to ensure flatness

Roughing ●●○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

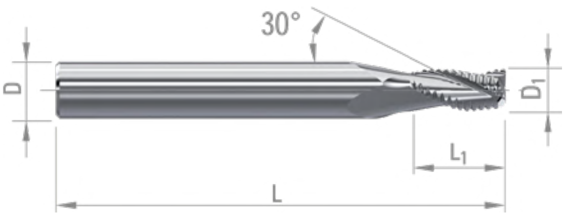
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎										

$D_{1 \pm 0.05}$	L_1	D_{h6}	L	Z	CARBURE new	CARBURE sharpened
12	8	6	43	4	381186	381192
20	8	8	43	4	381187	381193
25	8	8	43	5	381188	381194
30	8	8	43	5	381190	381195
35	8	8	43	6	381191	381196

Z = 3

ROUGHING END MILLS

P.224



- Roughing end mills with fine chip breaker developed for general machining.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●○ Finishing ○○○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	○	○	○	○

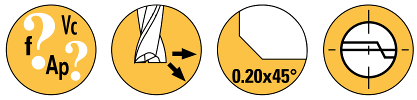
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎							○	○				

$D_{1\ d12}$	L_1	D_{h5}	L	CARBIDE	CUTINOX
3	8	6	57	955178	955179
4	10	6	57	955092	955091
5	13	6	57	955089	955090
6	13	8	63	955088	955087
7	16	8	63	955086	955085
8	16	8	63	955082	955033
10	22	10	72	955093	955094
12	25	12	83	959048	956993

on request

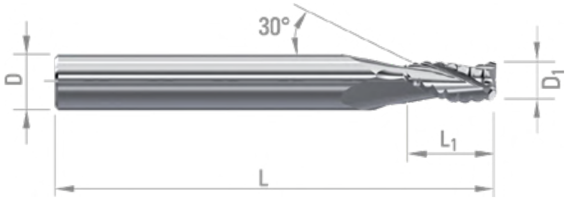
DIXI 7213

Z = 3



P.228

ROUGHING END MILLS

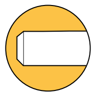


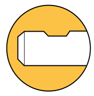
- Roughing end mills developed for general machining.
- TiAIN coating improves tool life in ferrous materials.

Roughing ●●○○○ Finishing ○○○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○	○						○	○				





$D_{1\ d12}$	L_1	D_{h5}	L	DIN 6535 HA CARBIDE	DIN 6535 HA TiAIN	DIN 6535 HB CARBIDE	DIN 6535 HB TiAIN
4	10	6	57	31451	57018	367642	367638
5	13	6	57	37136	57019	367629	367633
6	13	8	63	37137	57020	367640	367630
7	16	8	63	37138	57021	367632	367645
8	16	10	72	43218	57022	367634	367625
10	22	10	72	43214	57024	367636	367631
11	22	12	83	37142	57025	367646	367626
12	25	12	83	37143	57026	367644	367635
14	27	14	83	37144	57027	367643	367641
16	36	16	100	37145	57028	367628	367627
20	40	20	104	37588	57029	367637	367639

DIXI 7214

Z = 4

ROUGHING END MILLS

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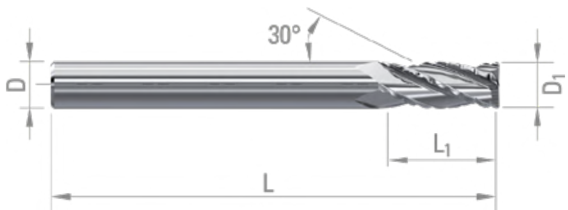
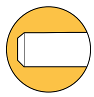
- Roughing end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.



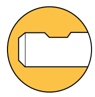
Roughing ●●●●○ Finishing ○○○○○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○	○						○	○				



DIN 6535 HA



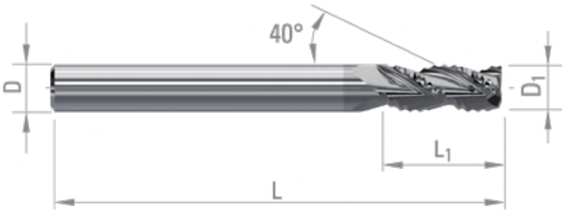
DIN 6535 HB

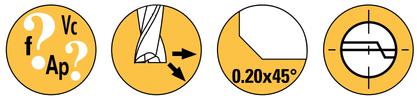
$D_{1\ d12}$	L_1	D_{h5}	L	DIN 6535 HA CARBIDE	DIN 6535 HA TiAlN	DIN 6535 HB CARBIDE	DIN 6535 HB TiAlN
6	15	6	57	45798	61412	367654	367651
8	16	10	72	39954	62426	367657	367650
10	22	10	72	37146	31133	367648	367656
12	25	12	83	37148	60949	367647	367658
16	36	16	100	37151	63333	367652	367655
20	40	20	104	37152	63334	367653	367649

DIXI 7215 - 7215-FC DAC

Z = 3

ROUGHING END MILLS FOR ALUMINIUM





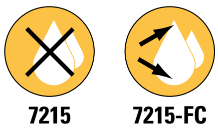
P.232

- Roughing end mills with coolant in the flutes developed for non-ferrous materials machining.
- DIXI 7215-FC with coolant in the flutes.
- DAC coating improves tool life in non-ferrous materials and prevents swarf build-up edges.

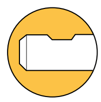
Roughing ●●●●● Finishing ○○○○○ ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎												



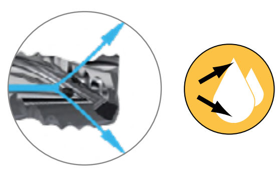
$D_{1\ d12}$	L_1	D_{h5}	L	7215 DAC	7215-FC DAC
6	14	6	57	993017	995594
8	21	8	63	993018	995595
10	24	10	72	993003	995596
12	28	12	83	990143	995597
16	34	16	92	993019	307320



on request

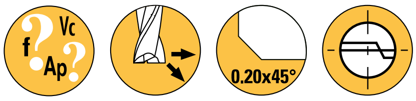
DIXI 7215

DIXI 7215-FC



DIXI 7217

Z = 3



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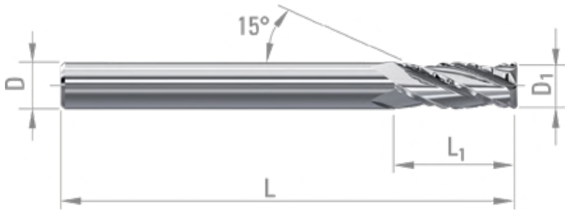
ROUGHING END MILLS FOR PLASTICS



- Roughing end mills developed for plastics machining.

Roughing ●●●●● Finishing ○○○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

$D_{1\ d12}$	D_{h5}	L_1	L	CARBIDE
6	6	16	50	381093
		25	75	381095
8	8	22	63	381096
		33	79	381097
10	10	32	73	381098
		42	102	381100
12	12	42	102	381101

DIXI 7220 - 7220-3D C-TOP

Z = 3-4

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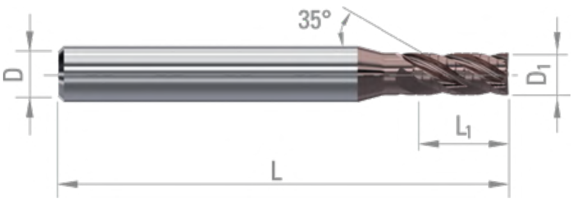
ROUGHING END MILLS FOR TOUGH MATERIALS

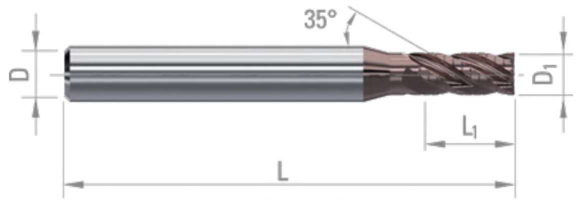


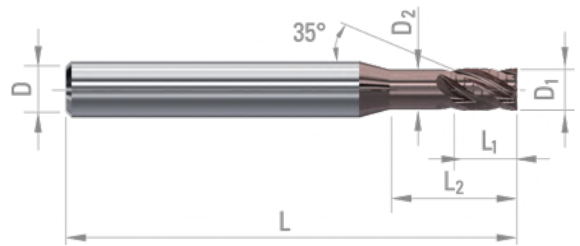
- Roughing end mills developed for the machining of difficult materials. Produce a better surface finish than a conventional roughing end mill.
- Available with or without neck.
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.

Roughing ●●●●● Finishing ●●○○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						○	○	○	◎				◎	◎	◎	◎	◎				





$D_{1\ d12}$	D_{h5}	L	Z	L_1	7220 C-TOP
3.00	6	55	3	4.50 8.00	358881 358883
3.50	6	55	3	5.50	358884
4.00	6	55	3	6.00 10.00	358886 358888
4.50	6	55	3	7.00	358889
5.00	6	55	3	7.50 13.00	358891 358893
6.00	6 8	55 64	4	9.00 13.00	358894 358896
8.00	8	64	4	12.00 16.00	358897 358899
10.00	10	67	4	15.00 22.00	358900 358902
12.00	12	83	4	18.00 26.00	358903 358905
16.00	16	92	4	24.00	358906

$D_{1\ d12}$	L_1	D_2	L_2	D_{h5}	L	Z	7220-3D C-TOP
3.00	4.50	2.80	9.00	6	55	3	358882
3.50	5.50	3.30	10.50	6	55	3	358885
4.00	6.00	3.70	12.00	6	55	3	358887
4.50	7.00	4.20	13.50	6	55	3	358890
5.00	7.50	4.60	15.00	6	55	3	358892
6.00	9.00	5.50	18.00	6	55	4	358895
8.00	12.00	7.50	24.00	8	64	4	358898

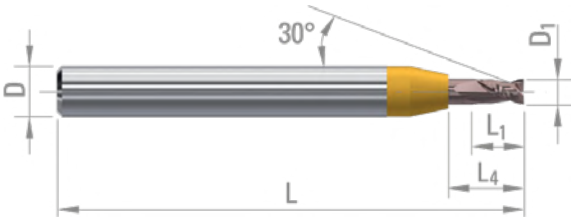
on request

DIXI 7442 COOL+®

Z = 2

P.240

END MILLS, REINFORCED SHANK WITH ACCELERATED LUBRICATION



- High performance slot drills with reinforced shank developed for the machining of tough materials.
- The patented COOL+ coolant concept allows higher productivity.
- The extra smooth C-TOP coating improves tool life even at high temperatures in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

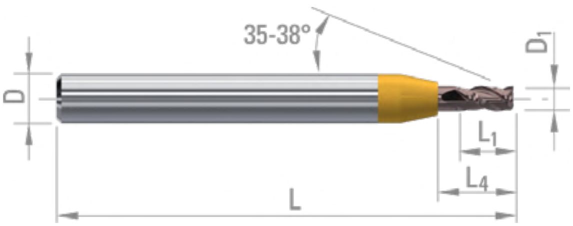
ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				◎	◎	◎	◎	◎				

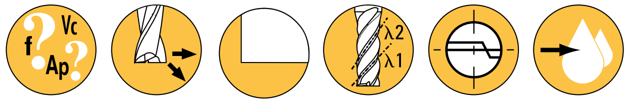
D_1 Ø≤2.00 - 0/-0.01 Ø>6.00 - 0/-0.02	L_1	D_{h5}	L	L_4	CARBIDE	C-TOP
0.30	0.45	4	38	2.10	381928	381944
0.40	0.60	4	38	2.10	381929	381945
0.50	0.80	4	38	2.10	381930	381946
0.60	0.90	4	38	2.90	381931	381947
0.70	1.10	4	38	3.00	381932	381948
0.80	1.20	4	38	3.00	381933	381949
0.90	1.40	4	38	3.00	381934	381950
1.00	1.50	4	38	3.00	381935	381951
1.10	1.70	4	38	3.00	381936	381953
1.20	1.80	4	38	4.10	381937	381954
1.30	2.00	4	38	3.90	381938	381955
1.40	2.10	4	38	3.80	381939	381956
1.50	2.30	4	38	3.90	381940	381957
1.60	2.40	6	55	4.50	383393	384649
1.70	2.60	6	55	3.90	384641	384650
1.80	2.70	6	55	3.90	384642	384651
1.90	2.90	6	55	5.20	384644	384653
2.00	3.00	6	55	5.10	384645	384654
2.50	3.80	6	55	5.00	384646	384655
3.00	4.50	6	55	6.60	383394	384656
4.00	6.00	8	64	8.80	384648	384657
5.00	7.50	8	64	10.60	383396	384658

DIXI 7443 COOL+®

Z = 3

END MILLS, REINFORCED SHANK WITH ACCELERATED LUBRICATION





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- High performance end mills with reinforced shank and variable helix developed for the machining of tough materials.
- The patented COOL+ coolant concept allows higher productivity.
- The extra smooth C-TOP coating improves tool life even at high temperatures in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●● ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				◎	◎	◎	◎	◎				

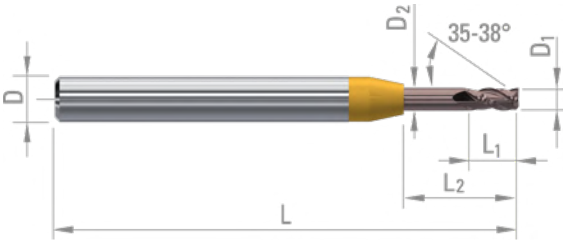
D_1 Ø≤2.00 - 0/-0.01 Ø<6.00 - 0/-0.02 Ø≥6.00 - e8	L_1	L_4	D_{h5}	L	CARBIDE	C-TOP
0.30	0.70	1.80	4	38	388775	388797
0.40	0.90	1.90	4	38	388776	388798
0.50	1.10	2.80	4	38	388777	388799
0.60	1.40	2.80	4	38	388778	388800
0.70	1.60	2.90	4	38	388779	388801
0.80	1.80	3.00	4	38	388780	388802
0.90	2.00	3.00	4	38	388781	388803
1.00	2.20	3.10	4	38	388782	388804
1.10	2.40	3.20	4	38	388783	388805
1.20	2.60	4.30	4	38	388784	388806
1.30	2.80	4.40	4	38	388785	388807
1.40	3.00	4.40	4	38	388786	388808
1.50	3.20	4.50	4	38	388787	388809
1.60	3.40	5.20	6	55	388788	388810
1.70	3.60	5.20	6	55	388789	388811
1.80	3.80	5.30	6	55	388790	388812
1.90	4.00	6.70	6	55	388791	388813
2.00	4.30	6.70	6	55	388792	388814
2.50	5.30	7.10	6	55	388793	388815
3.00	6.30	9.20	6	55	388794	388816
4.00	8.30	12.00	8	55	425015	413887
				64	388795	388817
5.00	10.30	15.10	8	55	425016	413888
				64	388796	388818
6.00	13.00	16.90	8	60	423532	423535
8.00	18.00	21.90	10	70	423533	423536
10.00	22.00	26.90	12	79	423534	423537

DIXI 7443-5D COOL+®

Z = 3

P.248

5XD$_1$ NECKED DOWN END MILLS WITH ACCELERATED LUBRICATION



- High performance end mills with reinforced shank with variable helix and 5xD$_1$ necked down developed for the machining of tough materials.
- The patented COOL+ coolant concept allows higher productivity.
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●● ○ good ◎ excellent

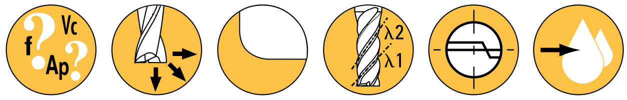
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1 Ø ≤ 2.00 - 0/-0.01 Ø < 6.00 - 0/-0.02 Ø ≥ 6.00 - e8	L_1	D_2	L_2	D_{h5}	L	C-TOP
0.30	0.70	0.27	1.60	4	38	412150
0.40	0.90	0.36	2.20	4	38	412151
0.50	1.10	0.45	2.70	4	38	412152
0.60	1.40	0.54	3.20	4	38	412153
0.70	1.60	0.63	3.80	4	38	412154
0.80	1.80	0.72	4.30	4	38	412155
0.90	2.00	0.81	4.80	4	38	412156
1.00	2.20	0.90	5.20	4	38	412157
1.10	2.40	0.99	5.80	4	38	412158
1.20	2.60	1.08	6.30	4	38	412159
1.30	2.80	1.17	6.70	4	38	412160
1.40	3.00	1.26	7.30	4	38	412161
1.50	3.20	1.39	7.80	4	38	412162
1.60	3.40	1.48	8.30	6	55	412163
1.70	3.60	1.58	8.70	6	55	412164
1.80	3.80	1.67	9.20	6	55	412165
1.90	4.00	1.76	9.70	6	55	412166
2.00	4.50	1.85	10.30	6	55	412167
2.50	5.50	2.32	12.80	6	55	412168
3.00	6.50	2.78	15.30	6	55	412169
4.00	8.50	3.72	20.40	8	64	412170
5.00	10.60	4.65	25.40	8	80	412171
6.00	13.30	5.55	30.70	8	74	423538
8.00	18.30	7.40	42.30	10	90	423539
10.00	22.50	9.25	51.90	12	105	423540

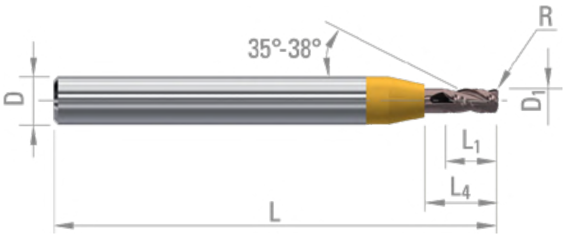
DIXI 7453 COOL+®

Z = 3



P.252

CORNER RADIUS END MILLS WITH ACCELERATED LUBRICATION



- Corner radius end mills with reinforced shank and symmetrical front grinding developed for the machining of tough materials.
- The patented COOL+ coolant concept allows higher productivity.
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1 Ø >0.40 - 0/-0.01 Ø <2.00 - 0/-0.02 Ø ≥6.00 - e8	L_1	L_4	D_{h5}	L	R R ≤ 0.10 ± 0.01 R < 0.30 ± 0.015 R ≥ 0.30 ± 0.02	C-TOP
0.40	0.90	1.90	4	38	0.05 0.10	413162 413163
0.50	1.10	2.80	4	38	0.05 0.10	413164 413165
0.60	1.40	2.80	4	38	0.05 0.10	413166 413167
0.70	1.60	2.90	4	38	0.05 0.10	413168 413169
0.80	1.80	2.97	4	38	0.05 0.10	413170 413171
0.90	2.00	3.03	4	38	0.05 0.10	413172 413173
1.00	2.20	3.10	4	38	0.10 0.20	413174 413175
1.50	3.20	4.50	4	38	0.10 0.20	413176 413177
2.00	4.50	6.70	6	55	0.20 0.30	413179 413180
2.50	5.50	7.10	6	55	0.20 0.30	413181 413182
3.00	6.50	9.20	6	55	0.20 0.30 0.50	413183 413184 413185
4.00	8.50	12.00	8	55	0.30 0.50 1.00	425017 425018 425019

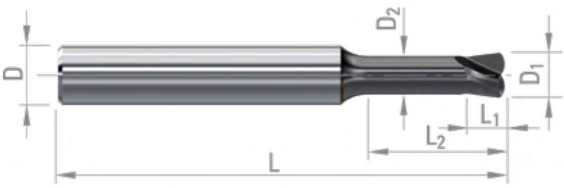
D_1 Ø >0.40 - 0/-0.01 Ø <2.00 - 0/-0.02 Ø ≥6.00 - e8	L_1	L_4	D_{h5}	L	R R ≤ 0.10 ± 0.01 R < 0.30 ± 0.015 R ≥ 0.30 ± 0.02	C-TOP
4.00	8.50	12.00	8	64	0.30 0.50 1.00	413186 413187 413188
5.00	10.60	15.10	8	55	0.30 0.50 1.00	425020 425021 425022
5.00	10.60	15.10	8	64	0.30 0.50 1.00	413189 413190 413191
6.00	13.30	16.90	8	60	0.30 0.50 1.00 1.50	425664 425665 425666 425667
8.00	18.30	21.90	10	70	0.50 1.00 1.50 2.00	425668 425669 425670 425671
10.00	22.50	26.90	12	79	0.50 1.00 1.50 2.00	425672 425673 425674 425675

DIXI 7702 XIDUR

Z = 2

HIGH SPEED END MILLS

P.258



- End mills developed for high feed milling and plunging strategy.
- Can be used in all types of materials, including hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●●●●○ Finishing ●●●○○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	○				◎	◎	◎	◎	◎	◎	◎	◎	◎

D_1 D ≤ 0.80 - 0/-0.01 D ≤ 6.00 - 0/-0.02 D > 6.00 - e8	L_1	D_2	L_2	D_{h6}	L	XIDUR
0.50	0.50	0.42	1.50	6	40	305279
0.80	0.80	0.68	2.40	6	40	305280
1.00	1.00	0.85	3.00	6	40	997920
1.50	1.50	1.27	4.50	6	40	997921
2.00	1.60	1.77	6.00	6	40	997922
3.00	2.40	2.65	9.00	6	40	997923
4.00	3.20	3.53	12.00	6	57	997924
5.00	4.00	4.42	15.00	6	57	997925
6.00	4.80	5.30	18.00	8	63	997926
8.00	6.40	7.05	24.00	10	80	997927
10.00	8.00	8.81	30.00	10	80	997928
12.00	9.60	10.60	36.00	12	80	997929

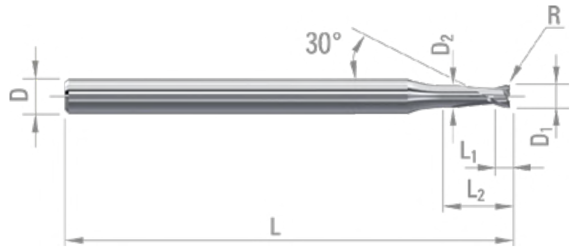
Download the cutting conditions (pdf + xls) and the dxf profiles sur www.dixipolytool.com

DIXI 7250-3D

Z = 2

P.198

EXTRA SHORT CORNER RADIUS SLOT DRILLS NECKED DOWN



- $3xD_1$ necked down extra short slot drills with corner radius developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●●●○ Finishing ●●●○○ ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◯	◯	◯	◯	◯	◎	◎	◎	◯	◯	◯	◯				◯	◯				

D_1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	D_{h5}	L	L_2	R	CARBIDE	TiAlN
0.40	0.40	0.37	3	38	1.20	0.05	958447	958452
0.45	0.45	0.42	3	38	1.35	0.05	958453	958454
0.50	0.50	0.45	3	38	1.50	0.05	958455	958456
0.55	0.55	0.50	3	38	1.65	0.05	958457	958458
0.60	0.60	0.55	3	38	1.80	0.05	958465	958466
0.65	0.65	0.60	3	38	1.95	0.05	958467	958468
0.70	0.70	0.65	3	38	2.10	0.05	958469	958470
0.75	0.75	0.70	3	38	2.25	0.05	958472	958473
0.80	0.80	0.75	3	38	2.40	0.05	958474	958475
0.85	0.85	0.80	3	38	2.55	0.05	958476	958477
0.90	0.90	0.85	3	38	2.70	0.10	958478	958479
0.95	0.95	0.90	3	38	2.85	0.10	958481	958482
1.00	1.00	0.95	3	38	3.00	0.10	958483	958484
1.05	1.05	1.00	3	38	3.15	0.10	958486	958487
1.10	1.10	1.05	3	38	3.30	0.10	958488	958489
1.15	1.15	1.10	3	38	3.45	0.10	958490	958491
1.20	1.20	1.15	3	38	3.60	0.10	958492	958493
1.25	1.25	1.20	3	38	3.75	0.10	958494	958495
1.30	1.30	1.25	3	38	3.90	0.10	958496	958497
1.35	1.35	1.30	3	38	4.05	0.10	958499	958501
1.40	1.40	1.35	3	38	4.20	0.10	958502	958503
1.45	1.45	1.40	3	38	4.35	0.10	958504	958505
1.50	1.50	1.45	3	38	4.50	0.20	958506	958507
1.55	1.55	1.50	3	38	4.65	0.20	958508	958509

DIXI 7250-3D

Z = 2

EXTRA SHORT CORNER RADIUS SLOT DRILLS NECKED DOWN

f Vc Ap

± 0.02

P.198

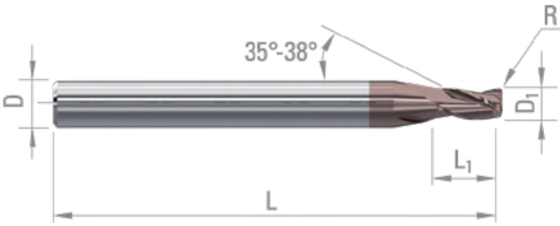
D1 Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L1	D2	Dh5	L	L2	R	CARBIDE	TiAlN
1.60	1.60	1.55	3	38	4.80	0.20	958510	958511
1.65	1.65	1.60	3	38	4.95	0.20	958512	958513
1.70	1.70	1.65	3	38	5.10	0.20	958514	958515
1.75	1.75	1.70	3	38	5.25	0.20	958516	958517
1.80	1.80	1.75	3	38	5.40	0.20	958518	958519
1.85	1.85	1.80	3	38	5.55	0.20	958520	958521
1.90	1.90	1.85	3	38	5.70	0.20	958522	958523
1.95	1.95	1.90	3	38	5.85	0.20	958524	958525
2.00	2.00	1.90	6	50	6.00	0.20	958527	958531
2.10	2.10	2.00	6	50	6.30	0.20	958532	958533
2.20	2.20	2.10	6	50	6.60	0.20	958534	958535
2.30	2.30	2.20	6	50	6.90	0.20	958886	958887
2.40	2.40	2.30	6	50	7.20	0.20	958888	958889
2.50	2.50	2.40	6	50	7.50	0.20	958890	958891
3.00	3.00	2.90	6	50	9.00	0.20	958892	958893

DIXI 7353

Z = 3

P.264

CORNER RADIUS END MILLS WITH VARIABLE HELIX



- Corner radius end mills with reinforced shank and symmetrical front grinding developed for the machining of tough materials.
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.

Roughing ●●●●● Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

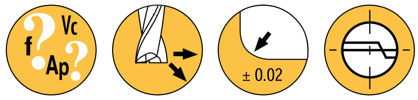
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations						◎	◎	◎	◎				◎	◎	◎	◎	◎				

D_1	L_1	D_{h5}	L	R	CARBIDE	C-TOP
Ø >0.40 - 0/-0.01 Ø <2.00 - 0/-0.02 Ø ≥6.00 - e8				R ≤ 0.10 ± 0.01 R < 0.30 ± 0.015 R ≥ 0.30 ± 0.02		
0.40	0.90	4	38	0.05	392798	392915
				0.10	392799	392916
0.50	1.10	4	38	0.05	392800	392917
				0.10	392801	392918
0.60	1.40	4	38	0.05	392802	392919
				0.10	392803	392920
0.70	1.60	4	38	0.05	392804	392921
				0.10	392805	392922
0.80	1.80	4	38	0.05	392806	392923
				0.10	392807	392924
0.90	2.00	4	38	0.05	392808	392925
				0.10	392809	392926
1.00	2.20	4	38	0.10	392810	392927
				0.20	392811	392928
1.50	3.20	4	38	0.10	392812	392929
				0.20	392813	392930
2.00	4.30	4	38	0.10	392814	392931
				0.20	392815	392932
				0.30	392816	392933
2.50	5.30	4	38	0.20	392817	392934
				0.30	392818	392935
3.00	6.30	6	55	0.20	392819	392936
				0.30	392820	392937

D_1	L_1	D_{h5}	L	R	CARBIDE	C-TOP
Ø >0.40 - 0/-0.01 Ø <2.00 - 0/-0.02 Ø ≥6.00 - e8				R ≤ 0.10 ± 0.01 R < 0.30 ± 0.015 R ≥ 0.30 ± 0.02		
4.00	8.30	6	55	0.20	392821	392938
				0.30	392822	392939
				0.50	392823	392940
				1.00	392824	392941
5.00	10.30	6	55	0.30	392825	392942
				0.50	392826	392943
				1.00	392827	392944
6.00	13.00	6	55	0.30	392828	392945
				0.50	392829	392946
				1.00	392830	392947
				1.50	392831	392948
8.00	18.00	8	64	0.50	392832	392949
				1.00	392833	392950
				1.50	392834	392951
				2.00	392835	392952
10.00	22.00	10	67	0.50	392836	392953
				1.00	392837	392954
				1.50	392838	392955
				2.00	392839	392956
12.00	26.00	12	74	0.50	392840	392957
				1.00	392841	392958
				1.50	392842	392959
				2.00	392843	392960

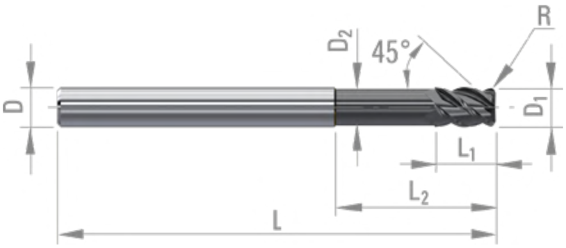
DIXI 7070 XIDUR

Z = 4-6



P.272

MULTI-TOOTH CORNER RADIUS END MILLS NECKED DOWN



- Necked down multi-tooth end mills with corner radius developed for the machining of moulds and dies.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●●○○○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations										○	○												

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													○	○	○			◎	◎	◎	◎

$D_{1\ e8}$	L_1	D_2	L_2	D_{h5}	L	Z	R	XIDUR
3	4.50	2.75	12.00	6	57	4	0.5	56643
4	6.00	3.70	13.50	6	57	4	0.5	56644
5	7.50	4.60	17.50	6	57	4	0.5	56645
6	9.00	5.50	24.00	6	66	4	0.5	56627
							0.8	56646
							1.0	56628
							1.5	56647
8	10.00	7.50	28.00	8	75	6	0.5	56634
							1.0	56635
							1.5	56648
							2.0	56649
10	12.00	9.25	30.00	10	75	6	0.5	56636
							1.0	56637
							1.5	56650
							2.0	56651
							2.5	56652
12	12.00	11.00	32.00	12	75	6	1.0	56653
							2.0	56655
							3.0	56656

DIXI 7265 CUTINOX

Z = 4

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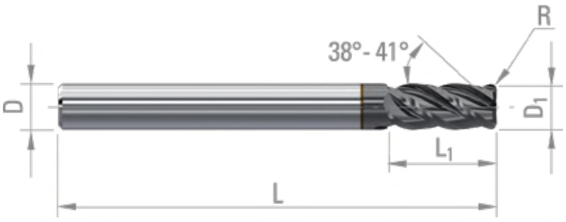
CORNER RADIUS END MILLS WITH VARIABLE HELIX



- Corner radius end mills with variable helix and irregular teeth developed for the machining of tough materials.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

Roughing ●●●●○ Finishing ●●●●● ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◎	◎	◎	◎	◎				

D_1 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_{h5}	L	R	CUTINOX
2	4.00	3	38	0.5	997936
3	8.00	6	57	0.5	997937
4	11.00	6	57	0.5	997938
5	13.00	6	57	0.5	997939
6	13.00	6	57	0.5 1.0	997940 997941
8	19.00	8	63	0.5 1.0	997942 997943
10	22.00	10	72	0.5 1.0	997944 997945
12	26.00	12	83	0.5 1.0	997946 997947

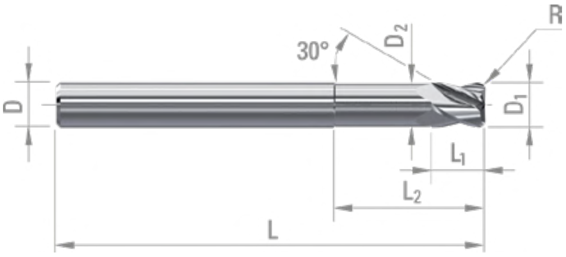
DIXI 7554

Z = 4

P.196

$D_1 \geq 6$

CORNER RADIUS END MILLS NECKED DOWN



- Necked down corner radius end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

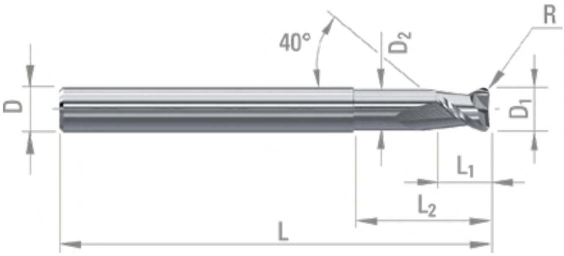
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○		○	○				◎	◎				

D_1 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	L_2	D_{h5}	L	R	CARBIDE	TiAlN
2	3	1.90	10	4	42	0.20	64465	64466
3	4	2.80	15	6	57	0.20	64467	64468
4	5	3.80	18	6	57	0.30	64469	64470
6	7	5.70	20	6	57	0.50 1.00	64471 64473	64472 64474
8	10	7.70	30	8	63	0.50 1.00	64475 64477	64476 64478
10	12	9.60	35	10	72	0.50 1.00	64479 64481	64480 64482
12	14	11.50	40	12	83	0.50 1.00	64485 64487	64486 64488

DIXI 7552

Z = 2

CORNER RADIUS END MILLS NECKED DOWN



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± 0.02

- Necked down corner radius end mills developed for the machining of low hardness materials.
- DICUT coating improves tool life in ferrous materials.

Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

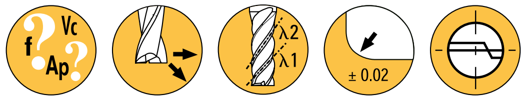
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○					○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	○							◎	◎				

D_{1e8}	L_1	D_2	L_2	D_{h5}	L	R	CARBIDE	DICUT
3	4	2.75	10	6	57	0.50	60765	63493
4	5	3.70	12	6	57	0.50	60766	63494
5	6	4.60	15	6	57	0.50	60767	63495
6	7	5.50	18	6	57	1.00	60768	63496
8	9	7.50	23	8	63	1.00	60769	63497
10	11	9.25	30	10	75	1.50	60770	63498
12	13	11.00	35	12	83	1.50	60771	63499
16	17	15.00	44	16	92	4.00	66805	

DIXI 7565 - 7565-FC DIXAL

Z = 3



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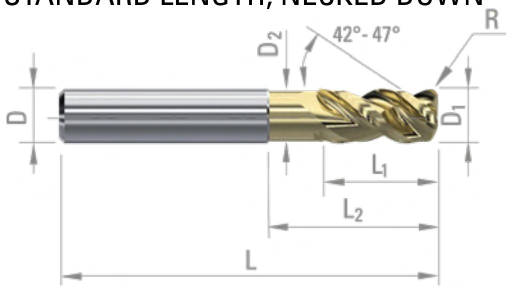
CORNER RADIUS END MILLS STANDARD LENGTH, NECKED DOWN



- Necked down corner radius end mills with variable helix developed for the machining of non-ferrous materials.
- DIXI 7565-FC with coolant in the flutes.
- DIXAL coating improves tool life in non-ferrous materials and prevents built-up edges.

Roughing ●●●●○ Finishing ●●●●● ○ good ◎ excellent

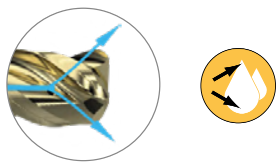
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	○												

$D_{1\ h10}$	L_1	D_2	L_2	D_{h5}	L	R	7565 DIXAL	7565-FC DIXAL
4	9	3.6	14	4	57	0.50	339042	
						1.00	339043	
6	13	5.6	21	6	57	0.50	339044	339067
						1.00	339045	339068
						1.50	339046	339069
8	19	7.4	26	8	63	0.50	339047	339070
						1.00	339048	339071
						2.00	339049	339072
						3.00	339050	339073
10	22	9.3	30	10	72	0.50	339051	339074
						1.00	339052	339075
						2.00	339053	339076
						3.00	339054	339077
12	26	11.0	37	12	83	0.50	339055	339078
						1.00	339056	339079
						2.00	339057	339080
						3.00	339058	339081
16	32	15.0	42	16	92	1.00	339059	339082
						2.00	339060	339083
						3.00	339061	339084
						4.00	339062	339085
20	38	19.0	50	20	104	1.00	339063	339086
						2.00	339064	339087
						3.00	339065	339088
						4.00	339066	339089

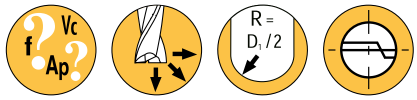
DIXI 7565

DIXI 7565-FC

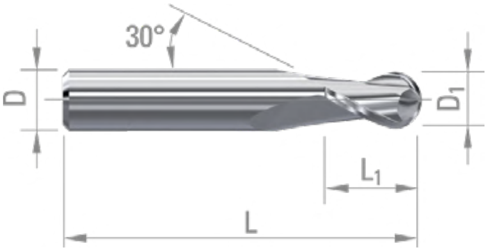


DIXI 7032 Z = 2

BALL-NOSE END MILLS



P.280



◠ 0.006

- Ball-nose end mills developed for general machining.
- TiAIN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.
- DICUT coating improves tool life in copper-based materials.

Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

D_1 (Ø<0.30 - 0/-0.01, Ø<3.00 - 0/-0.02, Ø≥ 3.00 - e8)	L_1	D_{h5}	L	CARBIDE	TiAIN	DICUT	DIAMANT *
0.06	0.12	3	38	959060			
0.08	0.16	3	38	959059			
0.10	0.20	3	38	959058			
0.15	0.30	3	38	954665			
0.20	0.30	3	38	952795	952796	952797	952799
0.25	0.40	3	38	952800	952801	952802	952803
0.30	0.50	3	38	952804	952805	952806	58852
0.40	0.60	3	38	952807	952808	952809	952810
0.50	0.80	3	38	952811	952812	952813	952814
0.60	0.90	3	38	952815	952816	952817	952818
0.70	1.10	3	38	952819	952820	952821	950363
0.80	1.20	3	38	952822	952823	950703	950364
0.90	1.40	3	38	952825	952826	952824	950365
1.00	1.50	3	38	952827	952828	952829	952830
1.10	1.70	3	38	952832	952833	952831	950366
1.20	1.80	3	38	952835	952836	952834	950367
1.30	1.90	3	38	952838	952839	952837	950368
1.40	2.10	3	38	952841	952842	952840	950369
1.50	2.30	3	38	952843	952846	952845	952844
1.60	2.50	3	38	55539	955784	956236	956237
1.70	2.50	3	38	60112	956238	956239	956240
1.80	2.75	3	38	48747	956241	956242	956243
1.90	2.75	3	38	57714	956244	956245	956246
2.00	3.00	3	38	44604	56136	64280	59783

* for non-ferrous material

DIXI 7032

Z = 2

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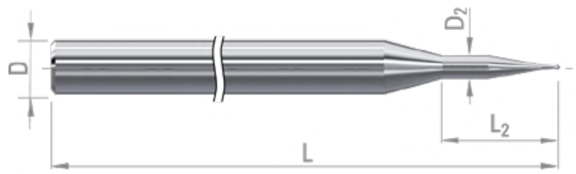
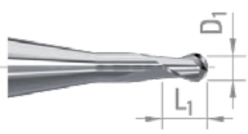
BALL-NOSE END MILLS

D_1 Ø<3.00 - 0/-0.02 Ø≥ 3.00 - e8	L_1	D_{h5}	L	CARBIDE	TiAlN	DICUT	DIAMANT *
2.10	3.00	3	38	55540	956247	956248	956249
2.20	3.50	3	38	48457	956250	956251	956253
2.30	3.50	3	38	66547	62925	956254	956255
2.40	3.50	3	38	60788	62926	956256	956257
2.50	4.00	3	38	44605	56137	64288	60221
3.00	5.00	3	38	43115	56138	63876	59988
3.50	6.00	4	50	44607	56139	64289	950370
4.00	6.00	4	50	34120	56140	64290	59784
4.50	7.00	5	50	44609	56141	64291	950371
5.00	8.00	5	50	34748	36172	64292	60222
5.50	9.00	6	57	44611	56172	64293	950372
6.00	9.00	6	57	34749	56179	63923	46800
7.00	11.00	7	60	34740	56176	64294	66878
8.00	12.00	8	63	43389	36174	64295	58860
10.00	15.00	10	72	42940	56177	63924	36175
12.00	18.00	12	73	32387	56173	64296	60223
16.00	24.00	16	82	32136	56175		

* for non-ferrous material



For $\mathbf{D_1} \leq \mathbf{0.15}$:
$D_2 = 1.20$
$L_2 = 5.30$



DIXI 7042 Z = 2

BALL-NOSE END MILLS

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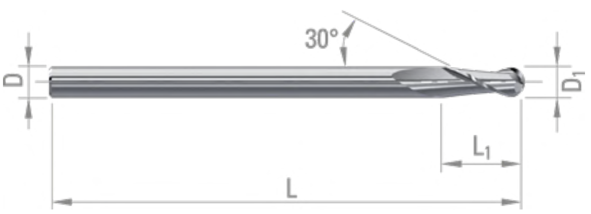


0.006

- Long length ball-nose end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

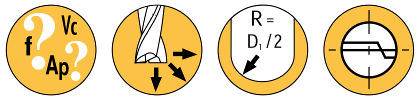
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○				

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAlN	DIAMANT *
2	10	2	61	41974	56238	60224
3	10	3	61	39512	56239	60225
4	12	4	75	38639	56240	60226
5	14	5	86	38942	56241	60227
6	16	6	93	38623	56242	60228
8	20	8	100	38640	56243	60229
10	24	10	100	38641	56244	58790
12	28	12	110	40728	56245	60230
16	36	16	120	40730	56247	
20	45	20	150	40732	56248	

* for non-ferrous material

DIXI 7046 Z = 2



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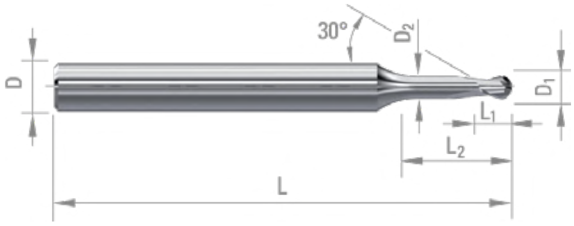
BALL-NOSE END MILLS NECKED DOWN



0.006

- Necked down ball-nose end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.
- DICUT coating improves tool life in copper-based materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

D_1 Ø<3.00 - 0/-0.02 Ø≥ 3.00 - e8	L_1	D_2	L_2	D_{h5}	L	CARBIDE	TiAlN	DICUT	DIAMANT *
0.20	0.50	0.18	1.00	4	55	64714	64719	64724	64729
0.30	0.60	0.27	1.50	4	55	64715	64720	64725	64730
0.40	0.80	0.37	2.00	4	55	64716	64721	64726	64731
0.50	1.00	0.45	3.00	4	55	64542	64556	64572	64584
0.60	1.60	0.55	4.00	4	55	64717	64722	64727	64732
0.80	1.80	0.75	5.00	4	55	64718	64723	64728	64733
1.00	2.00	0.95	6.00	4	55	64544	64557	64573	64585
1.50	2.50	1.45	9.00	4	55	64546	64558	64574	64586
2.00	3.00	1.90	12.00	4	55	64547	64559	64575	64587
2.50	4.00	2.40	12.00	4	55	64548	64560	64576	64588
3.00	5.00	2.80	12.00	6	57	64549	64561	64577	64589
4.00	6.00	3.80	15.00	6	57	64550	64562	64578	64590
5.00	7.00	4.80	15.00	6	57	64551	64567	64579	64591
6.00	8.00	5.70	15.00	6	57	64552	64568	64580	64592
8.00	10.00	7.70	25.00	8	63	64553	64569	64581	64593
10.00	12.00	9.60	30.00	10	72	64554	64570	64582	64594
12.00	14.00	11.60	40.00	12	83	64555	64571	64583	64595

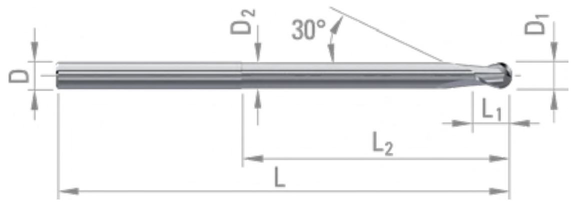
* for non-ferrous material

DIXI 7045 - 7047xD

Z = 2

P.278

BALL-NOSE END MILLS NECKED DOWN



0.006

- 8xD_1, 10xD_1, 12xD_1, 15xD_1, 18xD_1 necked down ball-nose end mills developed for general machining.
- TiAlN coating improves tool life in ferrous materials.
- DIAMANT coating improves tool life in abrasive non-ferrous materials.
- DICUT coating improves tool life in copper-based materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎				

D_1 (Ø<3.00 - 0/-0.02; Ø≥ 3.00 - e8)	L_1	D_2	D_{h5}	L	L_2	**DIXI**	CARBIDE	TiAlN	DICUT	DIAMANT *
0.20	0.50	0.18	4	62	1.00	7045	64694	64699	64704	64709
					1.60	7047-8D	979531	979555	979576	979595
					2.00	7047-10D	64735	64742	64750	64755
					2.40	7047-12D	979613	979626	979639	979664
					3.00	7047-15D	979711	979722	979732	979744
					3.60	7047-18D	979756	979768	979779	979790
0.30	0.60	0.27	4	62	1.50	7045	64695	64700	64705	64710
					2.40	7047-8D	979534	979558	979578	979596
					3.00	7047-10D	64738	64743	64751	64756
					3.60	7047-12D	979614	979627	979640	979652
					4.50	7047-15D	979712	979724	979733	979745
					5.40	7047-18D	979757	979769	979780	979791
0.40	0.80	0.37	4	62	2.00	7045	64696	64701	64706	64711
					3.20	7047-8D	979535	979559	979579	979597
					4.00	7047-10D	64739	64744	64752	64757
					4.80	7047-12D	979615	979628	979641	979653
					6.00	7047-15D	979713	979723	979734	979746
					7.20	7047-18D	979758	979770	979781	979792
0.50	1.00	0.45	4	62	3.00	7045	64491	64503	64515	64527
					4.00	7047-8D	979536	979560	979580	979598
					5.00	7047-10D	64596	64608	64623	64635
					6.00	7047-12D	979616	979629	979642	979654
					7.50	7047-15D	979714	979725	979735	979747
					9.00	7047-18D	979759	979771	979782	979793
0.60	1.60	0.55	4	62	4.00	7045	64697	64702	64707	64712
					4.80	7047-8D	979537	979561	979581	979599
					6.00	7047-10D	64740	64745	64753	64758
					7.20	7047-12D	979617	979630	979643	979655
					9.00	7047-15D	979715	979726	979736	979748
					10.80	7047-18D	979760	979772	979783	979794
0.80	1.80	0.75	4	62	5.00	7045	64698	64703	64708	64713
					6.40	7047-8D	979538	979562	979582	979600
					8.00	7047-10D	64741	64746	64754	64759
					9.60	7047-12D	979618	979631	979644	979656
					12.00	7047-15D	979716	979727	979737	979749
					14.40	7047-18D	979761	979773	979784	979795

* for non-ferrous material

DIXI 7045 - 7047xD

Z = 2

P.278

BALL-NOSE END MILLS NECKED DOWN

D_1 (Ø<3.00 - 0/-0.02; Ø≥ 3.00 - e8)	L_1	D_2	D_{h5}	L	L_2	**DIXI**	CARBIDE	TiAIN	DICUT	DIAMANT *
1.00	2	0.95	4	75	6.00	7045	64492	64504	64516	64528
					8.00	7047-8D	979540	979563	979583	979601
					10.00	7047-10D	64597	64609	64624	64636
					12.00	7047-12D	979619	954101	979314	979657
					15.00	7047-15D	975225	979728	979738	979750
					18.00	7047-18D	979522	979774	979785	979523
1.50	2.5	1.45	4	75	9.00	7045	64493	64505	64517	64529
					12.00	7047-8D	979541	979565	979585	979602
					15.00	7047-10D	64598	64610	64625	64637
					18.00	7047-12D	979620	979632	979645	979658
					22.50	7047-15D	979717	979729	979739	979751
					27.00	7047-18D	979763	979775	979786	979799
2.00	3	1.90	4	75	12.00	7045	64494	64506	64518	64530
					16.00	7047-8D	979542	979566	979588	979603
					20.00	7047-10D	64599	64611	64626	64638
					24.00	7047-12D	979621	979633	979646	979659
					30.00	7047-15D	972993	954105	979740	979752
					36.00	7047-18D	979765	979776	979787	979796
2.50	4	2.40	4	75	12.00	7045	64495	64507	64519	64531
					20.00	7047-8D	979544	979567	979589	979604
					25.00	7047-10D	64600	64612	64627	64639
					30.00	7047-12D	979622	979635	979648	979660
					37.50	7047-15D	979719	979718	979741	979753
					45.00	7047-18D	979766	979777	979788	979797
3.00	5	2.80	6	102	12.00	7045	64496	64508	64520	64532
					24.00	7047-8D	979545	979568	979590	979605
					30.00	7047-10D	64601	64613	64628	64640
					36.00	7047-12D	979623	979636	979649	979661
					45.00	7047-15D	979720	979730	979742	979754
					54.00	7047-18D	979767	979778	979789	979798
4.00	6	3.80	6	102	15.00	7045	64497	64509	64521	64533
					32.00	7047-8D	979547	979569	979591	979607
					40.00	7047-10D	64602	64614	64629	64641
					48.00	7047-12D	979624	979637	979650	979662
					60.00	7047-15D	979721	979731	979743	979755
5.00	7	4.80	6	102	15.00	7045	64498	64510	64522	64534
					40.00	7047-8D	979549	979570	979592	979608
					50.00	7047-10D	64603	64615	64630	64642
					60.00	7047-12D	979625	979638	979651	979663
6.00	8	5.70	6	102	15.00	7045	64499	64511	64523	64536
					48.00	7047-8D	979550	979571	979593	979609
					60.00	7047-10D	64604	64616	64631	64643
8.00	10	7.70	8	117	25.00	7045	64500	64512	64524	64537
					64.00	7047-8D	979551	979572	979594	979610
					80.00	7047-10D	64605	64617	64632	64644
10.00	12	9.60	10	133	30.00	7045	64501	64513	64525	64538
					80.00	7047-8D	979552	979573	979586	979611
					90.00	7047-10D	64606	64618	64633	64645
12.00	14	11.60	12	151	40.00	7045	64502	64514	64526	64539
					96.00	7047-8D	979553	979574	979587	979612
					110.00	7047-10D	64607	64619	64634	64646

* for non-ferrous material

DIXI 7532 XIDUR

Z = 2

BALL-NOSE END MILLS

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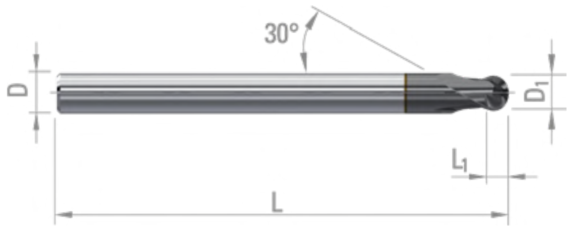


⌒ 0.006

- Ball-nose end mills developed for machining hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●○○○○ Finishing ●●●●○ ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations										◯	◯												

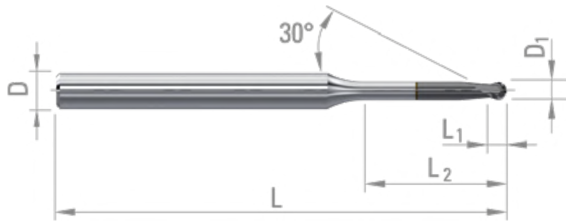
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◯	◯	◯			◎	◎	◎	◎

D_1 Ø<3.00 - 0/-0.02 Ø≥ 3.00 - e8	L_1	D_{h5}	L	XIDUR
0.20	0.20	4	50	973380
0.30	0.30	4	50	972176
0.40	0.40	4	50	973379
0.50	0.50	4	50	973378
0.60	0.60	4	50	973377
0.70	0.70	4	50	972177
0.80	0.80	4	50	973376
0.90	0.80	4	50	973375
1.00	0.80	4	50	67253
1.50	1.20	4	50	67254
2.00	1.60	4	50	67257
3.00	2.40	6	57	67258
4.00	3.20	6	66	67259
5.00	4.00	6	66	67260
6.00	4.80	6	66	67261
8.00	6.40	8	75	67262
10.00	8.00	10	90	67255

DIXI 7532-xD XIDUR

Z = 2

BALL-NOSE END MILLS NECKED DOWN



0.006

P.282

- $3xD_1$, $5xD_1$, $8xD_1$, $10xD_1$, $12xD_1$, $15xD_1$ necked down ball-nose end mills developed for machining hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●○○○○ Finishing ●●●●○ ◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations										◯	◯												

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◯	◯	◯			◎	◎	◎	◎

D_1 (Ø<3.00 - 0/-0.02, Ø≥3.00 - e8)	L_1	D_{h5}	L	L_2	DIXI	XIDUR
0.20	0.20	4	50	0.6	7532-3D	978593
				1.0	7532-5D	979083
				1.6	7532-8D	979102
0.30	0.30	4	50	0.9	7532-3D	979058
				1.5	7532-5D	979084
				2.4	7532-8D	979103
0.40	0.40	4	50	1.2	7532-3D	979059
				2.0	7532-5D	979085
				3.2	7532-8D	979104
				4.0	7532-10D	979116
0.50	0.50	4	50	1.5	7532-3D	979060
				2.5	7532-5D	979086
				4.0	7532-8D	979105
				5.0	7532-10D	979117
				6.0	7532-12D	979136
0.60	0.60	4	50	1.8	7532-3D	979061
				3.0	7532-5D	979087
				4.8	7532-8D	979106
				6.0	7532-10D	979118
				7.2	7532-12D	979137
				9.0	7532-15D	979144
0.70	0.70	4	50	2.1	7532-3D	979062
				3.5	7532-5D	979088
				5.6	7532-8D	979107
				7.0	7532-10D	979119
				8.4	7532-12D	979138
				10.5	7532-15D	979145
0.80	0.80	4	50	2.4	7532-3D	979063
				4.0	7532-5D	979089
				6.4	7532-8D	979108
				8.0	7532-10D	979120
				9.6	7532-12D	979139
				12.0	7532-15D	979146
0.90	0.80	4	50	2.7	7532-3D	979064
				4.5	7532-5D	979091
				7.2	7532-8D	979109
				9.0	7532-10D	979121
				10.8	7532-12D	979140
				13.5	7532-15D	979147

D_1 (Ø<3.00 - 0/-0.02, Ø≥3.00 - e8)	L_1	D_{h5}	L	L_2	DIXI	XIDUR
1.00	0.80	4	50	3.0	7532-3D	979065
				5.0	7532-5D	979092
				8.0	7532-8D	979111
				10.0	7532-10D	979122
				12.0	7532-12D	979141
				15.0	7532-15D	979148
1.50	1.20	4	50	4.5	7532-3D	979066
				7.5	7532-5D	979093
				12.0	7532-8D	979112
				15.0	7532-10D	979123
				18.0	7532-12D	979142
				22.5	7532-15D	979149
2.00	1.60	4	50	6.0	7532-3D	979067
				10.0	7532-5D	979094
				16.0	7532-8D	979113
				20.0	7532-10D	979124
				24.0	7532-12D	979143
				30.0	7532-15D	979150
3.00	2.40	6	57	9.0	7532-3D	979068
				15.0	7532-5D	979095
				24.0	7532-8D	979114
				30.0	7532-10D	979125
4.00	3.20	6	66	12.0	7532-3D	979069
				20.0	7532-5D	979096
				32.0	7532-8D	979115
5.00	4.00	6	66	15.0	7532-3D	979070
				25.0	7532-5D	979097
6.00	4.80	6	66	18.0	7532-3D	979071
				30.0	7532-5D	979098
8.00	6.40	8	75	24.0	7532-3D	979072
				40.0	7532-5D	979099
10.00	8.00	10	90	30.0	7532-3D	979073
				50.0	7532-5D	979100

DIXI 7542 XIDUR

Z = 2

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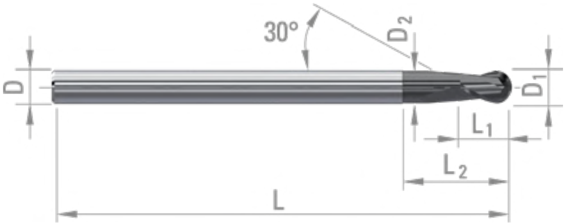
BALL-NOSE END MILLS NECKED DOWN



0.006

- Necked down long-length ball-nose end mills developed for machining hardened steels.
- XIDUR coating improves tool life, even at high temperatures, in low machinability materials up to 65 HRC.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations										○	○												

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													○	○	○			◎	◎	◎	◎

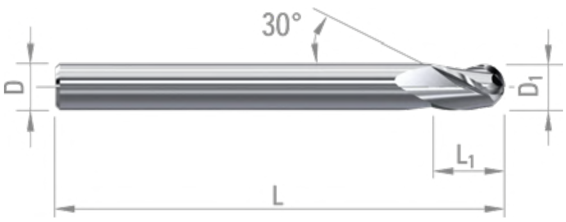
D_1 Ø<3.00 - 0/-0.02 Ø≥3.00 - e8	L_1	D_2	L_2	D_{h5}	L	XIDUR
1.00	2	0.90	3.20	6	66	61355
1.50	3	1.40	4.70	6	66	61356
2.00	3	1.85	6.20	6	66	61357
3.00	5	2.85	9.20	6	66	61358
4.00	6	3.80	12.50	6	80	61359
5.00	7	4.70	15.50	6	80	61360
6.00	9	5.70	19.00	6	80	61361
8.00	12	7.50	25.00	8	90	61362
10.00	15	9.50	31.00	10	110	61363
12.00	18	11.50	37.00	12	120	61364

DIXI 7033

Z = 3

BALL-NOSE END MILLS

P.280



- Ball-nose end mills developed for general machining.
- TiAIN coating improves tool life in ferrous materials.

Roughing ●○○○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

$D_{1\ e8}$	L_1	D_{h5}	L	CARBIDE	TiAIN
1.00	2.00	3	38	45950	56154
1.50	2.50	3	38	45230	56155
2.00	3.00	3	38	45231	56156
2.50	4.00	3	38	45232	56157
3.00	5.00	3	38	43637	56158
4.00	6.00	4	50	43638	56159
5.00	8.00	5	50	43639	56162
6.00	9.00	6	57	42993	56163
8.00	12.00	8	63	32969	56165
10.00	15.00	10	72	32970	56166

DIXI 7102 Z = 2

COMPRESSION CUTTERS

P.284

- Compression milling cutters, double helix right and left, developed for machining fibrous composite materials such as wood, MDF and chipboard.
- The double helix reduces delamination on both sides of the material.
- DLC coating improves tool life in non-ferrous materials.

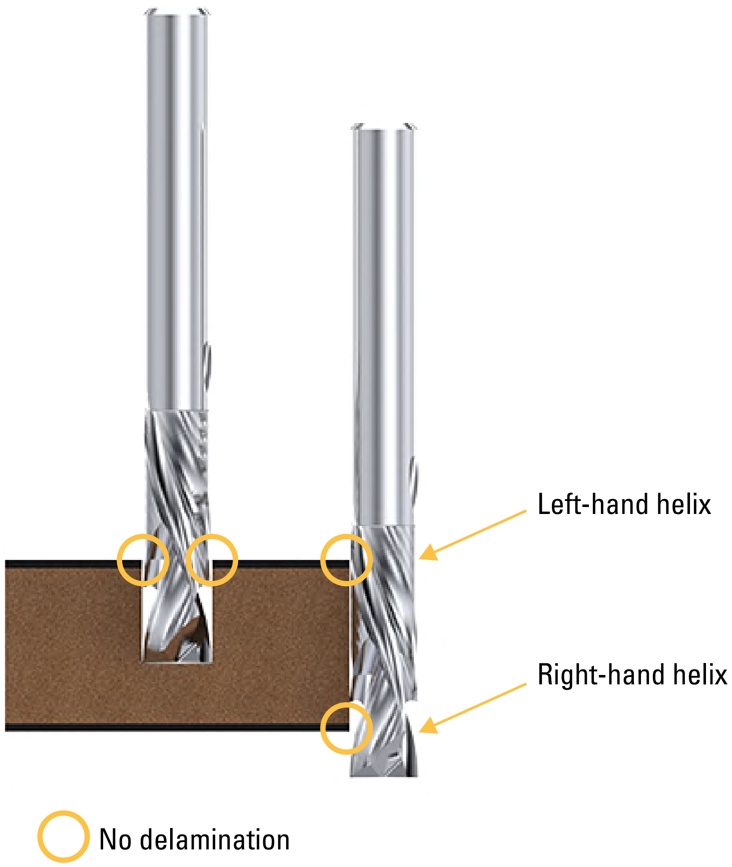
Roughing ●●●○○ Finishing ●●●●○ ○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

$D_{1\ e8}$	L_1	L_2	D_{h5}	L	CARBIDE	DLC *
6	6.5	22	6	70	414421	414425
8	8.7	22	8	70	414422	414426
10	10.9	22	10	75	414423	414427
12	13.0	28	12	80	414424	414428

* for non-ferrous material



DIXI 7112 Z = 2

ROUTERS FOR COMPOSITES / KEVLAR®

- Routers developed for the machining of fibrous composite materials.
- Reduce delamination phenomena.

Roughing ●●●●○ Finishing ●●○○○ ○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

D_1	inches	L_1	D_{h5}	L	CARBIDE
5.00		20	5.00	75	26252
6.00		25	6.00	75	26873
6.35	1/4”	25	6.35	75	26264
8.00		25	8.00	75	27851
10.00		25	10.00	75	28072
12.70	1/2”	27	12.70	75	26254

CUTTING CONDITIONS :

Routing Vc = 250 - 500 m/min

Vf = 500 - 2000 mm/min

TOOLS ON REQUEST

DIXI 7631 SP **R** ☐ **L** ☐ **Z =** ☐

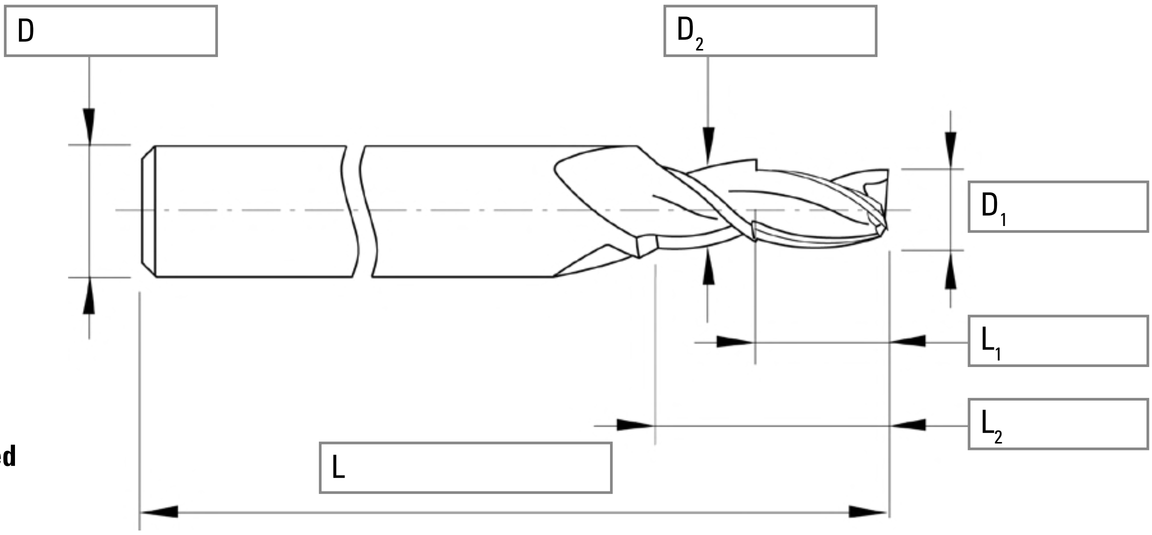
STEPPED END MILLS

☐

☐

Quantity

Material to be machined



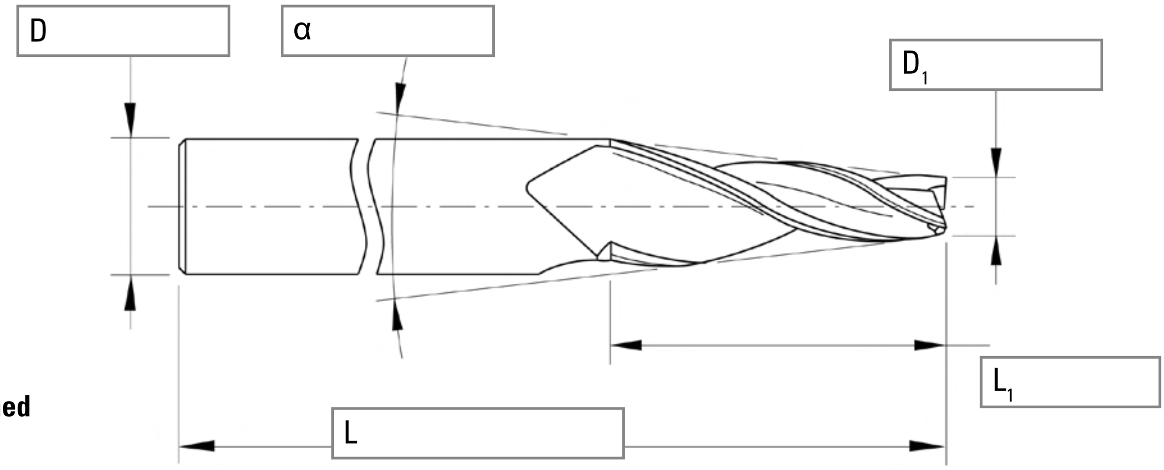
DIXI 7645 SP **R** ☐ **L** ☐

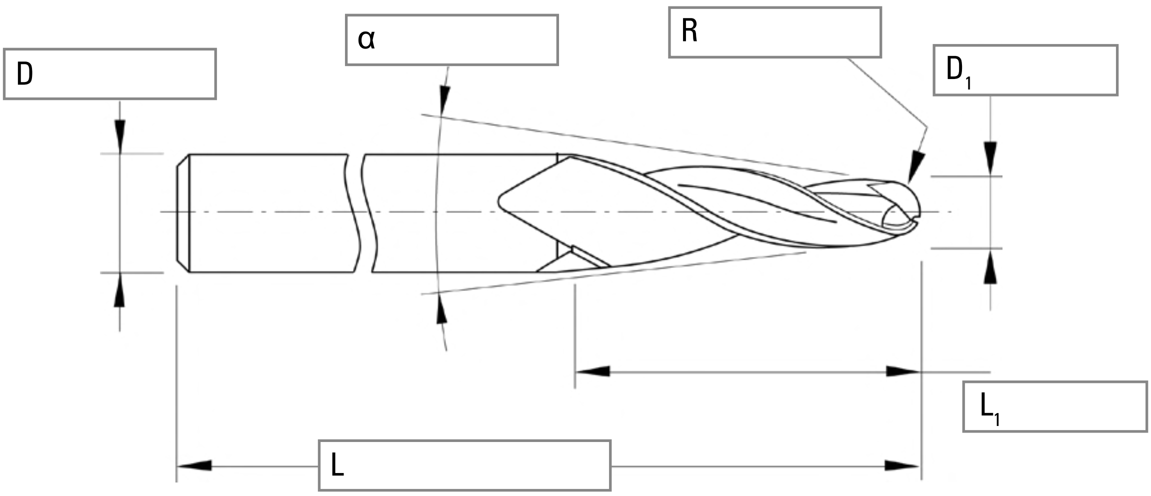
TAPERED END MILLS

Z = ☐

Quantity

Material to be machined





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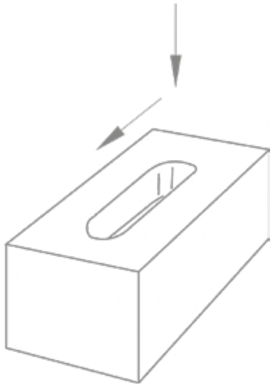
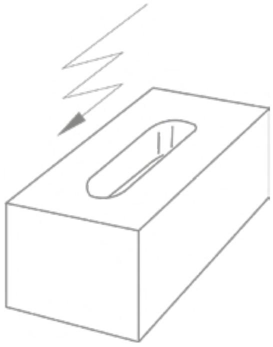
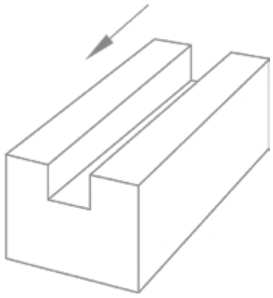
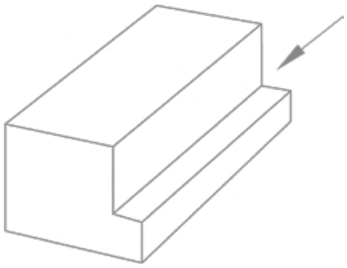
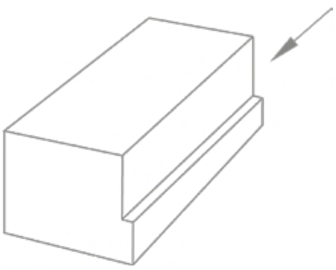
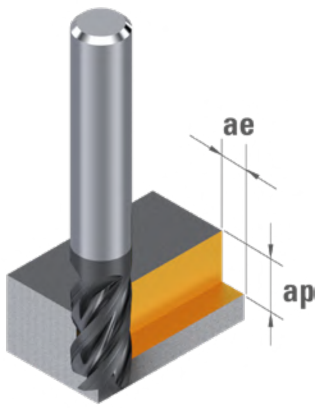
NUMBER OF TEETH CHOICE

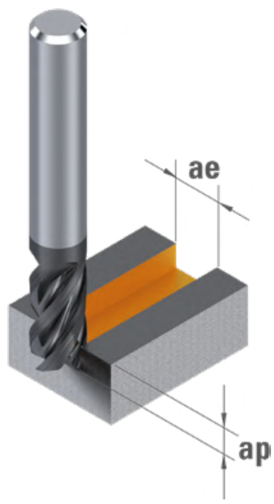
Key Slotting		**Z 2**
Ramping		**Z 2 - Z 3**
Slotting		**Z 2 - Z 3**
Routing (roughing)		**Z 3 - Z 4**
Routing (finishing)		Multi-tooth

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**155**	< 0.3×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	**200**	< 0.5×ØD1	<1×L1
N	Cast aluminium alloy >12% Si	23 - 25	**175**	<0.4×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	**170**	< 0.5×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	**150**	< 0.4×ØD1	<1×L1
N	Plastic, wood	29 - 30	**150**	< 0.5×ØD1	<1×L1
N	Gold, silver	–	**150**	< 0.3×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	**60**	< 0.2×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**80**	1×ØD1	< 0.3×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**70**	1×ØD1	< 0.5×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**60**	1×ØD1	< 0.4×ØD1
N	Copper alloy good machinability with Pb	26	**120**	1×ØD1	< 0.5×ØD1
N	Copper alloy with difficult machinability	27 - 28	**105**	1×ØD1	< 0.4×ØD1
N	Plastic, wood	29 - 30	**55**	1×ØD1	< 0.5×ØD1
N	Gold, silver	–	**105**	1×ØD1	< 0.3×ØD1
S	Titanium, titanium alloy	36 - 37	**40**	1×ØD1	< 0.2×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.90	Ø D_1 1.00 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.20 - 2.80	Ø D_1 3.00 - 4.00	Ø D_1 4.50 - 6.00
0.004 - 0.009	0.010 - 0.015	0.016 - 0.020	0.022 - 0.028	0.030 - 0.040	0.046 - 0.060
0.006 - 0.014	0.015 - 0.023	0.024 - 0.030	0.033 - 0.042	0.045 - 0.060	0.068 - 0.090
0.005 - 0.012	0.013 - 0.020	0.021 - 0.026	0.029 - 0.036	0.039 - 0.052	0.058 - 0.080
0.006 - 0.014	0.015 - 0.023	0.024 - 0.030	0.033 - 0.042	0.045 - 0.060	0.068 - 0.090
0.005 - 0.011	0.012 - 0.018	0.019 - 0.024	0.026 - 0.034	0.036 - 0.048	0.054 - 0.070
0.006 - 0.014	0.015 - 0.023	0.024 - 0.030	0.033 - 0.042	0.045 - 0.060	0.068 - 0.090
0.004 - 0.009	0.010 - 0.015	0.016 - 0.020	0.022 - 0.028	0.030 - 0.040	0.046 - 0.060
0.003 - 0.007	0.008 - 0.011	0.012 - 0.015	0.017 - 0.021	0.023 - 0.030	0.034 - 0.045

Feed per tooth fz [mm]

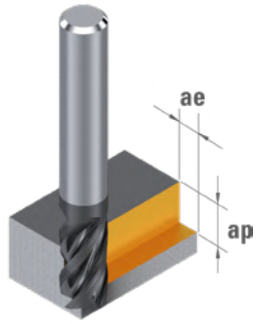
Ø D_1 0.40 - 0.90	Ø D_1 1.00 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.20 - 2.80	Ø D_1 3.00 - 4.00	Ø D_1 4.50 - 6.00
0.003 - 0.007	0.008 - 0.011	0.012 - 0.015	0.017 - 0.021	0.023 - 0.030	0.034 - 0.045
0.005 - 0.011	0.011 - 0.017	0.018 - 0.023	0.025 - 0.032	0.034 - 0.045	0.052 - 0.070
0.004 - 0.009	0.010 - 0.015	0.016 - 0.020	0.022 - 0.027	0.029 - 0.039	0.044 - 0.060
0.005 - 0.011	0.011 - 0.017	0.018 - 0.023	0.025 - 0.032	0.034 - 0.045	0.052 - 0.070
0.004 - 0.008	0.009 - 0.014	0.014 - 0.018	0.020 - 0.026	0.027 - 0.036	0.040 - 0.055
0.005 - 0.011	0.011 - 0.017	0.018 - 0.023	0.025 - 0.032	0.034 - 0.045	0.052 - 0.070
0.003 - 0.007	0.008 - 0.011	0.012 - 0.015	0.017 - 0.021	0.023 - 0.030	0.034 - 0.045
0.002 - 0.005	0.006 - 0.008	0.009 - 0.011	0.013 - 0.016	0.017 - 0.023	0.026 - 0.035

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 7232-7233

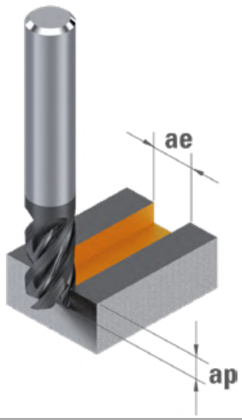
ROUTING

		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**70**	<0.40×ØD1	<0.95×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	**200**	<0.50×ØD1	<0.95×L1
N	Cast aluminium alloy >12% Si	23 - 35	**175**	<0.50×ØD1	<0.95×L1
N	Copper alloy good machinability with Pb	26	**150**	<0.40×ØD1	<0.95×L1
N	Copper alloy with difficult machinability	27 - 28	**100**	<0.25×ØD1	<0.95×L1
N	Gold, silver	-	**120**	<0.25×ØD1	<0.95×L1
S	Titanium, titanium alloy	36 - 37	**45**	<0.30×ØD1	<0.95×L1



SLOTTING

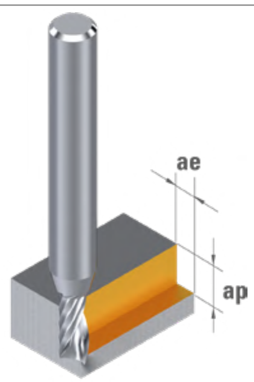
		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**70**	1×ØD1	<0.95×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	**200**	1×ØD1	<0.95×L1
N	Cast aluminium alloy >12% Si	23 - 35	**175**	1×ØD1	<0.95×L1
N	Copper alloy good machinability with Pb	26	**150**	1×ØD1	<0.95×L1
N	Copper alloy with difficult machinability	27 - 28	**100**	1×ØD1	<0.95×L1
N	Gold, silver	-	**120**	1×ØD1	<0.95×L1
S	Titanium, titanium alloy	36 - 37	**45**	1×ØD1	<0.95×L1



DIXI 7561

ROUTING

		VDI 3323	CARBIDE Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**250**	**330**	<1×ØD1	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 35	**200**	**260**	<1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	**275**	**360**	<1×ØD1	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	**150**	**200**	<1×ØD1	<0.5×ØD1
N	Gold, silver	-	**150**	**200**	<1×ØD1	<0.5×ØD1



$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.50 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 8.00
0.002 - 0.003	0.003 - 0.004	0.005 - 0.006	0.007 - 0.008	0.008 - 0.009	0.010 - 0.026
0.007 - 0.009	0.010 - 0.013	0.014 - 0.020	0.021 - 0.025	0.025 - 0.029	0.033 - 0.083
0.006 - 0.008	0.010 - 0.012	0.013 - 0.018	0.019 - 0.023	0.023 - 0.027	0.031 - 0.077
0.005 - 0.007	0.008 - 0.010	0.011 - 0.015	0.016 - 0.019	0.019 - 0.023	0.026 - 0.064
0.004 - 0.006	0.006 - 0.008	0.009 - 0.012	0.013 - 0.015	0.015 - 0.018	0.020 - 0.051
0.004 - 0.006	0.006 - 0.008	0.009 - 0.012	0.013 - 0.015	0.015 - 0.018	0.020 - 0.051
0.004 - 0.008	0.006 - 0.010	0.009 - 0.014	0.013 - 0.017	0.015 - 0.020	0.020 - 0.053

Feed per tooth fz [mm]

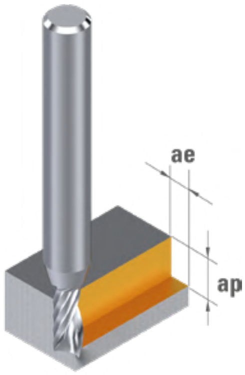
Ø D_1 0.50 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 8.00
0.001 - 0.002	0.002 - 0.003	0.004 - 0.004	0.005 - 0.006	0.006 - 0.006	0.007 - 0.018
0.005 - 0.006	0.007 - 0.009	0.010 - 0.014	0.015 - 0.018	0.018 - 0.020	0.023 - 0.058
0.004 - 0.006	0.007 - 0.008	0.009 - 0.013	0.013 - 0.016	0.016 - 0.019	0.022 - 0.054
0.004 - 0.005	0.006 - 0.007	0.008 - 0.011	0.011 - 0.013	0.013 - 0.016	0.018 - 0.045
0.003 - 0.004	0.004 - 0.006	0.006 - 0.008	0.009 - 0.011	0.011 - 0.013	0.014 - 0.036
0.003 - 0.004	0.004 - 0.006	0.006 - 0.008	0.009 - 0.011	0.011 - 0.013	0.014 - 0.036
0.001 - 0.002	0.002 - 0.003	0.004 - 0.004	0.005 - 0.006	0.006 - 0.006	0.007 - 0.018

Feed per tooth fz [mm]

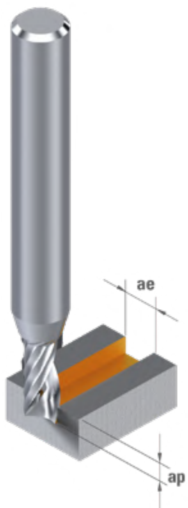
Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.045 - 0.068	0.090 - 0.112	0.125 - 0.160	0.180 - 0.200
0.030 - 0.045	0.060 - 0.076	0.085 - 0.100	0.120 - 0.130
0.036 - 0.054	0.072 - 0.090	0.100 - 0.120	0.140 - 0.160
0.024 - 0.036	0.048 - 0.060	0.065 - 0.080	0.100 - 0.110
0.024 - 0.036	0.048 - 0.060	0.065 - 0.080	0.100 - 0.110

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING

		VDI 3323		CARBIDE Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si (DIBOND)	21 - 22		**330**	**380**	<0.3×ØD1	<0.5×ØD1
	Plastics with good machinability (expanded PVC)	29		**400**	**460**	<0.5×ØD1	<1.5×ØD1
	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	29		**400**	**460**	<0.4×ØD1	<1.5×ØD1
	Plastics with difficult machinability (compact PVC, black PMMA)	29		**400**	**460**	<0.3×ØD1	<1.5×ØD1
	Wood	30		**400**	**460**	<0.3×ØD1	<1.5×ØD1
	Glued wood (agglomerated, plywood)	30		**400**	**460**	<0.3×ØD1	<1.5×ØD1

SLOTTING

		VDI 3323		CARBIDE Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si (DIBOND)	21 - 22		**330**	**380**	1×ØD1	<0.5×ØD1
	Plastics with good machinability (expanded PVC)	29		**400**	**460**	1×ØD1	<1.5×ØD1
	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	29		**400**	**460**	1×ØD1	<1.5×ØD1
	Plastics with difficult machinability (compact PVC, black PMMA)	29		**400**	**460**	1×ØD1	<1.5×ØD1
	Wood	30		**400**	**460**	1×ØD1	<1.5×ØD1
	Glued wood (agglomerated, plywood)	30		**400**	**460**	1×ØD1	<1.5×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

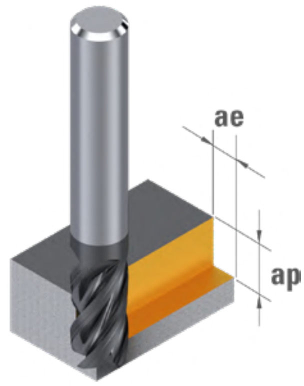
Ø D_1 1 - 1.50	Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.018 - 0.027	0.036 - 0.054	0.062 - 0.080	0.070 - 0.100	0.110 - 0.130
0.030 - 0.045	0.060 - 0.090	0.104 - 0.130	0.120 - 0.160	0.180 - 0.220
0.027 - 0.041	0.054 - 0.081	0.094 - 0.115	0.110 - 0.140	0.160 - 0.190
0.024 - 0.036	0.048 - 0.072	0.084 - 0.105	0.100 - 0.130	0.140 - 0.170
0.030 - 0.045	0.060 - 0.090	0.104 - 0.130	0.120 - 0.160	0.180 - 0.220
0.021 - 0.032	0.042 - 0.063	0.072 - 0.090	0.080 - 0.110	0.130 - 0.150

Feed per tooth fz [mm]

Ø D_1 1 - 1.50	Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.005 - 0.007	0.007 - 0.011	0.012 - 0.015	0.017 - 0.023	0.026 - 0.032
0.008 - 0.012	0.012 - 0.018	0.020 - 0.025	0.029 - 0.038	0.044 - 0.053
0.006 - 0.010	0.010 - 0.014	0.016 - 0.020	0.023 - 0.031	0.035 - 0.042
0.006 - 0.008	0.008 - 0.013	0.014 - 0.020	0.020 - 0.027	0.031 - 0.037
0.008 - 0.012	0.012 - 0.018	0.020 - 0.025	0.029 - 0.038	0.044 - 0.053
0.006 - 0.008	0.008 - 0.013	0.014 - 0.020	0.020 - 0.027	0.031 - 0.037

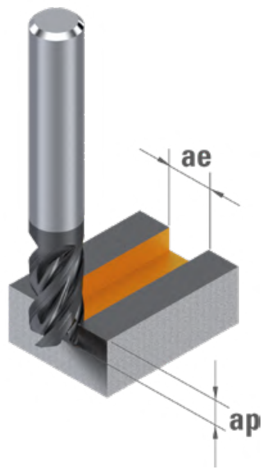
Values based on dry use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAIN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		100	<0.30×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm2	6 - 9		80	<0.20×ØD1	<1×L1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		55	<0.15×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		80	<0.15×ØD1	<1×L1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		55	<0.10×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	110	125	<0.40×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	75	100	<0.30×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	320		<0.45×ØD1	<1×L1
N	Cast aluminium alloy >12% Si	23 - 25	260		<0.35×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	160		<0.40×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	140		<0.40×ØD1	<1×L1
N	Plastic, wood	29 - 30	210		<0.45×ØD1	<1×L1
N	Gold, silver	-	180		<0.40×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	15	20	<0.05×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	60	70	<0.30×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	TiAIN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		70	1×ØD1	<0.50×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		55	1×ØD1	<0.30×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		40	1×ØD1	<0.20×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		55	1×ØD1	<0.20×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		40	1×ØD1	<0.15×ØD1
K	Grey cast iron < 250 HB	15 - 16	90	100	1×ØD1	<0.50×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	60	70	1×ØD1	<0.35×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	230		1×ØD1	<1.00×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	190		1×ØD1	<0.80×ØD1
N	Copper alloy good machinability with Pb	26	110		1×ØD1	<1.00×ØD1
N	Copper alloy with difficult machinability	27 - 28	100		1×ØD1	<0.50×ØD1
N	Plastic, wood	29 - 30	150		1×ØD1	<0.70×ØD1
N	Gold, silver	-	130		1×ØD1	<0.70×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	10	15	1×ØD1	<1.00×ØD1
S	Titanium, titanium alloy	36 - 37	50	50	1×ØD1	<0.25×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

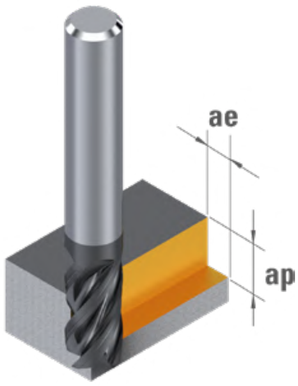
Ø D_1 0.10 - 0.30	Ø D_1 0.35 - 0.60	Ø D_1 0.65 - 1.00	Ø D_1 1.05 - 2.00	Ø D_1 2.10 - 3.00	Ø D_1 3.50 - 6.00	Ø D_1 6.50 - 10.00	Ø D_1 12.00 - 20.00
0.0008 - 0.003	0.004 - 0.006	0.007 - 0.010	0.011 - 0.020	0.021 - 0.030	0.036 - 0.060	0.060 - 0.090	0.100 - 0.140
0.0007 - 0.002	0.003 - 0.005	0.006 - 0.009	0.009 - 0.018	0.019 - 0.027	0.032 - 0.055	0.050 - 0.080	0.090 - 0.130
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.016	0.017 - 0.024	0.028 - 0.050	0.050 - 0.070	0.080 - 0.110
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.016	0.017 - 0.024	0.028 - 0.050	0.050 - 0.070	0.080 - 0.110
0.0006 - 0.002	0.002 - 0.004	0.005 - 0.007	0.007 - 0.014	0.015 - 0.021	0.024 - 0.040	0.040 - 0.060	0.070 - 0.100
0.0010 - 0.003	0.004 - 0.007	0.008 - 0.012	0.013 - 0.024	0.025 - 0.036	0.042 - 0.070	0.070 - 0.110	0.120 - 0.170
0.0008 - 0.003	0.004 - 0.006	0.007 - 0.010	0.011 - 0.020	0.021 - 0.030	0.036 - 0.060	0.060 - 0.090	0.100 - 0.140
0.0012 - 0.004	0.005 - 0.009	0.010 - 0.015	0.016 - 0.030	0.032 - 0.045	0.052 - 0.090	0.090 - 0.140	0.140 - 0.210
0.0010 - 0.004	0.005 - 0.008	0.008 - 0.013	0.014 - 0.026	0.027 - 0.039	0.046 - 0.080	0.080 - 0.120	0.120 - 0.180
0.0012 - 0.004	0.005 - 0.009	0.010 - 0.015	0.016 - 0.030	0.032 - 0.045	0.052 - 0.090	0.090 - 0.140	0.140 - 0.210
0.0010 - 0.003	0.004 - 0.007	0.008 - 0.012	0.013 - 0.024	0.025 - 0.036	0.042 - 0.070	0.070 - 0.110	0.120 - 0.170
0.0012 - 0.004	0.005 - 0.009	0.010 - 0.015	0.016 - 0.030	0.032 - 0.045	0.052 - 0.090	0.090 - 0.140	0.140 - 0.210
0.0008 - 0.003	0.004 - 0.006	0.007 - 0.010	0.011 - 0.020	0.021 - 0.030	0.036 - 0.060	0.060 - 0.090	0.100 - 0.140
0.0004 - 0.001	0.002 - 0.003	0.003 - 0.005	0.005 - 0.010	0.011 - 0.015	0.018 - 0.030	0.030 - 0.050	0.050 - 0.070
0.0008 - 0.003	0.004 - 0.006	0.007 - 0.010	0.011 - 0.020	0.021 - 0.030	0.036 - 0.060	0.060 - 0.090	0.100 - 0.140

Feed per tooth fz [mm]

Ø D_1 0.10 - 0.30	Ø D_1 0.35 - 0.60	Ø D_1 0.65 - 1.00	Ø D_1 1.05 - 2.00	Ø D_1 2.10 - 3.00	Ø D_1 3.50 - 6.00	Ø D_1 6.50 - 10.00	Ø D_1 12.00 - 20.00
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.015	0.016 - 0.023	0.028 - 0.045	0.050 - 0.070	0.080 - 0.110
0.0005 - 0.002	0.002 - 0.004	0.005 - 0.007	0.007 - 0.014	0.014 - 0.020	0.024 - 0.040	0.040 - 0.060	0.070 - 0.100
0.0005 - 0.002	0.002 - 0.004	0.004 - 0.006	0.006 - 0.012	0.013 - 0.018	0.022 - 0.040	0.040 - 0.050	0.060 - 0.080
0.0005 - 0.002	0.002 - 0.004	0.004 - 0.006	0.006 - 0.012	0.013 - 0.018	0.022 - 0.040	0.040 - 0.050	0.060 - 0.080
0.0005 - 0.002	0.002 - 0.003	0.004 - 0.005	0.005 - 0.011	0.011 - 0.016	0.018 - 0.030	0.030 - 0.050	0.050 - 0.080
0.0008 - 0.002	0.003 - 0.005	0.006 - 0.009	0.010 - 0.018	0.019 - 0.027	0.032 - 0.055	0.050 - 0.080	0.090 - 0.130
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.015	0.016 - 0.023	0.028 - 0.045	0.050 - 0.070	0.080 - 0.110
0.0009 - 0.003	0.004 - 0.007	0.008 - 0.011	0.012 - 0.023	0.024 - 0.034	0.040 - 0.070	0.070 - 0.110	0.110 - 0.160
0.0008 - 0.003	0.004 - 0.006	0.006 - 0.010	0.011 - 0.020	0.020 - 0.029	0.034 - 0.060	0.060 - 0.090	0.090 - 0.140
0.0009 - 0.003	0.004 - 0.007	0.008 - 0.011	0.012 - 0.023	0.024 - 0.034	0.040 - 0.070	0.070 - 0.110	0.110 - 0.160
0.0008 - 0.002	0.003 - 0.005	0.006 - 0.009	0.010 - 0.018	0.019 - 0.027	0.032 - 0.055	0.050 - 0.080	0.090 - 0.130
0.0009 - 0.003	0.004 - 0.007	0.008 - 0.011	0.012 - 0.023	0.024 - 0.034	0.040 - 0.070	0.070 - 0.110	0.110 - 0.160
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.015	0.016 - 0.023	0.028 - 0.045	0.050 - 0.070	0.080 - 0.110
0.0003 - 0.001	0.002 - 0.002	0.002 - 0.004	0.004 - 0.008	0.008 - 0.011	0.014 - 0.025	0.020 - 0.040	0.040 - 0.050
0.0006 - 0.002	0.003 - 0.005	0.005 - 0.008	0.008 - 0.015	0.016 - 0.023	0.028 - 0.045	0.050 - 0.070	0.080 - 0.110

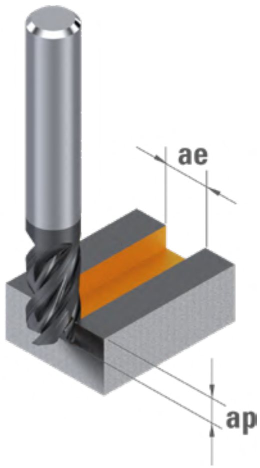
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		150	<0.40×ØD1	<1.50×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		125	<0.30×ØD1	<1.50×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		85	<0.30×ØD1	<1.50×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		95	<0.30×ØD1	<1.50×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		65	<0.25×ØD1	<1.50×ØD1
K	Grey cast iron < 250 HB	15 - 16	170	180	<0.40×ØD1	<1.50×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	105	130	<0.30×ØD1	<1.50×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	185		<0.40×ØD1	<1.50×ØD1
	Cast aluminium alloy >12% Si	23 - 25	145		<0.40×ØD1	<1.50×ØD1
	Copper alloy good machinability with Pb	26	110		<0.40×ØD1	<1.50×ØD1
	Copper alloy with difficult machinability	27 - 28	95		<0.40×ØD1	<1.50×ØD1
	Gold, silver	-	165		<0.40×ØD1	<1.50×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	30	40	<0.15×ØD1	<1.50×ØD1
	Titanium, titanium alloy	36 - 37	60	70	<0.30×ØD1	<1.50×ØD1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		115	1×ØD1	<1.00×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		95	1×ØD1	<1.00×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		65	1×ØD1	<1.00×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		70	1×ØD1	<1.00×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		50	1×ØD1	<1.00×ØD1
K	Grey cast iron < 250 HB	15 - 16	100	135	1×ØD1	<1.00×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	85	95	1×ØD1	<1.00×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	140		1×ØD1	<1.25×ØD1
	Cast aluminium alloy >12% Si	23 - 25	105		1×ØD1	<1.00×ØD1
	Copper alloy good machinability with Pb	26	85		1×ØD1	<1.25×ØD1
	Copper alloy with difficult machinability	27 - 28	70		1×ØD1	<1.00×ØD1
	Gold, silver	-	125		1×ØD1	<1.00×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	25	30	1×ØD1	<0.20×ØD1
	Titanium, titanium alloy	36 - 37	55	55	1×ØD1	<1.00×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

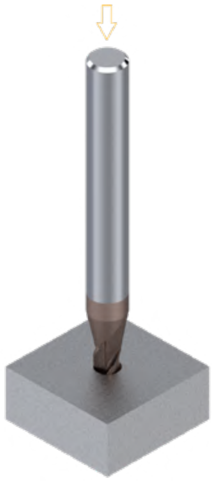
Ø D_1 0.10 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.50	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0036 - 0.009	0.011 - 0.016	0.017 - 0.023	0.025 - 0.039	0.046 - 0.080	0.090 - 0.110	0.120 - 0.130
0.0033 - 0.008	0.010 - 0.014	0.016 - 0.021	0.023 - 0.036	0.042 - 0.070	0.080 - 0.100	0.110 - 0.120
0.0030 - 0.007	0.009 - 0.013	0.014 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0030 - 0.007	0.009 - 0.013	0.014 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0027 - 0.006	0.008 - 0.012	0.013 - 0.018	0.019 - 0.029	0.036 - 0.060	0.060 - 0.080	0.090 - 0.100
0.0042 - 0.010	0.013 - 0.018	0.020 - 0.027	0.029 - 0.046	0.054 - 0.090	0.100 - 0.120	0.140 - 0.150
0.0036 - 0.009	0.011 - 0.016	0.017 - 0.023	0.025 - 0.039	0.046 - 0.080	0.090 - 0.110	0.120 - 0.130
0.0051 - 0.012	0.015 - 0.022	0.024 - 0.033	0.035 - 0.055	0.066 - 0.110	0.120 - 0.150	0.170 - 0.180
0.0045 - 0.011	0.014 - 0.020	0.021 - 0.029	0.031 - 0.049	0.058 - 0.100	0.110 - 0.130	0.150 - 0.160
0.0051 - 0.012	0.015 - 0.022	0.024 - 0.033	0.015 - 0.023	0.066 - 0.110	0.120 - 0.150	0.170 - 0.180
0.0042 - 0.010	0.013 - 0.018	0.020 - 0.027	0.025 - 0.039	0.054 - 0.090	0.100 - 0.120	0.140 - 0.150
0.0036 - 0.009	0.011 - 0.016	0.017 - 0.023	0.035 - 0.055	0.046 - 0.080	0.090 - 0.110	0.120 - 0.130
0.0021 - 0.005	0.006 - 0.009	0.010 - 0.014	0.029 - 0.046	0.028 - 0.045	0.050 - 0.060	0.070 - 0.080
0.0036 - 0.009	0.011 - 0.016	0.017 - 0.023	0.025 - 0.039	0.046 - 0.080	0.090 - 0.110	0.120 - 0.130

Feed per tooth fz [mm]

Ø D_1 0.10 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.50	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0022 - 0.005	0.007 - 0.010	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0020 - 0.005	0.006 - 0.009	0.009 - 0.013	0.014 - 0.021	0.026 - 0.040	0.050 - 0.060	0.070 - 0.070
0.0018 - 0.004	0.005 - 0.008	0.009 - 0.012	0.012 - 0.020	0.024 - 0.040	0.040 - 0.050	0.060 - 0.070
0.0018 - 0.004	0.005 - 0.008	0.009 - 0.012	0.012 - 0.020	0.024 - 0.040	0.040 - 0.050	0.060 - 0.070
0.0016 - 0.004	0.005 - 0.007	0.008 - 0.011	0.011 - 0.018	0.022 - 0.035	0.040 - 0.050	0.050 - 0.060
0.0025 - 0.006	0.008 - 0.011	0.012 - 0.016	0.017 - 0.027	0.032 - 0.055	0.060 - 0.070	0.080 - 0.090
0.0022 - 0.005	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0031 - 0.007	0.009 - 0.013	0.014 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0027 - 0.007	0.008 - 0.012	0.013 - 0.017	0.019 - 0.029	0.035 - 0.060	0.070 - 0.080	0.090 - 0.100
0.0031 - 0.007	0.009 - 0.013	0.015 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0025 - 0.006	0.008 - 0.011	0.012 - 0.016	0.017 - 0.027	0.032 - 0.055	0.060 - 0.070	0.080 - 0.090
0.0022 - 0.005	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0013 - 0.003	0.004 - 0.005	0.006 - 0.008	0.009 - 0.014	0.016 - 0.025	0.030 - 0.040	0.040 - 0.050
0.0022 - 0.005	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DRILLING

		VDI 3323		CARBIDE Vc [m/min]	C-TOP Vc [m/min]	Max Depth (mm)
P	Unalloyed steel, leaded steel	1 - 5			**85**	<1.25xØD1
	Low alloyed steel < 800 N/mm2	6 - 9			**70**	<1.00×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13			**50**	<0.80×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2			**55**	<0.40×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4			**40**	<0.20×ØD1
K	Grey cast iron < 250 HB	15 - 16		**75**	**100**	<1.25xØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**65**	**70**	<1.00×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22		**105**		<1.25xØD1
	Cast aluminium alloy >12% Si	23 - 25		**80**		<1.25xØD1
	Copper alloy good machinability with Pb	26		**65**		<1.25xØD1
	Copper alloy with difficult machinability	27 - 28		**55**		<1.00×ØD1
	Gold, silver	-		**95**		<1.00×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20**	**25**	<0.20×ØD1
	Titanium, titanium alloy	36 - 37		**40**	**40**	<0.60×ØD1

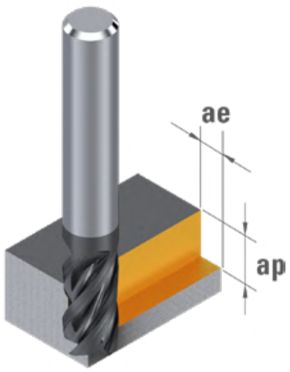
$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

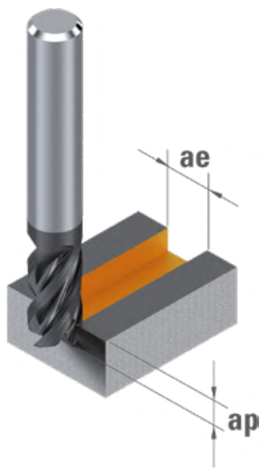
Ø D_1 0.10 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.50	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0014 - 0.003	0.007 - 0.010	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0013 - 0.003	0.006 - 0.009	0.009 - 0.013	0.014 - 0.021	0.026 - 0.040	0.050 - 0.060	0.070 - 0.070
0.0012 - 0.003	0.005 - 0.008	0.009 - 0.012	0.012 - 0.020	0.024 - 0.040	0.040 - 0.050	0.060 - 0.070
0.0012 - 0.003	0.005 - 0.008	0.009 - 0.012	0.012 - 0.020	0.024 - 0.040	0.040 - 0.050	0.060 - 0.070
0.0010 - 0.003	0.005 - 0.007	0.008 - 0.011	0.011 - 0.018	0.022 - 0.035	0.040 - 0.050	0.050 - 0.060
0.0016 - 0.004	0.008 - 0.011	0.012 - 0.016	0.017 - 0.027	0.032 - 0.055	0.060 - 0.070	0.080 - 0.090
0.0014 - 0.003	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0020 - 0.005	0.009 - 0.013	0.014 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0018 - 0.005	0.008 - 0.012	0.013 - 0.017	0.019 - 0.029	0.035 - 0.060	0.070 - 0.080	0.090 - 0.100
0.0020 - 0.005	0.009 - 0.013	0.015 - 0.020	0.021 - 0.033	0.040 - 0.065	0.070 - 0.090	0.100 - 0.110
0.0016 - 0.004	0.008 - 0.011	0.012 - 0.016	0.017 - 0.027	0.032 - 0.055	0.060 - 0.070	0.080 - 0.090
0.0014 - 0.003	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080
0.0008 - 0.002	0.004 - 0.005	0.006 - 0.008	0.009 - 0.014	0.016 - 0.025	0.030 - 0.040	0.040 - 0.050
0.0014 - 0.003	0.007 - 0.009	0.010 - 0.014	0.015 - 0.023	0.028 - 0.050	0.050 - 0.070	0.070 - 0.080

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		95		<0.025×ØD1	<1×L1
	Low alloyed steel < 800 N/mm2	6 - 9		85		<0.025×ØD1	<1×L1
	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		65		<0.015×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		65		<0.015×ØD1	<1×L1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3 - 14.4		55		<0.010×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	125	125		<0.065×ØD1	<1×L1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	90	90		<0.040×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	165			<0.030×ØD1	<1×L1
	Cast aluminium alloy >12% Si	23 - 25	125			<0.040×ØD1	<1×L1
	Copper alloy good machinability with Pb	26	125			<0.040×ØD1	<1×L1
	Copper alloy with difficult machinability	27 - 28	100			<0.025×ØD1	<1×L1
	Plastic, wood	29 - 30	110			<0.040×ØD1	<1×L1
	Graphite	-			200	<0.160×ØD1	<1×L1
	Gold, silver	-	90			<0.030×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	50	65		<0.025×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		75		1×ØD1	<0.12×ØD1
	Low alloyed steel < 800 N/mm2	6 - 9		70		1×ØD1	<0.10×ØD1
	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		50		1×ØD1	<0.10×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		50		1×ØD1	<0.10×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		45		1×ØD1	<0.08×ØD1
K	Grey cast iron < 250 HB	15 - 16	100	100		1×ØD1	<0.14×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	70	70		1×ØD1	<0.12×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	130			1×ØD1	<0.16×ØD1
	Cast aluminium alloy >12% Si	23 - 25	100			1×ØD1	<0.14×ØD1
	Copper alloy good machinability with Pb	26	100			1×ØD1	<0.16×ØD1
	Copper alloy with difficult machinability	27 - 28	80			1×ØD1	<0.14×ØD1
	Plastic, wood	29 - 30	90			1×ØD1	<0.16×ØD1
	Graphite	-			160	1×ØD1	<0.22×ØD1
	Gold, silver	-	130			1×ØD1	<0.12×ØD1
S	Titanium, titanium alloy	36 - 37	40	50		1×ØD1	<0.12×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

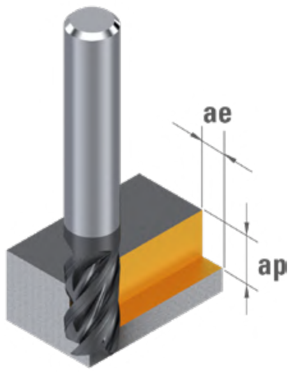
Feed per tooth fz [mm]

Ø D_1 0.40 - 1.40	Ø D_1 1.50 - 2.00	Ø D_1 2.50 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 13.00 - 16.00	Ø D_1 18.00 - 20.00
0.003 - 0.011	0.012 - 0.016	0.020 - 0.032	0.040 - 0.048	0.056 - 0.065	0.080 - 0.100	0.100 - 0.120	0.130 - 0.140
0.003 - 0.010	0.011 - 0.014	0.018 - 0.029	0.036 - 0.043	0.050 - 0.060	0.070 - 0.090	0.090 - 0.110	0.110 - 0.130
0.003 - 0.009	0.010 - 0.013	0.016 - 0.026	0.032 - 0.038	0.044 - 0.050	0.060 - 0.080	0.080 - 0.100	0.100 - 0.110
0.003 - 0.009	0.010 - 0.013	0.016 - 0.026	0.032 - 0.038	0.044 - 0.050	0.060 - 0.080	0.080 - 0.100	0.100 - 0.110
0.002 - 0.008	0.008 - 0.011	0.014 - 0.022	0.028 - 0.034	0.040 - 0.045	0.060 - 0.070	0.070 - 0.080	0.090 - 0.100
0.004 - 0.013	0.014 - 0.019	0.024 - 0.038	0.048 - 0.058	0.068 - 0.075	0.100 - 0.120	0.120 - 0.140	0.150 - 0.170
0.003 - 0.011	0.012 - 0.016	0.020 - 0.032	0.040 - 0.048	0.056 - 0.065	0.080 - 0.100	0.100 - 0.120	0.130 - 0.140
0.005 - 0.017	0.018 - 0.024	0.030 - 0.048	0.060 - 0.072	0.084 - 0.095	0.120 - 0.140	0.150 - 0.180	0.190 - 0.210
0.004 - 0.015	0.016 - 0.021	0.026 - 0.042	0.052 - 0.062	0.072 - 0.085	0.100 - 0.120	0.130 - 0.160	0.160 - 0.180
0.005 - 0.017	0.018 - 0.024	0.030 - 0.048	0.060 - 0.072	0.084 - 0.095	0.120 - 0.140	0.150 - 0.180	0.190 - 0.210
0.004 - 0.013	0.014 - 0.019	0.024 - 0.038	0.048 - 0.058	0.068 - 0.075	0.100 - 0.120	0.120 - 0.140	0.150 - 0.170
0.005 - 0.017	0.018 - 0.024	0.030 - 0.048	0.060 - 0.072	0.084 - 0.095	0.120 - 0.140	0.150 - 0.180	0.190 - 0.210
0.006 - 0.022	0.024 - 0.032	0.040 - 0.064	0.080 - 0.096	0.112 - 0.130	0.160 - 0.190	0.200 - 0.240	0.250 - 0.280
0.003 - 0.011	0.012 - 0.016	0.020 - 0.032	0.040 - 0.048	0.056 - 0.065	0.080 - 0.100	0.100 - 0.120	0.130 - 0.140
0.003 - 0.011	0.012 - 0.016	0.020 - 0.032	0.040 - 0.048	0.056 - 0.065	0.080 - 0.100	0.100 - 0.120	0.130 - 0.140

Feed per tooth fz [mm]

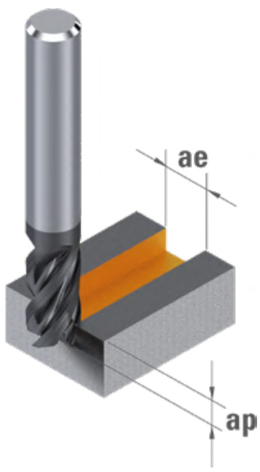
Ø D_1 0.40 - 1.40	Ø D_1 1.50 - 2.00	Ø D_1 2.50 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 13.00 - 16.00	Ø D_1 18.00 - 20.00
0.002 - 0.008	0.008 - 0.011	0.014 - 0.022	0.028 - 0.034	0.039 - 0.046	0.056 - 0.070	0.070 - 0.080	0.090 - 0.100
0.002 - 0.007	0.008 - 0.010	0.013 - 0.020	0.025 - 0.030	0.035 - 0.042	0.050 - 0.065	0.060 - 0.080	0.080 - 0.090
0.002 - 0.006	0.007 - 0.009	0.011 - 0.018	0.022 - 0.027	0.031 - 0.035	0.042 - 0.055	0.060 - 0.070	0.070 - 0.080
0.002 - 0.006	0.007 - 0.009	0.011 - 0.018	0.022 - 0.027	0.031 - 0.035	0.042 - 0.055	0.060 - 0.070	0.070 - 0.080
0.001 - 0.006	0.006 - 0.008	0.010 - 0.015	0.020 - 0.024	0.028 - 0.032	0.042 - 0.050	0.050 - 0.060	0.060 - 0.070
0.003 - 0.009	0.010 - 0.013	0.017 - 0.027	0.034 - 0.041	0.048 - 0.053	0.070 - 0.085	0.080 - 0.100	0.110 - 0.120
0.002 - 0.008	0.008 - 0.011	0.014 - 0.022	0.028 - 0.034	0.039 - 0.046	0.056 - 0.070	0.070 - 0.080	0.090 - 0.100
0.004 - 0.012	0.013 - 0.017	0.021 - 0.034	0.042 - 0.050	0.059 - 0.067	0.084 - 0.100	0.110 - 0.130	0.130 - 0.150
0.003 - 0.011	0.011 - 0.015	0.018 - 0.029	0.036 - 0.043	0.050 - 0.060	0.070 - 0.085	0.090 - 0.110	0.110 - 0.130
0.004 - 0.012	0.013 - 0.017	0.021 - 0.034	0.042 - 0.050	0.059 - 0.067	0.084 - 0.100	0.110 - 0.130	0.130 - 0.150
0.003 - 0.009	0.010 - 0.013	0.017 - 0.027	0.034 - 0.041	0.048 - 0.053	0.070 - 0.085	0.080 - 0.100	0.110 - 0.120
0.004 - 0.012	0.013 - 0.017	0.021 - 0.034	0.042 - 0.050	0.059 - 0.067	0.084 - 0.100	0.110 - 0.130	0.130 - 0.150
0.004 - 0.015	0.017 - 0.022	0.028 - 0.045	0.056 - 0.067	0.078 - 0.091	0.112 - 0.135	0.140 - 0.170	0.180 - 0.200
0.002 - 0.008	0.008 - 0.011	0.014 - 0.022	0.028 - 0.034	0.039 - 0.046	0.056 - 0.070	0.070 - 0.080	0.090 - 0.100
0.002 - 0.008	0.008 - 0.011	0.014 - 0.022	0.028 - 0.034	0.039 - 0.046	0.056 - 0.070	0.070 - 0.080	0.090 - 0.100

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		100	<0.3×ØD1	<1×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		80	<0.2×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		55	<0.2×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		80	<0.2×ØD1	<1×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		55	<0.1×ØD1	<1×ØD1
K	Grey cast iron < 250 HB	15 - 16	110	125	<0.4×ØD1	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	75	115	<0.3×ØD1	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	320		<0.4×ØD1	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	260		<0.4×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	160		<0.1×ØD1	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	140		<0.3×ØD1	<1×ØD1
N	Gold, silver	29 - 30	210		<0.5×ØD1	<1×ØD1
N	Plastic, wood	-	180		<0.4×ØD1	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	15	30	<0.1×ØD1	<1×ØD1
S	Titane, alliage de titane	36 - 37	60	70	<0.3×ØD1	<1×ØD1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		70	1×ØD1	<0.8×ØD1
P	Low alloyed steel < 800 N/mm2	6 - 9		55	1×ØD1	<0.8×ØD1
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13		40	1×ØD1	<0.6×ØD1
M	Austenitic stainless steel < 700 N/mm2	14.1-14.2		55	1×ØD1	<0.6×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm2	14.3-14.4		40	1×ØD1	<0.6×ØD1
K	Grey cast iron < 250 HB	15 - 16	75	90	1×ØD1	<0.8×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	55	80	1×ØD1	<0.8×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	225		1×ØD1	<1.0×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	185		1×ØD1	<0.8×ØD1
N	Copper alloy good machinability with Pb	26	110		1×ØD1	<0.8×ØD1
N	Copper alloy with difficult machinability	27 - 28	95		1×ØD1	<0.8×ØD1
N	Gold, silver	29 - 30	150		1×ØD1	<1.0×ØD1
N	Plastic, wood	-	125		1×ØD1	<1.0×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	10	20	1×ØD1	<0.3×ØD1
S	Titane, alliage de titane	36 - 37	40	50	1×ØD1	<0.8×ØD1

DIXI 7250-3D / DIXI 7240-3D / DIXI 7240-5D ⟹ (ap & ae) -25 %
DIXI 7240-8D / DIXI 7240-10D ⟹ (ap & ae) -50 %
DIXI 7240-12D / DIXI 7240-15D ⟹ (ap & ae) -75 %

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

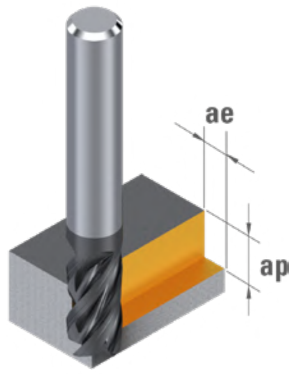
Ø D_1 0.04 - 0.15	Ø D_1 0.20 - 0.50	Ø D_1 0.55 - 0.95	Ø D_1 1.00 - 1.50	Ø D_1 1.55 - 1.95	Ø D_1 2.00 - 3.00	Ø D_1 3.50 - 4.00	Ø D_1 4.50 - 5.50
0.0003 - 0.0011	0.002 - 0.004	0.004 - 0.008	0.008 - 0.012	0.012 - 0.016	0.016 - 0.025	0.028 - 0.032	0.036 - 0.044
0.0002 - 0.0009	0.001 - 0.004	0.004 - 0.007	0.007 - 0.011	0.011 - 0.014	0.014 - 0.020	0.025 - 0.028	0.032 - 0.039
0.0002 - 0.0008	0.001 - 0.003	0.003 - 0.006	0.006 - 0.009	0.009 - 0.012	0.012 - 0.020	0.021 - 0.024	0.027 - 0.033
0.0002 - 0.0008	0.001 - 0.003	0.003 - 0.006	0.006 - 0.009	0.009 - 0.012	0.012 - 0.020	0.021 - 0.024	0.027 - 0.033
0.0002 - 0.0007	0.001 - 0.003	0.003 - 0.005	0.005 - 0.008	0.008 - 0.010	0.010 - 0.015	0.018 - 0.020	0.023 - 0.028
0.0004 - 0.0016	0.002 - 0.006	0.007 - 0.011	0.012 - 0.018	0.019 - 0.023	0.024 - 0.035	0.042 - 0.048	0.054 - 0.066
0.0003 - 0.0014	0.002 - 0.005	0.006 - 0.010	0.010 - 0.015	0.016 - 0.020	0.020 - 0.030	0.035 - 0.040	0.045 - 0.055
0.0005 - 0.0020	0.003 - 0.008	0.008 - 0.014	0.015 - 0.023	0.023 - 0.029	0.030 - 0.045	0.053 - 0.060	0.068 - 0.083
0.0004 - 0.0018	0.003 - 0.007	0.007 - 0.012	0.013 - 0.020	0.020 - 0.025	0.026 - 0.040	0.046 - 0.052	0.058 - 0.072
0.0005 - 0.0020	0.003 - 0.008	0.008 - 0.014	0.015 - 0.023	0.023 - 0.029	0.030 - 0.045	0.053 - 0.060	0.068 - 0.083
0.0004 - 0.0016	0.002 - 0.006	0.007 - 0.011	0.012 - 0.018	0.019 - 0.023	0.024 - 0.035	0.042 - 0.048	0.054 - 0.066
0.0005 - 0.0020	0.003 - 0.008	0.008 - 0.014	0.015 - 0.023	0.023 - 0.029	0.030 - 0.045	0.053 - 0.060	0.068 - 0.083
0.0003 - 0.0014	0.002 - 0.005	0.006 - 0.010	0.010 - 0.015	0.016 - 0.020	0.020 - 0.030	0.035 - 0.040	0.045 - 0.055
0.0001 - 0.0005	0.001 - 0.002	0.002 - 0.004	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.014 - 0.016	0.018 - 0.022
0.0003 - 0.0014	0.002 - 0.005	0.006 - 0.010	0.010 - 0.015	0.016 - 0.020	0.020 - 0.030	0.035 - 0.040	0.045 - 0.055

Feed per tooth fz [mm]

Ø D_1 0.04 - 0.15	Ø D_1 0.20 - 0.50	Ø D_1 0.55 - 0.95	Ø D_1 1.00 - 1.50	Ø D_1 1.55 - 1.95	Ø D_1 2.00 - 3.00	Ø D_1 3.50 - 4.00	Ø D_1 4.50 - 5.50
0.0002 - 0.0010	0.002 - 0.003	0.003 - 0.006	0.006 - 0.009	0.009 - 0.012	0.012 - 0.020	0.021 - 0.024	0.027 - 0.033
0.0002 - 0.0010	0.001 - 0.003	0.003 - 0.005	0.005 - 0.008	0.008 - 0.011	0.011 - 0.015	0.019 - 0.021	0.024 - 0.029
0.0002 - 0.0010	0.001 - 0.002	0.002 - 0.005	0.005 - 0.007	0.007 - 0.009	0.009 - 0.015	0.016 - 0.018	0.020 - 0.025
0.0002 - 0.0010	0.001 - 0.002	0.002 - 0.005	0.005 - 0.007	0.007 - 0.009	0.009 - 0.015	0.016 - 0.018	0.020 - 0.025
0.0002 - 0.0010	0.001 - 0.002	0.002 - 0.004	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.014 - 0.015	0.017 - 0.021
0.0003 - 0.0010	0.002 - 0.005	0.005 - 0.008	0.009 - 0.014	0.014 - 0.017	0.018 - 0.025	0.032 - 0.036	0.041 - 0.050
0.0002 - 0.0010	0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.015 - 0.025	0.026 - 0.030	0.034 - 0.041
0.0004 - 0.0020	0.002 - 0.006	0.006 - 0.011	0.011 - 0.017	0.017 - 0.022	0.023 - 0.035	0.040 - 0.045	0.051 - 0.062
0.0003 - 0.0010	0.002 - 0.005	0.005 - 0.009	0.01 0- 0.015	0.015 - 0.019	0.020 - 0.030	0.035 - 0.039	0.044 - 0.054
0.0004 - 0.0020	0.002 - 0.006	0.006 - 0.011	0.011 - 0.017	0.017 - 0.022	0.023 - 0.035	0.040 - 0.045	0.051 - 0.062
0.0003 - 0.0010	0.002 - 0.005	0.005 - 0.008	0.009 - 0.014	0.014 - 0.017	0.018 - 0.025	0.032 - 0.036	0.041 - 0.050
0.0004 - 0.0020	0.002 - 0.006	0.006 - 0.011	0.011 - 0.017	0.017 - 0.022	0.023 - 0.035	0.040 - 0.045	0.051 - 0.062
0.0002 - 0.0010	0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.015 - 0.025	0.026 - 0.030	0.034 - 0.041
0.0001 - 0.0004	0.001 - 0.002	0.002 - 0.003	0.003 - 0.005	0.005 - 0.006	0.006 - 0.010	0.011 - 0.012	0.014 - 0.017
0.0002 - 0.0010	0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.015 - 0.025	0.026 - 0.030	0.034 - 0.041

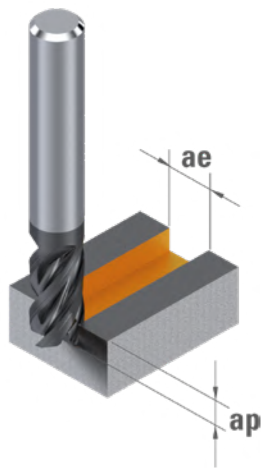
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		135	<0.50×ØD1	<1×ØD1
	Low alloyed steel < 800 N/mm^2	6 - 9		105	<0.50×ØD1	<1×ØD1
	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13		80	<0.30×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2		100	<0.30×ØD1	<1×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm^2	14.3-14.4		80	<0.25×ØD1	<1×ØD1
K	Grey cast iron < 250 HB	15 - 16	180	200	<0.50×ØD1	<1×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	95	130	<0.50×ØD1	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	320		<0.50×ØD1	<1×ØD1
	Cast aluminium alloy >12% Si	23 - 25	260		<0.50×ØD1	<1×ØD1
	Copper alloy good machinability with Pb	26	160		<0.50×ØD1	<1×ØD1
	Copper alloy with difficult machinability	27 - 28	140		<0.50×ØD1	<1×ØD1
	Plastic, wood	29 - 30	210		<0.50×ØD1	<1×ØD1
	Gold, silver	-	180		<0.50×ØD1	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	20	30	<0.15×ØD1	<1×ØD1
	Titanium, titanium alloy	36 - 37	65	70	<0.40×ØD1	<1×ØD1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		100	1×ØD1	<1×ØD1
	Low alloyed steel < 800 N/mm^2	6 - 9		85	1×ØD1	<1.0×ØD1
	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13		55	1×ØD1	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2		75	1×ØD1	<0.8×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm^2	14.3-14.4		45	1×ØD1	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	125	145	1×ØD1	<1.0×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	65	75	1×ØD1	<1.0×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	230		1×ØD1	<1.0×ØD1
	Cast aluminium alloy >12% Si	23 - 25	190		1×ØD1	<1.0×ØD1
	Copper alloy good machinability with Pb	26	110		1×ØD1	<0.4×ØD1
	Copper alloy with difficult machinability	27 - 28	100		1×ØD1	<1.0×ØD1
	Plastic, wood	29 - 30	150		1×ØD1	<1.0×ØD1
	Gold, silver	-	130		1×ØD1	<1.0×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	15	25	1×ØD1	<1.0×ØD1
	Titanium, titanium alloy	36 - 37	45	55	1×ØD1	<1.0×ØD1

DIXI 7333-3D / DIXI 7333-5D ⇒ (ap & ae) -25 %
DIXI 7333-8D / DIXI 7333-10D ⇒ (ap & ae) -50 %
DIXI 7333-12D / DIXI 7333-15D ⇒ (ap & ae) -75 %

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.080
0.002 - 0.005	0.005 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.065 - 0.070
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.065
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.065
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.021	0.028 - 0.040	0.050 - 0.055
0.003 - 0.006	0.007 - 0.012	0.013 - 0.018	0.019 - 0.024	0.030 - 0.036	0.048 - 0.070	0.085 - 0.095
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.080
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.120
0.003 - 0.007	0.008 - 0.013	0.014 - 0.020	0.021 - 0.026	0.033 - 0.039	0.052 - 0.080	0.095 - 0.105
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.120
0.003 - 0.006	0.007 - 0.012	0.013 - 0.018	0.019 - 0.024	0.030 - 0.036	0.048 - 0.070	0.085 - 0.095
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.120
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.080
0.001 - 0.003	0.003 - 0.005	0.006 - 0.008	0.008 - 0.010	0.013 - 0.015	0.020 - 0.030	0.035 - 0.040
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.080

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.055 - 0.060
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.017 - 0.02	0.027 - 0.040	0.050 - 0.055
0.002 - 0.003	0.004 - 0.006	0.007 - 0.009	0.01 - 0.012	0.015 - 0.018	0.024 - 0.040	0.045 - 0.050
0.002 - 0.003	0.004 - 0.006	0.007 - 0.009	0.01 - 0.012	0.015 - 0.018	0.024 - 0.040	0.045 - 0.050
0.002 - 0.003	0.003 - 0.005	0.006 - 0.008	0.008 - 0.011	0.014 - 0.016	0.021 - 0.030	0.040 - 0.040
0.002 - 0.005	0.005 - 0.009	0.01 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.065 - 0.070
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.055 - 0.060
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.045 - 0.070	0.085 - 0.090
0.002 - 0.005	0.005 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.070 - 0.080
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.045 - 0.070	0.085 - 0.090
0.002 - 0.005	0.006 - 0.01	0.011 - 0.015	0.016 - 0.020	0.025 - 0.029	0.039 - 0.060	0.065 - 0.070
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.045 - 0.070	0.085 - 0.090
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.055 - 0.060
0.001 - 0.002	0.002 - 0.004	0.005 - 0.006	0.006 - 0.008	0.010 - 0.011	0.015 - 0.025	0.025 - 0.030
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.055 - 0.060

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

RAMPING

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	Ramp anlge α	Max Depth (mm)
P	Unalloyed steel, leaded steel	1 - 5		**120**	<8°	<1×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**95**	<5°	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**70**	<4°	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**85**	<4°	<0.8×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**60**	<3°	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	**150**	**175**	<10°	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**80**	**100**	<5°	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**270**		<8°	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**220**		<5°	<1×ØD1
N	Copper alloy good machinability with Pb	26	**130**		<10°	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	**120**		<5°	<1×ØD1
N	Plastic, wood	29 - 30	**180**		<8°	<1×ØD1
N	Gold, silver	-	**150**		<4°	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**20**	**30**	<2°	<0.4×ØD1
S	Titanium, titanium alloy	36 - 37	**55**	**65**	<3°	<1×ØD1

DIXI 7333-3D / DIXI 7333-5D ⇒ (ap & ae) -25 %
DIXI 7333-8D / DIXI 7333-10D ⇒ (ap & ae) -50 %
DIXI 7333-12D / DIXI 7333-15D ⇒ (ap & ae) -75 %

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

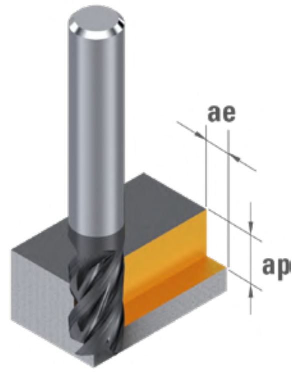
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.036	0.044 - 0.048
0.002 - 0.003	0.003 - 0.006	0.006 - 0.009	0.009 - 0.011	0.014 - 0.016	0.022 - 0.032	0.040 - 0.044
0.002 - 0.002	0.003 - 0.005	0.006 - 0.007	0.008 - 0.010	0.012 - 0.014	0.019 - 0.032	0.036 - 0.040
0.002 - 0.002	0.003 - 0.005	0.006 - 0.007	0.008 - 0.010	0.012 - 0.014	0.019 - 0.032	0.036 - 0.040
0.002 - 0.002	0.002 - 0.004	0.005 - 0.006	0.006 - 0.009	0.011 - 0.013	0.017 - 0.024	0.032 - 0.032
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.022	0.029 - 0.044	0.052 - 0.056
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.036	0.044 - 0.048
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.056	0.068 - 0.072
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.023	0.031 - 0.048	0.056 - 0.064
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.056	0.068 - 0.072
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.022	0.029 - 0.044	0.052 - 0.056
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.056	0.068 - 0.072
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.012 - 0.020	0.044 - 0.048
0.001 - 0.002	0.002 - 0.003	0.004 - 0.005	0.005 - 0.006	0.008 - 0.009	0.012 - 0.020	0.020 - 0.024
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.036	0.044 - 0.048

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

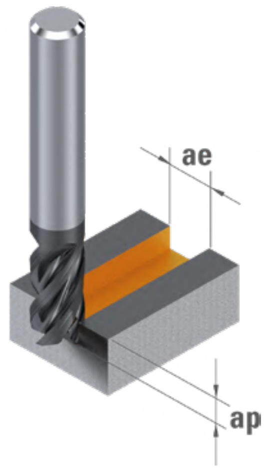
ROUTING

		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**150**	<0.40×ØD1	<2×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**125**	<0.30×ØD1	<2×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**85**	<0.30×ØD1	<2×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**95**	<0.30×ØD1	<2×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**65**	<0.25×ØD1	<2×ØD1
K	Grey cast iron < 250 HB	15 - 16	**170**	**180**	<0.40×ØD1	<2×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**105**	**130**	<0.30×ØD1	<2×ØD1
N	Copper alloy good machinability with Pb	26	**110**		<0.40×ØD1	<2×ØD1
N	Copper alloy with difficult machinability	27 - 28	**95**		<0.40×ØD1	<2×ØD1
N	Gold, silver	-	**165**		<0.40×ØD1	<2×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**30**	**40**	<0.15×ØD1	<2×ØD1
S	Titanium, titanium alloy	36 - 37	**60**	**70**	<0.30×ØD1	<2×ØD1



SLOTTING

		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**115**	1×ØD1	<2×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**95**	1×ØD1	<1.5×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**65**	1×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**70**	1×ØD1	<1×ØD1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**50**	1×ØD1	<0.8×ØD1
K	Grey cast iron < 250 HB	15 - 16	**100**	**135**	1×ØD1	<2×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**85**	**95**	1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	**85**		1×ØD1	<2×ØD1
N	Copper alloy with difficult machinability	27 - 28	**70**		1×ØD1	<1.5×ØD1
N	Gold, silver	-	**125**		1×ØD1	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**25**	**30**	1×ØD1	<0.2×ØD1
S	Titanium, titanium alloy	36 - 37	**55**	**55**	1×ØD1	<1×ØD1



$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

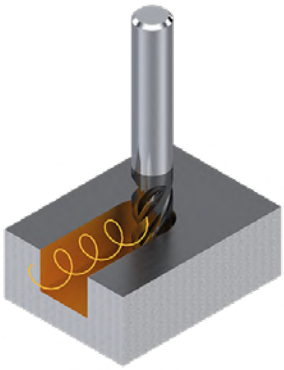
Ø D_1 0.30 - 0.70	Ø D_1 0.80 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.004 - 0.010	0.012 - 0.022	0.023 - 0.030	0.031 - 0.047	0.062 - 0.095	0.120 - 0.130	0.140 - 0.170
0.003 - 0.009	0.011 - 0.020	0.021 - 0.027	0.029 - 0.043	0.058 - 0.085	0.110 - 0.120	0.130 - 0.160
0.003 - 0.008	0.010 - 0.018	0.020 - 0.025	0.026 - 0.039	0.052 - 0.080	0.100 - 0.110	0.120 - 0.140
0.003 - 0.008	0.010 - 0.018	0.020 - 0.025	0.026 - 0.039	0.052 - 0.080	0.100 - 0.110	0.120 - 0.140
0.003 - 0.008	0.0009 - 0.016	0.018 - 0.022	0.023 - 0.035	0.046 - 0.070	0.090 - 0.100	0.110 - 0.130
0.004 - 0.012	0.015 - 0.025	0.027 - 0.035	0.036 - 0.055	0.072 - 0.110	0.130 - 0.150	0.170 - 0.200
0.004 - 0.010	0.012 - 0.022	0.023 - 0.030	0.031 - 0.047	0.062 - 0.095	0.120 - 0.130	0.140 - 0.170
0.005 - 0.014	0.018 - 0.031	0.033 - 0.042	0.044 - 0.066	0.088 - 0.135	0.160 - 0.190	0.200 - 0.240
0.004 - 0.012	0.015 - 0.025	0.027 - 0.035	0.036 - 0.055	0.072 - 0.110	0.130 - 0.150	0.170 - 0.200
0.004 - 0.010	0.012 - 0.022	0.023 - 0.030	0.031 - 0.047	0.062 - 0.095	0.120 - 0.130	0.140 - 0.170
0.002 - 0.006	0.007 - 0.013	0.014 - 0.017	0.018 - 0.027	0.036 - 0.055	0.070 - 0.080	0.080 - 0.100
0.004 - 0.010	0.012 - 0.022	0.023 - 0.030	0.031 - 0.047	0.062 - 0.095	0.120 - 0.130	0.140 - 0.170

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.70	Ø D_1 0.80 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.002 - 0.006	0.007 - 0.013	0.014 - 0.018	0.019 - 0.028	0.038 - 0.055	0.070 - 0.080	0.080 - 0.100
0.002 - 0.006	0.007 - 0.012	0.013 - 0.016	0.017 - 0.026	0.034 - 0.050	0.070 - 0.070	0.080 - 0.100
0.002 - 0.005	0.006 - 0.011	0.012 - 0.015	0.016 - 0.023	0.032 - 0.050	0.060 - 0.070	0.070 - 0.080
0.002 - 0.005	0.006 - 0.011	0.012 - 0.015	0.016 - 0.023	0.032 - 0.050	0.060 - 0.070	0.070 - 0.080
0.002 - 0.005	0.006 - 0.010	0.011 - 0.013	0.014 - 0.021	0.028 - 0.040	0.050 - 0.060	0.070 - 0.080
0.002 - 0.007	0.009 - 0.015	0.016 - 0.021	0.022 - 0.033	0.044 - 0.065	0.080 - 0.090	0.100 - 0.120
0.002 - 0.006	0.007 - 0.013	0.014 - 0.018	0.019 - 0.028	0.038 - 0.055	0.070 - 0.080	0.080 - 0.100
0.003 - 0.009	0.011 - 0.019	0.020 - 0.025	0.027 - 0.040	0.052 - 0.080	0.100 - 0.110	0.120 - 0.140
0.002 - 0.007	0.009 - 0.015	0.016 - 0.021	0.022 - 0.033	0.044 - 0.065	0.080 - 0.090	0.100 - 0.120
0.002 - 0.006	0.007 - 0.013	0.014 - 0.018	0.019 - 0.028	0.038 - 0.055	0.070 - 0.080	0.080 - 0.100
0.001 - 0.004	0.004 - 0.008	0.008 - 0.010	0.011 - 0.016	0.022 - 0.035	0.040 - 0.050	0.050 - 0.060
0.002 - 0.006	0.007 - 0.013	0.014 - 0.018	0.019 - 0.028	0.038 - 0.055	0.070 - 0.080	0.080 - 0.100

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

TROCHOIDAL MILLING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**450**	<0.05×ØD1	<2×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9		**375**	<0.04×ØD1	<2×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**255**	<0.04×ØD1	<2×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**190**	<0.04×ØD1	<2×ØD1
	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**130**	<0.04×ØD1	<2×ØD1
K	Grey cast iron < 250 HB	15 - 16	**510**	**495**	<0.06×ØD1	<2×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**315**	**360**	<0.04×ØD1	<2×ØD1
N	Copper alloy good machinability with Pb	26	**305**		<0.06×ØD1	<2×ØD1
	Copper alloy with difficult machinability	27 - 28	**260**		<0.04×ØD1	<2×ØD1
	Gold, silver	-	**455**		<0.04×ØD1	<2×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**60**	**70**	<0.02×ØD1	<2×ØD1
	Titanium, titanium alloy	36 - 37	**120**	**125**	<0.04×ØD1	<2×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

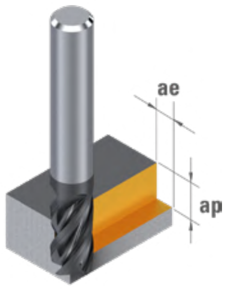
$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.70	Ø D_1 0.80 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.005 - 0.013	0.016 - 0.029	0.030 - 0.039	0.040 - 0.061	0.081 - 0.124	0.156 - 0.169	0.182 - 0.221
0.004 - 0.012	0.015 - 0.026	0.028 - 0.035	0.037 - 0.056	0.075 - 0.111	0.143 - 0.156	0.169 - 0.208
0.004 - 0.011	0.014 - 0.024	0.025 - 0.032	0.034 - 0.051	0.068 - 0.104	0.130 - 0.143	0.156 - 0.182
0.004 - 0.011	0.014 - 0.024	0.025 - 0.032	0.034 - 0.051	0.068 - 0.104	0.130 - 0.143	0.156 - 0.182
0.004 - 0.010	0.012 - 0.021	0.023 - 0.029	0.030 - 0.046	0.060 - 0.091	0.117 - 0.130	0.143 - 0.169
0.005 - 0.015	0.019 - 0.033	0.035 - 0.045	0.047 - 0.071	0.094 - 0.143	0.169 - 0.195	0.221 - 0.260
0.005 - 0.013	0.016 - 0.028	0.030 - 0.039	0.041 - 0.061	0.081 - 0.124	0.156 - 0.169	0.182 - 0.221
0.007 - 0.019	0.023 - 0.040	0.043 - 0.055	0.057 - 0.086	0.114 - 0.176	0.208 - 0.247	0.260 - 0.312
0.005 - 0.015	0.019 - 0.033	0.035 - 0.045	0.047 - 0.071	0.094 - 0.143	0.169 - 0.195	0.221 - 0.260
0.005 - 0.013	0.016 - 0.028	0.030 - 0.039	0.041 - 0.061	0.081 - 0.124	0.156 - 0.169	0.182 - 0.221
0.003 - 0.008	0.009 - 0.017	0.018 - 0.022	0.024 - 0.035	0.047 - 0.072	0.091 - 0.104	0.104 - 0.130
0.005 - 0.013	0.016 - 0.028	0.030 - 0.039	0.041 - 0.061	0.081 - 0.124	0.156 - 0.169	0.182 - 0.221

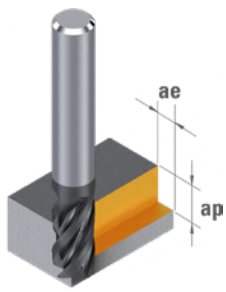
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING / ROUGHING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 12.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 12.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**120** - 280
P	Low alloyed steel < 800 N/mm²	6 - 9		**25** - 50		**50** - 125		**90** - 230
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**25** - 35		**50** - 85		**90** - 130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**25** - 50		**50** - 150		**100** - 230
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**20** - 45		**50** - 115		**75** - 180
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**110** - 250
N	Copper alloy good machinability with Pb	26	**20** - 40	**30** - 50	**50** - 105	**50** - 150	**80** - 165	**150** - 300
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**130** - 280
N	Gold, silver	-	**20** - 45	**30** - 50	**50** - 110	**50** - 150	**75** - 170	**160** - 320
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 30		**40** - 80		**60** - 120
S	Titanium, titanium alloy	36 - 37	**15** - 30	**30** - 45	**35** - 80	**50** - 110	**55** - 120	**120** - 170

ROUTING / FINISHING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 12.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 12.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**150** - 350
P	Low alloyed steel < 800 N/mm²	6 - 9		**30** - 50		**50** - 150		**110** - 290
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**30** - 40		**50** - 105		**110** - 160
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**30** - 50		**50** - 150		**130** - 290
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		**25** - 50		**50** - 150		**90** - 230
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**140** - 310
N	Copper alloy good machinability with Pb	26	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**100** - 210	**190** - 380
N	Copper alloy with difficult machinability	27 - 28	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**160** - 350
N	Gold, silver	-	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**200** - 400
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		**50** - 135		**80** - 150
S	Titanium, titanium alloy	36 - 37	**20** - 40	**30** - 50	**45** - 150	**50** - 110	**70** - 150	**150** - 210

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

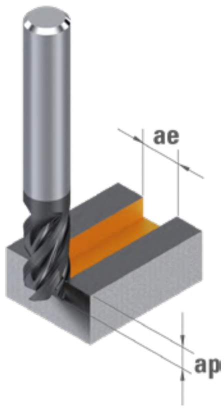
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 12.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.0001 - 0.0002	<0.30×Ø <2.00×Ø	0.0002 - 0.0004	<0.40×Ø <2.00×Ø	0.0006 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.006	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.007 - 0.020	<0.30×Ø <2.00×Ø
0.0001 - 0.0003	<0.25×Ø <2.00×Ø	0.0003 - 0.0005	<0.40×Ø <2.00×Ø	0.0005 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.006	<0.90×Ø <2.00×Ø	0.004 - 0.008	<0.90×Ø <2.00×Ø	0.006 - 0.018	<0.25×Ø <2.00×Ø
0.0001 - 0.0003	<0.25×Ø <2.00×Ø	0.0003 - 0.0005	<0.40×Ø <2.00×Ø	0.0005 - 0.002	<0.90×Ø <2.00×Ø	0.001 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.008	<0.90×Ø <2.00×Ø	0.006 - 0.018	<0.25×Ø <2.00×Ø
0.0001 - 0.0003	<0.25×Ø <2.00×Ø	0.0003 - 0.0005	<0.40×Ø <2.00×Ø	0.0005 - 0.002	<0.90×Ø <2.00×Ø	0.001 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.008	<0.90×Ø <2.00×Ø	0.006 - 0.018	<0.25×Ø <2.00×Ø
0.0001 - 0.0002	<0.20×Ø <2.00×Ø	0.0002 - 0.0005	<0.40×Ø <2.00×Ø	0.0004 - 0.02	<0.90×Ø <2.00×Ø	0.001 - 0.005	<0.90×Ø <2.00×Ø	0.003 - 0.008	<0.90×Ø <2.00×Ø	0.006 - 0.016	<0.20×Ø <2.00×Ø
0.0002 - 0.0003	<0.30×Ø <2.00×Ø	0.0003 - 0.0007	<0.40×Ø <2.00×Ø	0.0006 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.007	<0.90×Ø <2.00×Ø	0.005 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.022	<0.30×Ø <2.00×Ø
0.0002 - 0.0005	<0.30×Ø <2.00×Ø	0.0004 - 0.009	<0.40×Ø <2.00×Ø	0.0008 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.009	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.011 - 0.030	<0.30×Ø <2.00×Ø
0.0002 - 0.0004	<0.30×Ø <2.00×Ø	0.0004 - 0.007	<0.40×Ø <2.00×Ø	0.0007 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.008	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.008 - 0.024	<0.30×Ø <2.00×Ø
0.0002 - 0.0003	<0.30×Ø <2.00×Ø	0.0003 - 0.007	<0.40×Ø <2.00×Ø	0.0006 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.007	<0.90×Ø <2.00×Ø	0.005 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.022	<0.30×Ø <2.00×Ø
0.0001 - 0.0002	<0.15×Ø <2.00×Ø	0.0001 - 0.0003	<0.40×Ø <2.00×Ø	0.0003 - 0.001	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø
0.0002 - 0.0004	<0.30×Ø <2.00×Ø	0.0004 - 0.0007	<0.40×Ø <2.00×Ø	0.0007 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.008	<0.90×Ø <2.00×Ø	0.005 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.024	<0.30×Ø <2.00×Ø

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 12.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.0004 - 0.0007	<0.20×Ø <2.00×Ø	0.0007 - 0.002	<0.20×Ø <2.00×Ø	0.002 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.022	<0.20×Ø <2.00×Ø	0.016 - 0.046	<0.20×Ø <2.00×Ø
0.0003 - 0.0006	<0.15×Ø <2.00×Ø	0.0008 - 0.003	<0.15×Ø <2.00×Ø	0.002 - 0.006	<0.15×Ø <2.00×Ø	0.005 - 0.012	<0.15×Ø <2.00×Ø	0.010 - 0.019	<0.15×Ø <2.00×Ø	0.014 - 0.042	<0.15×Ø <2.00×Ø
0.0003 - 0.0006	<0.15×Ø <2.00×Ø	0.0007 - 0.002	<0.15×Ø <2.00×Ø	0.002 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.011	<0.15×Ø <2.00×Ø	0.009 - 0.018	<0.15×Ø <2.00×Ø	0.014 - 0.040	<0.15×Ø <2.00×Ø
0.0003 - 0.0006	<0.15×Ø <2.00×Ø	0.0007 - 0.002	<0.15×Ø <2.00×Ø	0.002 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.011	<0.15×Ø <2.00×Ø	0.009 - 0.018	<0.15×Ø <2.00×Ø	0.014 - 0.040	<0.15×Ø <2.00×Ø
0.0003 - 0.0006	<0.10×Ø <2.00×Ø	0.0007 - 0.002	<0.10×Ø <2.00×Ø	0.002 - 0.005	<0.10×Ø <2.00×Ø	0.004 - 0.010	<0.10×Ø <2.00×Ø	0.009 - 0.017	<0.10×Ø <2.00×Ø	0.013 - 0.036	<0.10×Ø <2.00×Ø
0.0004 - 0.0008	<0.20×Ø <2.00×Ø	0.0009 - 0.003	<0.20×Ø <2.00×Ø	0.002 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.014	<0.20×Ø <2.00×Ø	0.012 - 0.024	<0.20×Ø <2.00×Ø	0.018 - 0.050	<0.20×Ø <2.00×Ø
0.0006 - 0.0012	<0.20×Ø <2.00×Ø	0.0014 - 0.005	<0.20×Ø <2.00×Ø	0.003 - 0.010	<0.20×Ø <2.00×Ø	0.009 - 0.022	<0.20×Ø <2.00×Ø	0.018 - 0.037	<0.20×Ø <2.00×Ø	0.027 - 0.078	<0.20×Ø <2.00×Ø
0.0005 - 0.0010	<0.20×Ø <2.00×Ø	0.0012 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.009	<0.20×Ø <2.00×Ø	0.007 - 0.018	<0.20×Ø <2.00×Ø	0.015 - 0.030	<0.20×Ø <2.00×Ø	0.022 - 0.064	<0.20×Ø <2.00×Ø
0.0005 - 0.0009	<0.20×Ø <2.00×Ø	0.0011 - 0.004	<0.20×Ø <2.00×Ø	0.002 - 0.008	<0.20×Ø <2.00×Ø	0.007 - 0.017	<0.20×Ø <2.00×Ø	0.014 - 0.028	<0.20×Ø <2.00×Ø	0.021 - 0.060	<0.20×Ø <2.00×Ø
0.0002 - 0.0004	<0.08×Ø <2.00×Ø	0.0004- 0.001	<0.08×Ø <2.00×Ø	0.001 - 0.003	<0.08×Ø <2.00×Ø	0.003 - 0.006	<0.08×Ø <2.00×Ø	0.005 - 0.011	<0.08×Ø <2.00×Ø	0.008 - 0.024	<0.08×Ø <2.00×Ø
0.0004 - 0.0009	<0.20×Ø <2.00×Ø	0.001 - 0.004	<0.20×Ø <2.00×Ø	0.002 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.016	<0.20×Ø <2.00×Ø	0.013 - 0.026	<0.20×Ø <2.00×Ø	0.019 - 0.056	<0.20×Ø <2.00×Ø

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

SLOTTING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 12.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 12.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		25 - 50		50 - 150		100 - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		20 - 50		50 - 125		75 - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		20 - 30		50 - 70		75 - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		20 - 50		50 - 125		85 - 195
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		15 - 40		40 - 100		65 - 155
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	15 - 30	25 - 50	35 - 80	50 - 140	50 - 120	95 - 215
N	Copper alloy good machinability with Pb	26	20 - 35	30 - 50	45 - 90	50 - 150	70 - 140	130 - 255
N	Copper alloy with difficult machinability	27 - 28	15 - 35	30 - 50	35 - 80	50 - 150	50 - 120	110 - 240
N	Gold, silver	-	15 - 30	30 - 50	40 - 95	50 - 150	65 - 145	135 - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		15 - 25		30 - 65		50 - 100
S	Titanium, titanium alloy	36 - 37	10 - 25	25 - 35	30 - 65	50 - 95	45 - 100	100 - 145

RAMPING

		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 12.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 12.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		25 - 50		50 - 125		100 - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		20 - 40		50 - 100		75 - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		20 - 25		50 - 60		75 - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		20 - 40		50 - 100		85 - 155
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		15 - 30		40 - 80		65 - 120
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	15 - 30	25 - 45	35 - 80	50 - 110	50 - 120	95 - 170
N	Copper alloy good machinability with Pb	26	20 - 35	30 - 50	45 - 90	50 - 135	70 - 140	130 - 205
N	Copper alloy with difficult machinability	27 - 28	15 - 35	30 - 50	35 - 80	50 - 125	50 - 120	110 - 190
N	Gold, silver	-	15 - 30	30 - 50	40 - 95	50 - 145	65 - 145	135 - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		15 - 20		30 - 50		50 - 80
S	Titanium, titanium alloy	36 - 37	10 - 25	25 - 35	30 - 65	50 - 75	45 - 100	100 - 115

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

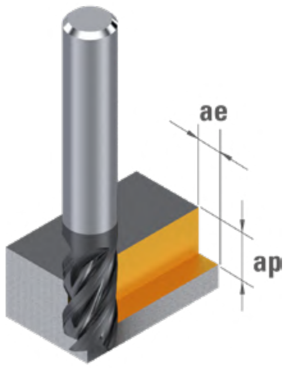
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 12.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0008	< 1.00 × Ø	0.0007 - 0.002	< 2.00 × Ø	0.002 - 0.006	< 2.00 × Ø	0.005 - 0.010	< 2.00 × Ø	0.009 - 0.020	< 1.00 × Ø
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0008	< 1.00 × Ø	0.0006 - 0.002	< 2.00 × Ø	0.002 - 0.006	< 2.00 × Ø	0.005 - 0.010	< 2.00 × Ø	0.008 - 0.018	< 1.00 × Ø
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0006	< 1.00 × Ø	0.0006 - 0.002	< 2.00 × Ø	0.001 - 0.005	< 2.00 × Ø	0.004 - 0.008	< 2.00 × Ø	0.007 - 0.018	< 1.00 × Ø
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0006	< 1.00 × Ø	0.0006 - 0.002	< 2.00 × Ø	0.001 - 0.005	< 2.00 × Ø	0.004 - 0.008	< 2.00 × Ø	0.007 - 0.018	< 1.00 × Ø
0.0002 - 0.0004	< 0.25 × Ø	0.0004 - 0.0006	< 0.50 × Ø	0.0005 - 0.002	< 1.00 × Ø	0.001 - 0.005	< 1.00 × Ø	0.004 - 0.008	< 1.00 × Ø	0.007 - 0.016	< 0.25 × Ø
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0008	< 1.00 × Ø	0.0007 - 0.003	< 2.00 × Ø	0.002 - 0.007	< 2.00 × Ø	0.006 - 0.012	< 2.00 × Ø	0.010 - 0.022	< 1.00 × Ø
0.0003 - 0.0006	< 0.50 × Ø	0.0007 - 0.0012	< 1.00 × Ø	0.001 - 0.003	< 2.00 × Ø	0.003 - 0.009	< 2.00 × Ø	0.008 - 0.016	< 2.00 × Ø	0.013 - 0.030	< 1.00 × Ø
0.0003 - 0.0006	< 0.50 × Ø	0.0007 - 0.0010	< 1.00 × Ø	0.0008 - 0.003	< 2.00 × Ø	0.002 - 0.008	< 2.00 × Ø	0.006 - 0.012	< 2.00 × Ø	0.011 - 0.024	< 1.00 × Ø
0.0002 - 0.0004	< 0.50 × Ø	0.0007 - 0.0008	< 1.00 × Ø	0.0007 - 0.003	< 2.00 × Ø	0.003 - 0.009	< 2.00 × Ø	0.006 - 0.012	< 2.00 × Ø	0.010 - 0.022	< 1.00 × Ø
0.0001 - 0.0002	< 0.50 × Ø	0.0002 - 0.0004	< 0.25 × Ø	0.0003 - 0.001	< 0.50 × Ø	0.001 - 0.003	< 1.00 × Ø	0.003 - 0.006	< 1.00 × Ø	0.004 - 0.010	< 0.25 × Ø
0.0003 - 0.0006	< 0.25 × Ø	0.0007 - 0.0010	< 1.00 × Ø	0.0008 - 0.003	< 2.00 × Ø	0.002 - 0.008	< 2.00 × Ø	0.006 - 0.012	< 2.00 × Ø	0.011 - 0.024	< 1.00 × Ø

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 12.00	
fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)
0.0002 - 0.0004	< 7.5°	0.0004- 0.0008	< 10°	0.0007 - 0.002	< 10°	0.002 - 0.005	< 10°	0.004 - 0.008	< 10°	0.007 - 0.020	< 7.5°
0.0002 - 0.0004	< 7.5°	0.0003 - 0.0008	< 10°	0.0006 - 0.002	< 10°	0.002 - 0.005	< 10°	0.004 - 0.008	< 10°	0.006 - 0.018	< 7.5°
0.0002 - 0.0004	< 7.5°	0.0003- 0.0007	< 10°	0.0006 - 0.002	< 10°	0.002 - 0.004	< 10°	0.004 - 0.008	< 10°	0.006 - 0.018	< 7.5°
0.0002 - 0.0004	< 7.5°	0.0003 - 0.0007	< 10°	0.0006 - 0.002	< 10°	0.002 - 0.004	< 10°	0.004 - 0.008	< 10°	0.006 - 0.018	< 7.5°
0.0002 - 0.0004	< 3.5°	0.0003 - 0.0007	< 5°	0.0006 - 0.002	< 5°	0.001 - 0.004	< 5°	0.003 - 0.006	< 5°	0.006 - 0.016	< 3.5°
0.0002 - 0.0004	< 10°	0.0004 - 0.0009	< 12.5°	0.0008 - 0.002	< 12.5°	0.002 - 0.006	< 12.5°	0.005 - 0.010	< 12.5°	0.008 - 0.022	< 10°
0.0003 - 0.0006	< 10°	0.0005 - 0.0013	< 12.5°	0.0011 - 0.003	< 12.5°	0.003 - 0.008	< 12.5°	0.006 - 0.012	< 12.5°	0.011 - 0.030	< 10°
0.0003 - 0.0006	< 10°	0.0004 - 0.0010	< 12.5°	0.0008 - 0.003	< 12.5°	0.002 - 0.006	< 12.5°	0.005 - 0.010	< 12.5°	0.008 - 0.024	< 10°
0.0002 - 0.0004	< 10°	0.0004 - 0.0009	< 12.5°	0.0008 - 0.002	< 12.5°	0.002 - 0.006	< 12.5°	0.005 - 0.010	< 12.5°	0.008 - 0.022	< 10°
0.0001 - 0.0002	< 2°	0.0002 - 0.0004	< 2.5°	0.0004 - 0.001	< 2.5°	0.001 - 0.003	< 2.5°	0.002 - 0.004	< 2.5°	0.004 - 0.010	< 2°
0.0003 - 0.0006	< 3.5°	0.0004 - 0.0010	< 5°	0.0008 - 0.003	< 5°	0.002 - 0.006	< 5°	0.005 - 0.010	< 5°	0.008 - 0.024	< 3.5°

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		95		<0.015×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm²	6 - 9		85		<0.015×ØD1	<1×L1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		65		<0.010×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		65		<0.005×ØD1	<1×L1
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3-14.4		55		<0.005×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	125	125		<0.040×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	90	90		<0.025×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	165		255	<0.020×ØD1	<1×L1
N	Cast aluminium alloy >12% Si	23 - 25	125		200	<0.025×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	125		200	<0.025×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	100		160	<0.015×ØD1	<1×L1
N	Plastic, wood	29 - 30	110		175	<0.025×ØD1	<1×L1
N	Graphite	-	110		200	<0.020×ØD1	<1×L1
N	Gold, silver	-	90		140	<0.020×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	50	70		<0.015×ØD1	<1×L1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

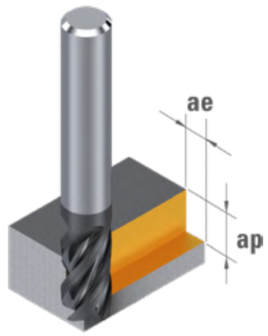
$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 14.00 - 20.00
0.015 - 0.020	0.025 - 0.030	0.035 - 0.040	0.040 - 0.048	0.042 - 0.060
0.014 - 0.018	0.023 - 0.028	0.030 - 0.036	0.036 - 0.043	0.038 - 0.054
0.012 - 0.016	0.020 - 0.024	0.030 - 0.032	0.032 - 0.038	0.034 - 0.048
0.012 - 0.016	0.020 - 0.024	0.030 - 0.032	0.032 - 0.038	0.034 - 0.048
0.011 - 0.014	0.018 - 0.022	0.025 - 0.028	0.028 - 0.034	0.029 - 0.042
0.018 - 0.024	0.030 - 0.036	0.040 - 0.048	0.048 - 0.058	0.050 - 0.072
0.015 - 0.020	0.025 - 0.030	0.035 - 0.040	0.040 - 0.048	0.042 - 0.060
0.023 - 0.030	0.038 - 0.046	0.055 - 0.060	0.060 - 0.072	0.063 - 0.090
0.020 - 0.026	0.033 - 0.040	0.045 - 0.052	0.052 - 0.062	0.055 - 0.078
0.023 - 0.030	0.038 - 0.046	0.055 - 0.060	0.060 - 0.072	0.063 - 0.090
0.018 - 0.024	0.030 - 0.036	0.040 - 0.048	0.048 - 0.058	0.050 - 0.072
0.023 - 0.030	0.038 - 0.046	0.055 - 0.060	0.060 - 0.072	0.063 - 0.090
0.030 - 0.040	0.050 - 0.060	0.070 - 0.080	0.080 - 0.096	0.084 - 0.120
0.015 - 0.020	0.025 - 0.030	0.035 - 0.040	0.040 - 0.048	0.042 - 0.060
0.015 - 0.020	0.025 - 0.030	0.035 - 0.040	0.040 - 0.048	0.042 - 0.060

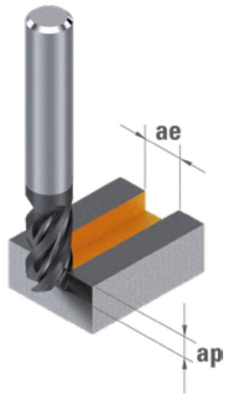
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



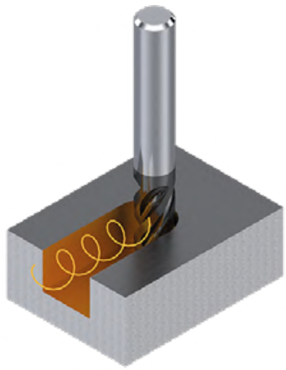
		VDI 3323	XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**150**	<0.40 × ØD1	<1 × ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9	**125**	<0.30 × ØD1	<1 × ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**100**	<0.25 × ØD1	<1 × ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**95**	<0.25 × ØD1	<1 × ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**65**	<0.2 × ØD1	<1 × ØD1
K	Grey cast iron < 250 HB	15 - 16	**180**	<0.40 × ØD1	<1 × ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**130**	<0.35 × ØD1	<1 × ØD1
S	Titanium, titanium alloy	36 - 37	**70**	<0.40 × ØD1	<1 × ØD1

SLOTTING



		VDI 3323	XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**115**	1×ØD1	<1×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9	**95**	1×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**75**	1×ØD1	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**70**	1×ØD1	<1×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**50**	1×ØD1	<0.8×ØD1
K	Grey cast iron < 250 HB	15 - 16	**135**	1×ØD1	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**95**	1×ØD1	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**55**	1×ØD1	<1×ØD1

TROCHOIDAL MILLING



		VDI 3323	XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**380**	<0.06×ØD1	<1×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9	**290**	<0.05×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**230**	<0.03×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**190**	<0.03×ØD1	<1×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**110**	<0.02×ØD1	<1×ØD1
K	Grey cast iron < 250 HB	15 - 16	**450**	<0.08×ØD1	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**330**	<0.07×ØD1	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**110**	<0.08×ØD1	<1×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 1.00 - 1.50	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.010 - 0.014	0.019 - 0.024	0.029 - 0.038	0.048 - 0.058	0.062 - 0.094
0.009 - 0.013	0.018 - 0.022	0.026 - 0.035	0.044 - 0.053	0.057 - 0.086
0.008 - 0.012	0.016 - 0.020	0.024 - 0.032	0.040 - 0.048	0.052 - 0.078
0.008 - 0.012	0.016 - 0.020	0.024 - 0.032	0.040 - 0.048	0.052 - 0.078
0.007 - 0.011	0.014 - 0.018	0.022 - 0.029	0.036 - 0.043	0.047 - 0.070
0.011 - 0.017	0.022 - 0.028	0.034 - 0.045	0.056 - 0.067	0.073 - 0.109
0.010 - 0.014	0.019 - 0.024	0.029 - 0.038	0.048 - 0.058	0.062 - 0.094
0.010 - 0.014	0.019 - 0.024	0.029 - 0.038	0.048 - 0.058	0.062 - 0.094

Feed per tooth fz [mm]

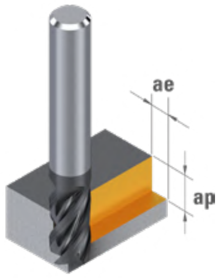
Ø D_1 1.00 - 1.50	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.006 - 0.008	0.011 - 0.014	0.017 - 0.023	0.029 - 0.035	0.038 - 0.055
0.005 - 0.008	0.011 - 0.013	0.016 - 0.021	0.026 - 0.032	0.034 - 0.050
0.005 - 0.007	0.010 - 0.012	0.014 - 0.019	0.024 - 0.029	0.032 - 0.045
0.005 - 0.007	0.010 - 0.012	0.014 - 0.019	0.024 - 0.029	0.032 - 0.045
0.004 - 0.007	0.008 - 0.011	0.013 - 0.017	0.022 - 0.026	0.028 - 0.040
0.007 - 0.010	0.013 - 0.017	0.020 - 0.027	0.034 - 0.040	0.044 - 0.065
0.006 - 0.008	0.011 - 0.014	0.017 - 0.023	0.029 - 0.035	0.038 - 0.055
0.006 - 0.008	0.011 - 0.014	0.017 - 0.023	0.029 - 0.035	0.038 - 0.055

Feed per tooth fz [mm]

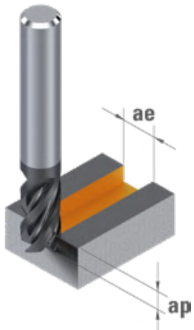
Ø D_1 1.00 - 1.50	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.013 - 0.019	0.026 - 0.032	0.039 - 0.052	0.065 - 0.078	0.084 - 0.126
0.012 - 0.018	0.024 - 0.030	0.036 - 0.048	0.059 - 0.071	0.077 - 0.116
0.011 - 0.016	0.022 - 0.027	0.032 - 0.043	0.054 - 0.065	0.070 - 0.105
0.011 - 0.016	0.022 - 0.027	0.032 - 0.043	0.054 - 0.065	0.070 - 0.105
0.010 - 0.015	0.019 - 0.024	0.029 - 0.039	0.049 - 0.058	0.063 - 0.095
0.015 - 0.023	0.030 - 0.038	0.045 - 0.060	0.076 - 0.091	0.098 - 0.147
0.013 - 0.019	0.026 - 0.032	0.039 - 0.052	0.065 - 0.078	0.084 - 0.126
0.013 - 0.019	0.026 - 0.032	0.039 - 0.052	0.065 - 0.078	0.084 - 0.126

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING

		VDI 3323		CARBIDE Vc [m/min]	ae (mm)	ap (mm)
H	Foam	30		**400**	<0.8×ØD1	<1×L1

SLOTTING

		VDI 3323		CARBIDE Vc [m/min]	ae (mm)	ap (mm)
H	Foam	30		**335**	<1×ØD1	<0.80×L1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

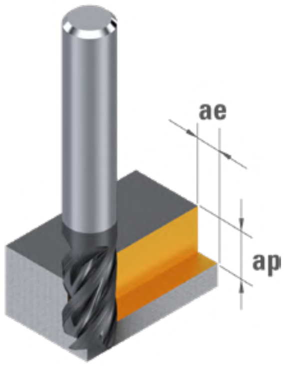
Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.070 - 0.100	0.140 - 0.190	0.240 - 0.250

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.060 - 0.090	0.130 - 0.170	0.220 - 0.230

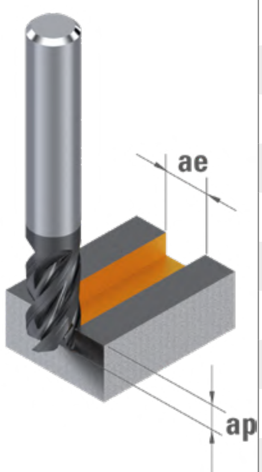
Values based on dry running. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		135		<0.3×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm^2	6 - 9		105		<0.3×ØD1	<1×L1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13		80		<0.2×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2		100		<0.2×ØD1	<1×L1
M	Nickel-free stainless steel/DUPLEX>700 N/mm^2	14.3-14.4		80		<0.2×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	180	200		<0.4×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	95	130		<0.4×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	320		170	<0.4×ØD1	<1×L1
N	Cast aluminium alloy >12% Si	23 - 25	265		400	<0.4×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	155			<0.4×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	135		190	<0.4×ØD1	<1×L1
N	Plastic, wood	29 - 30	215		330	<0.4×ØD1	<1×L1
N	Gold, silver	-	180		230	<0.4×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	65	70		<0.3×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		100		1×ØD1	<1×ØD1
P	Low alloyed steel < 800 N/mm^2	6 - 9		85		1×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13		55		1×ØD1	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2		75		1×ØD1	<0.8×ØD1
M	Nickel-free stainless steel/DUPLEX>700 N/mm^2	14.3-14.4		45		1×ØD1	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	125	145		1×ØD1	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	65	75		1×ØD1	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	225		280	1×ØD1	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	185		230	1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	110		140	1×ØD1	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	95		120	1×ØD1	<1×ØD1
N	Plastic, wood	29 - 30	150		190	1×ØD1	<1×ØD1
N	Gold, silver	-	125		160	1×ØD1	<1×ØD1
S	Titanium, titanium alloy	36 - 37	45	55		1×ØD1	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 16.00 - 20.00
0.002 - 0.005	0.005 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.065 - 0.085	0.100 - 0.125
0.002 - 0.004	0.005 - 0.009	0.009 - 0.013	0.014 - 0.017	0.021 - 0.026	0.034 - 0.050	0.060 - 0.080	0.095 - 0.120
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.075	0.090 - 0.110
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.075	0.090 - 0.110
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.021	0.028 - 0.040	0.050 - 0.065	0.080 - 0.100
0.003 - 0.006	0.007 - 0.012	0.013 - 0.018	0.019 - 0.024	0.030 - 0.036	0.048 - 0.070	0.085 - 0.115	0.135 - 0.170
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.095	0.110 - 0.140
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.145	0.170 - 0.210
0.003 - 0.007	0.008 - 0.013	0.014 - 0.020	0.021 - 0.026	0.033 - 0.039	0.052 - 0.080	0.095 - 0.125	0.145 - 0.180
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.145	0.170 - 0.210
0.003 - 0.006	0.007 - 0.012	0.013 - 0.018	0.019 - 0.024	0.030 - 0.036	0.048 - 0.070	0.085 - 0.115	0.135 - 0.170
0.004 - 0.008	0.009 - 0.015	0.017 - 0.023	0.024 - 0.030	0.038 - 0.045	0.060 - 0.090	0.110 - 0.145	0.170 - 0.210
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.095	0.110 - 0.140
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.030	0.040 - 0.060	0.070 - 0.095	0.110 - 0.140

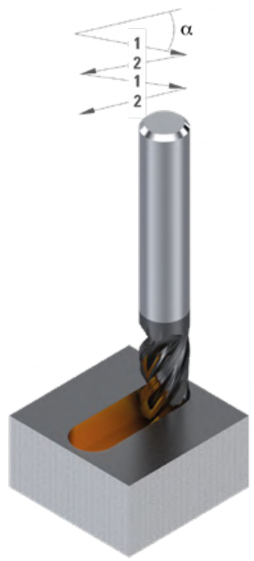
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 16.00 - 20.00
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.017 - 0.020	0.028 - 0.040	0.050 - 0.060	0.080 - 0.090
0.002 - 0.003	0.004 - 0.007	0.007 - 0.010	0.011 - 0.013	0.016 - 0.020	0.026 - 0.040	0.050 - 0.060	0.070 - 0.090
0.002 - 0.003	0.004 - 0.006	0.007 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.040	0.050 - 0.060	0.070 - 0.080
0.002 - 0.003	0.004 - 0.006	0.007 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.040	0.050 - 0.060	0.070 - 0.080
0.002 - 0.003	0.003 - 0.005	0.006 - 0.008	0.008 - 0.011	0.014 - 0.016	0.022 - 0.030	0.040 - 0.050	0.060 - 0.080
0.002 - 0.005	0.005 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.060 - 0.090	0.100 - 0.130
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.050 - 0.070	0.080 - 0.110
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.046 - 0.070	0.080 - 0.110	0.130 - 0.160
0.002 - 0.005	0.006 - 0.010	0.011 - 0.015	0.016 - 0.020	0.025 - 0.029	0.040 - 0.060	0.070 - 0.090	0.110 - 0.140
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.046 - 0.070	0.080 - 0.110	0.130 - 0.160
0.002 - 0.005	0.005 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.060 - 0.090	0.100 - 0.130
0.003 - 0.006	0.007 - 0.011	0.013 - 0.017	0.018 - 0.023	0.029 - 0.034	0.046 - 0.070	0.080 - 0.110	0.130 - 0.160
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.050 - 0.070	0.080 - 0.110
0.002 - 0.004	0.005 - 0.008	0.008 - 0.011	0.012 - 0.015	0.019 - 0.023	0.030 - 0.045	0.050 - 0.070	0.080 - 0.110

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 7583 - 7273

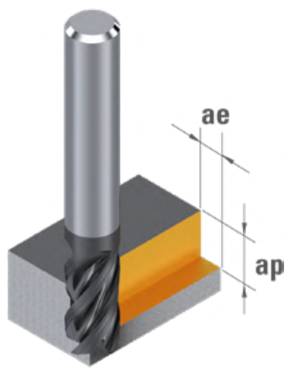
RAMPING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DLC Vc [m/min]	Ramp anlge α	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		100		<6°	<1×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		85		<4°	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		55		<3°	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		75		<3°	<0.8×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		45		<2°	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	125	145		<7°	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	65	75		<4°	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	225		280	<6°	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	185		230	<4°	<1×ØD1
N	Copper alloy good machinability with Pb	26	110		140	<7°	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	95		120	<4°	<1×ØD1
N	Plastic, wood	29 - 30	150		190	<6°	<1×ØD1
N	Gold, silver	-	125		160	<3°	<1×ØD1
S	Titanium, titanium alloy	36 - 37	45	55		<2°	<1×ØD1

DIXI 7560

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	DLC Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		125		<0.06×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm²	6 - 9		100		<0.05×ØD1	<1×L1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		90		<0.04×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		110		<0.04×ØD1	<1×L1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		90		<0.03×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	125	125		<0.12×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	90	90		<0.06×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	180		225	<0.09×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	150		190	<0.07×ØD1	<1×L1
N	Gold, silver	-	135		170	<0.07×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	45	30		<0.02×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	50	70		<0.06×ØD1	<1×L1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

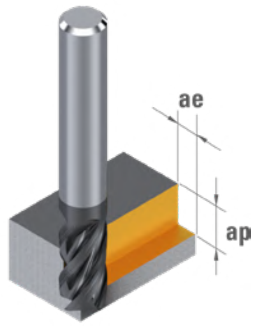
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50	Ø D_1 0.60 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 16.00 - 20.00
0.002 - 0.003	0.003 - 0.006	0.006 - 0.009	0.009 - 0.011	0.014 - 0.016	0.022 - 0.030	0.040 - 0.050	0.060 - 0.070
0.002 - 0.002	0.003 - 0.006	0.006 - 0.008	0.009 - 0.010	0.013 - 0.016	0.020 - 0.030	0.040 - 0.050	0.060 - 0.070
0.002 - 0.002	0.003 - 0.005	0.006 - 0.007	0.008 - 0.010	0.012 - 0.014	0.020 - 0.030	0.040 - 0.050	0.060 - 0.065
0.002 - 0.002	0.003 - 0.005	0.006 - 0.007	0.008 - 0.010	0.012 - 0.014	0.020 - 0.030	0.040 - 0.050	0.060 - 0.065
0.002 - 0.002	0.002 - 0.004	0.005 - 0.006	0.006 - 0.009	0.011 - 0.013	0.018 - 0.025	0.030 - 0.040	0.050 - 0.065
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.022	0.028 - 0.045	0.050 - 0.070	0.080 - 0.105
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.035	0.040 - 0.060	0.060 - 0.090
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.060 - 0.090	0.100 - 0.130
0.002 - 0.004	0.005 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.023	0.032 - 0.050	0.060 - 0.070	0.090 - 0.110
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.060 - 0.090	0.100 - 0.130
0.002 - 0.004	0.004 - 0.007	0.008 - 0.011	0.011 - 0.014	0.018 - 0.022	0.028 - 0.045	0.050 - 0.070	0.080 - 0.105
0.002 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.018	0.023 - 0.027	0.036 - 0.055	0.060 - 0.090	0.100 - 0.130
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.035	0.040 - 0.060	0.060 - 0.090
0.002 - 0.003	0.004 - 0.006	0.006 - 0.009	0.010 - 0.012	0.015 - 0.018	0.024 - 0.035	0.040 - 0.060	0.060 - 0.090

Feed per tooth fz [mm]

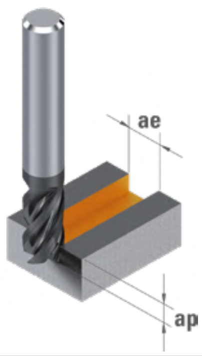
Ø D_1 0.35 - 0.50	Ø D_1 0.55 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 12.00 - 20.00
0.0028 - 0.0040	0.004 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.080	0.080 - 0.120
0.0025 - 0.0036	0.004 - 0.007	0.008 - 0.011	0.012 - 0.014	0.018 - 0.022	0.028 - 0.045	0.060 - 0.070	0.080 - 0.110
0.0022 - 0.0032	0.004 - 0.006	0.007 - 0.010	0.010 - 0.013	0.016 - 0.019	0.026 - 0.040	0.050 - 0.060	0.070 - 0.100
0.0022 - 0.0032	0.004 - 0.006	0.007 - 0.010	0.010 - 0.013	0.016 - 0.019	0.026 - 0.040	0.050 - 0.060	0.070 - 0.100
0.0020 - 0.0028	0.003 - 0.006	0.006 - 0.008	0.009 - 0.011	0.014 - 0.017	0.022 - 0.035	0.040 - 0.060	0.060 - 0.080
0.0034 - 0.0048	0.005 - 0.010	0.011 - 0.014	0.015 - 0.019	0.024 - 0.029	0.038 - 0.060	0.080 - 0.100	0.100 - 0.140
0.0028 - 0.0040	0.004 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.080	0.080 - 0.120
0.0042 - 0.0060	0.007 - 0.012	0.013 - 0.018	0.006 - 0.008	0.030 - 0.036	0.048 - 0.070	0.100 - 0.120	0.130 - 0.180
0.0034 - 0.0048	0.005 - 0.010	0.011 - 0.014	0.013 - 0.016	0.024 - 0.029	0.038 - 0.060	0.080 - 0.100	0.100 - 0.140
0.0028 - 0.0040	0.004 - 0.008	0.009 - 0.012	0.019 - 0.024	0.020 - 0.024	0.032 - 0.050	0.060 - 0.080	0.080 - 0.120
0.0014 - 0.0020	0.002 - 0.004	0.004 - 0.006	0.015 - 0.019	0.010 - 0.012	0.016 - 0.025	0.030 - 0.040	0.040 - 0.060
0.0028 - 0.0040	0.004 - 0.008	0.009 - 0.012	0.013 - 0.016	0.020 - 0.024	0.032 - 0.050	0.060 - 0.080	0.080 - 0.120

ROUTING



		VDI 3323	XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**250**	<0.070×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**150**	<0.040×ØD1	<1×L1
H	Hardened steel (50 to 55 HRC)	38	**200**	<0.040×ØD1	<1×L1
H	Hardened steel (50 to 65 HRC)	39	**100**	<0.025×ØD1	<1×L1

SLOTTING



		VDI 3323	XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**40**	1×ØD1	<0.05×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**40**	1×ØD1	<0.03×ØD1
H	Hardened steel (50 to 55 HRC)	38	**40**	1×ØD1	<0.02×ØD1
H	Hardened steel (50 to 65 HRC)	39	**15**	1×ØD1	<0.010×ØD1

RAMPING

		VDI 3323	XIDUR Vc [m/min]	Max. depth (mm)	Ramp anlge α
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**190**	<1×ØD1	<2°
S	Refractory alloy, Fe, Ni, Co base	31- 35	**115**	<1×ØD1	<3°
H	Hardened steel (50 to 55 HRC)	38	**150**	<1×ØD1	<3°
H	Hardened steel (50 to 65 HRC)	39	**75**	<1×ØD1	<2°

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.50 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.003 - 0.004	0.004 - 0.006	0.010 - 0.013	0.016 - 0.019	0.026 - 0.038	0.052 - 0.065	0.075 - 0.090
0.002 - 0.002	0.003 - 0.004	0.006 - 0.008	0.010 - 0.012	0.016 - 0.024	0.032 - 0.040	0.050 - 0.055
0.0010 - 0.0014	0.002 - 0.002	0.004 - 0.005	0.006 - 0.007	0.010 - 0.014	0.020 - 0.025	0.030 - 0.035
0.0007 - 0.0011	0.001 - 0.002	0.003 - 0.004	0.004 - 0.005	0.007 - 0.011	0.014 - 0.020	0.020 - 0.025

Feed per tooth fz [mm]

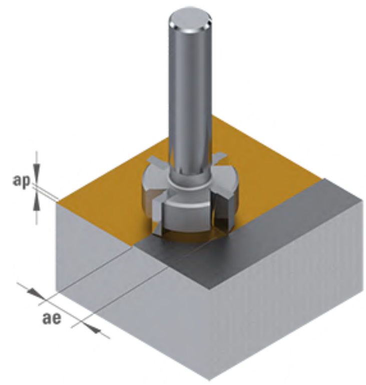
Ø D_1 0.40 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.50 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.0024 - 0.0032	0.003 - 0.005	0.008 - 0.010	0.013 - 0.015	0.021 - 0.030	0.042 - 0.052	0.060 - 0.072
0.0016 - 0.0016	0.002 - 0.003	0.005 - 0.006	0.008 - 0.010	0.013 - 0.019	0.026 - 0.032	0.040 - 0.044
0.0008 - 0.0011	0.002 - 0.002	0.003 - 0.004	0.005 - 0.006	0.008 - 0.011	0.016 - 0.020	0.024 - 0.028
0.0006 - 0.0009	0.001 - 0.002	0.002 - 0.003	0.003 - 0.004	0.006 - 0.009	0.011 - 0.016	0.016 - 0.020

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.50 - 2.00	Ø D_1 2.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.0016 - 0.002	0.003 - 0.004	0.006 - 0.008	0.010 - 0.012	0.016 - 0.024	0.032 - 0.040	0.050 - 0.055
0.0010 - 0.001	0.002 - 0.002	0.004 - 0.005	0.006 - 0.007	0.010 - 0.014	0.020 - 0.025	0.030 - 0.035
0.0010 - 0.0014	0.0017 - 0.0024	0.004 - 0.005	0.006 - 0.007	0.010 - 0.014	0.020 - 0.025	0.030 - 0.035
0.0007 - 0.0011	0.0012 - 0.0018	0.003 - 0.004	0.004 - 0.005	0.007 - 0.011	0.014 - 0.020	0.020 - 0.025

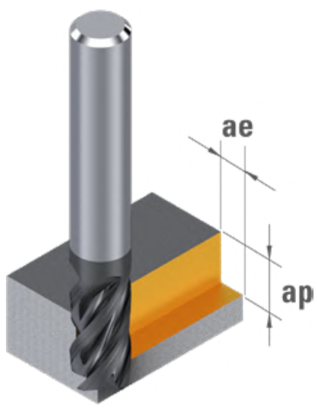
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

FACE MILLING

		VDI 3323		CARBIDE Vc [m/min]	ae (mm)	ap (mm)
H	Plastics with good machinability (expanded PVC)	29		**750**	<1×ØD1	<1 mm
	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	29		**700**	<1×ØD1	<1 mm
	Plastics with difficult machinability (compact PVC, black PMMA)	29		**650**	<1×ØD1	<1 mm

DIXI 7210

ROUTING

		VDI 3323		CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5			**135**	<0.4×ØD1	<1×L1
	Low alloyed steel < 800 N/mm²	6 - 9			**105**	<0.4×ØD1	<1×L1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13			**80**	<0.2×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2			**100**	<0.2×ØD1	<1×L1
	Nickel-free stainless steel/DUPLEX > 700 N/mm²	14.3-14.4			**80**	<0.2×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16		**180**	**200**	<0.4×ØD1	<1×L1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**95**	**130**	<0.4×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22		**320**		<0.4×ØD1	<1×L1
	Cast aluminium alloy >12% Si	23 - 25		**260**		<0.4×ØD1	<1×L1
	Copper alloy good machinability with Pb	26		**160**		<0.4×ØD1	<1×L1
	Copper alloy with difficult machinability	27 - 28		**140**		<0.4×ØD1	<1×L1
	Gold, silver	-		**180**		<0.4×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37		**65**	**70**	<0.3×ØD1	<1×L1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

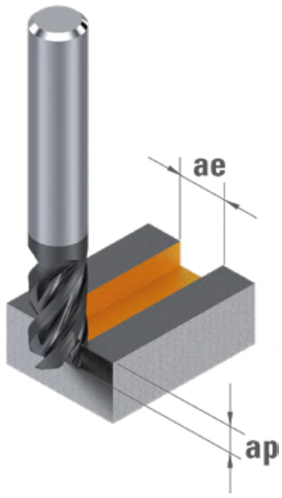
Ø D_1 12.00 - 20.00	Ø D_1 25.00 - 35.00
0.040 - 0.060	0.060 - 0.070
0.030 - 0.050	0.050 - 0.060
0.030 - 0.040	0.040 - 0.050

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00
0.032 - 0.044	0.054 - 0.064	0.076 - 0.086	0.090 - 0.098
0.031 - 0.040	0.052 - 0.062	0.072 - 0.082	0.086 - 0.092
0.029 - 0.038	0.048 - 0.058	0.068 - 0.076	0.080 - 0.086
0.029 - 0.038	0.048 - 0.058	0.068 - 0.076	0.080 - 0.086
0.025 - 0.034	0.042 - 0.050	0.058 - 0.068	0.070 - 0.076
0.043 - 0.058	0.072 - 0.086	0.100 - 0.116	0.120 - 0.130
0.036 - 0.048	0.060 - 0.072	0.084 - 0.096	0.100 - 0.108
0.054 - 0.072	0.090 - 0.108	0.126 - 0.144	0.150 - 0.162
0.047 - 0.062	0.078 - 0.094	0.110 - 0.124	0.130 - 0.140
0.054 - 0.072	0.090 - 0.108	0.126 - 0.144	0.150 - 0.162
0.040 - 0.052	0.066 - 0.080	0.092 - 0.106	0.110 - 0.118
0.040 - 0.052	0.066 - 0.080	0.092 - 0.106	0.110 - 0.118
0.036 - 0.048	0.060 - 0.072	0.084 - 0.096	0.100 - 0.108

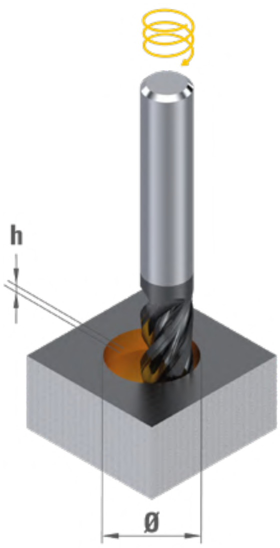
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**100**	1×ØD1	<1.2×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**85**	1×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**55**	1×ØD1	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**75**	1×ØD1	<1×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**45**	1×ØD1	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	**125**	**145**	1×ØD1	<1.5×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**65**	**75**	1×ØD1	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**230**		1×ØD1	<1.5×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**190**		1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	**110**		1×ØD1	<1.5×ØD1
N	Copper alloy with difficult machinability	27 - 28	**100**		1×ØD1	<1×ØD1
N	Gold, silver	-	**130**		1×ØD1	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**45**	**55**	1×ØD1	<1×ØD1

HELICAL INTERPOLATION



$h = \pi \times ø \times \tan \alpha$

$1.3xD_1 < ø < 1.9xD_1$

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]	Ramp angle α	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**120**	<6°	<1.2×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**95**	<4°	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**70**	<3°	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**85**	<3°	<1×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**60**	<2°	<0.7×ØD1
K	Grey cast iron < 250 HB	15 - 16	**150**	**175**	<8°	<1.5×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**80**	**100**	<4°	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**270**		<6°	<1.5×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**220**		<4°	<1×ØD1
N	Copper alloy good machinability with Pb	26	**130**		<8°	<1.5×ØD1
N	Copper alloy with difficult machinability	27 - 28	**120**		<4°	<1×ØD1
N	Gold, silver	-	**150**		<3°	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**55**		<2°	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

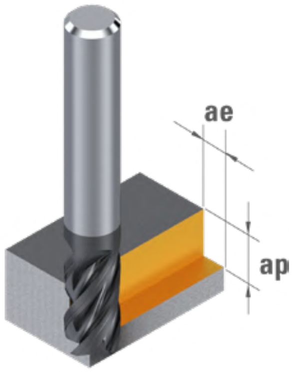
Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00
0.024 - 0.034	0.040 - 0.048	0.058 - 0.064	0.068 - 0.074
0.023 - 0.030	0.040 - 0.046	0.054 - 0.062	0.064 - 0.070
0.022 - 0.028	0.036 - 0.044	0.052 - 0.058	0.060 - 0.064
0.022 - 0.028	0.036 - 0.044	0.052 - 0.058	0.060 - 0.064
0.019 - 0.026	0.032 - 0.038	0.044 - 0.052	0.052 - 0.058
0.032 - 0.044	0.054 - 0.064	0.076 - 0.088	0.090 - 0.098
0.027 - 0.036	0.046 - 0.054	0.064 - 0.072	0.076 - 0.082
0.041 - 0.054	0.068 - 0.082	0.094 - 0.108	0.112 - 0.122
0.035 - 0.046	0.058 - 0.070	0.082 - 0.094	0.098 - 0.106
0.041 - 0.054	0.068 - 0.082	0.094 - 0.108	0.112 - 0.122
0.030 - 0.040	0.050 - 0.060	0.070 - 0.080	0.082 - 0.088
0.030 - 0.040	0.050 - 0.060	0.070 - 0.080	0.082 - 0.088
0.027 - 0.036	0.046 - 0.054	0.064 - 0.072	0.076 - 0.082

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 7.00 - 8.00	Ø D_1 10.00 - 12.00
0.019 - 0.027	0.032 - 0.038	0.046 - 0.051	0.054 - 0.059
0.018 - 0.024	0.032 - 0.037	0.043 - 0.050	0.051 - 0.056
0.018 - 0.022	0.029 - 0.035	0.042 - 0.046	0.048 - 0.051
0.018 - 0.022	0.029 - 0.035	0.042 - 0.046	0.048 - 0.051
0.015 - 0.021	0.026 - 0.030	0.035 - 0.042	0.042 - 0.046
0.026 - 0.035	0.043 - 0.051	0.061 - 0.070	0.072 - 0.078
0.022 - 0.029	0.037 - 0.043	0.051 - 0.058	0.061 - 0.066
0.033 - 0.043	0.054 - 0.066	0.075 - 0.086	0.090 - 0.098
0.028 - 0.037	0.046 - 0.056	0.066 - 0.075	0.078 - 0.085
0.033 - 0.043	0.054 - 0.066	0.075 - 0.086	0.090 - 0.098
0.024 - 0.032	0.040 - 0.048	0.056 - 0.064	0.066 - 0.070
0.024 - 0.032	0.040 - 0.048	0.056 - 0.064	0.066 - 0.070
0.022 - 0.029	0.037 - 0.043	0.051 - 0.058	0.061 - 0.066

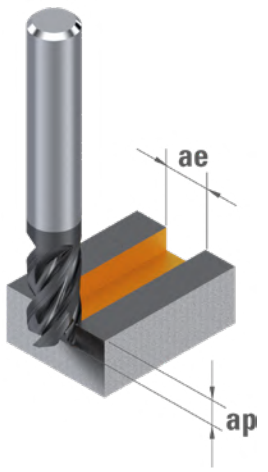
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**100**	<0.3×ØD1	<1×L1
	Low alloyed steel < 800 N/mm²	6 - 9		**80**	<0.3×ØD1	<1×L1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**50**	<0.2×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**90**	<0.2×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	**85**	**100**	<0.4×ØD1	<1×L1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**70**	**85**	<0.4×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	**125**		<0.4×ØD1	<1×L1
	Cast aluminium alloy >12% Si	23 - 25	**220**		<0.4×ØD1	<1×L1
	Copper alloy good machinability with Pb	26	**40**		<0.3×ØD1	<1×L1
	Copper alloy with difficult machinability	27 - 28	**150**		<0.4×ØD1	<1×L1
	Gold, silver	-	**150**		<0.4×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	**150**		<0.4×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**70**	1×ØD1	<1×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9		**55**	1×ØD1	<1×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**35**	1×ØD1	<0.80×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**65**	1×ØD1	<0.80×ØD1
K	Grey cast iron < 250 HB	15 - 16	**60**	**70**	1×ØD1	<1×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**50**	**60**	1×ØD1	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**90**		1×ØD1	<1×ØD1
	Cast aluminium alloy >12% Si	23 - 25	**155**		1×ØD1	<1×ØD1
	Copper alloy good machinability with Pb	26	**30**		1×ØD1	<1×ØD1
	Copper alloy with difficult machinability	27 - 28	**105**		1×ØD1	<1×ØD1
	Gold, silver	-	**105**		1×ØD1	<1×ØD1
S	Titanium, titanium alloy	36 - 37	**105**		1×ØD1	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 7.00	Ø D_1 8.00 - 9.00	Ø D_1 10.00 - 12.00	Ø D_1 14.00 - 20.00
0.018 - 0.023	0.027 - 0.032	0.036 - 0.040	0.035 - 0.040	0.050 - 0.070
0.017 - 0.021	0.026 - 0.030	0.034 - 0.038	0.035 - 0.040	0.050 - 0.070
0.016 - 0.020	0.024 - 0.028	0.032 - 0.036	0.030 - 0.040	0.040 - 0.060
0.016 - 0.020	0.024 - 0.028	0.032 - 0.036	0.030 - 0.040	0.040 - 0.060
0.024 - 0.030	0.036 - 0.042	0.048 - 0.054	0.050 - 0.060	0.070 - 0.100
0.020 - 0.025	0.030 - 0.035	0.040 - 0.046	0.040 - 0.050	0.060 - 0.080
0.036 - 0.045	0.054 - 0.063	0.072 - 0.082	0.070 - 0.090	0.100 - 0.140
0.030 - 0.038	0.045 - 0.053	0.060 - 0.068	0.060 - 0.070	0.080 - 0.120
0.030 - 0.038	0.045 - 0.053	0.060 - 0.068	0.060 - 0.070	0.080 - 0.120
0.024 - 0.030	0.036 - 0.042	0.048 - 0.054	0.050 - 0.060	0.070 - 0.100
0.024 - 0.030	0.036 - 0.042	0.048 - 0.054	0.050 - 0.060	0.070 - 0.100
0.022 - 0.028	0.033 - 0.039	0.044 - 0.050	0.045 - 0.050	0.060 - 0.090

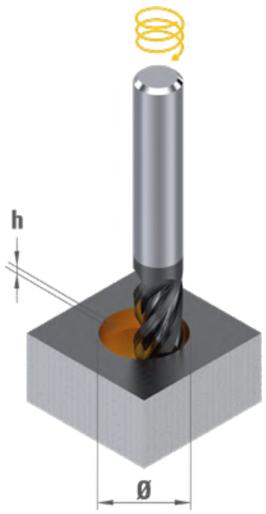
Feed per tooth fz [mm]

Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 7.00	Ø D_1 8.00 - 9.00	Ø D_1 10.00 - 12.00	Ø D_1 14.00 - 20.00
0.014 - 0.017	0.020 - 0.024	0.027 - 0.030	0.026 - 0.030	0.038 - 0.053
0.013 - 0.016	0.020 - 0.023	0.026 - 0.029	0.026 - 0.030	0.038 - 0.053
0.012 - 0.015	0.018 - 0.021	0.024 - 0.027	0.023 - 0.030	0.030 - 0.045
0.012 - 0.015	0.018 - 0.021	0.024 - 0.027	0.023 - 0.030	0.030 - 0.045
0.018 - 0.023	0.027 - 0.032	0.036 - 0.041	0.038 - 0.045	0.053 - 0.075
0.015 - 0.019	0.023 - 0.026	0.030 - 0.035	0.030 - 0.038	0.045 - 0.060
0.027 - 0.034	0.041 - 0.047	0.054 - 0.062	0.053 - 0.068	0.075 - 0.105
0.023 - 0.029	0.034 - 0.040	0.045 - 0.051	0.045 - 0.053	0.060 - 0.090
0.023 - 0.029	0.034 - 0.040	0.045 - 0.051	0.045 - 0.053	0.060 - 0.090
0.018 - 0.023	0.027 - 0.032	0.036 - 0.041	0.038 - 0.045	0.053 - 0.075
0.018 - 0.023	0.027 - 0.032	0.036 - 0.041	0.038 - 0.045	0.053 - 0.075
0.017 - 0.021	0.025 - 0.029	0.033 - 0.038	0.034 - 0.038	0.045 - 0.068

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

HELICAL INTERPOLATION

		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	Ramp angle α	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		70	<6°	<1×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		55	<4°	<1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		35	<3°	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		65	<3°	<0.8×ØD1
K	Grey cast iron < 250 HB	15 - 16	60	70	<7°	<1×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	50	60	<4°	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	90		<4°	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	155		<6°	<1×ØD1
N	Copper alloy good machinability with Pb	26	30		<2°	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	105		<7°	<1×ØD1
N	Gold, silver	-	105		<4°	<1×ØD1
S	Titanium, titanium alloy	36 - 37	105		<3°	<1×ØD1



$h = \pi \times ø \times \tan \alpha$

$1.3xD_1 < ø < 1.9xD_1$

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

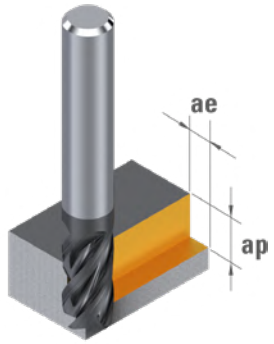
$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 7.00	Ø D_1 8.00 - 9.00	Ø D_1 10.00 - 12.00	Ø D_1 14.00 - 20.00
0.011 - 0.014	0.016 - 0.019	0.022 - 0.024	0.021 - 0.024	0.030 - 0.042
0.010 - 0.013	0.016 - 0.018	0.021 - 0.023	0.021 - 0.024	0.030 - 0.042
0.010 - 0.012	0.014 - 0.017	0.019 - 0.022	0.018 - 0.024	0.024 - 0.036
0.010 - 0.012	0.014 - 0.017	0.019 - 0.022	0.018 - 0.024	0.024 - 0.036
0.012 - 0.015	0.018 - 0.021	0.024 - 0.028	0.024 - 0.030	0.036 - 0.048
0.022 - 0.027	0.033 - 0.038	0.043 - 0.050	0.042 - 0.054	0.060 - 0.084
0.018 - 0.023	0.027 - 0.032	0.036 - 0.041	0.036 - 0.042	0.048 - 0.072
0.018 - 0.023	0.027 - 0.032	0.036 - 0.041	0.036 - 0.042	0.048 - 0.072
0.014 - 0.018	0.022 - 0.026	0.029 - 0.033	0.030 - 0.036	0.042 - 0.060
0.014 - 0.018	0.022 - 0.026	0.029 - 0.033	0.030 - 0.036	0.042 - 0.060
0.014 - 0.017	0.020 - 0.023	0.026 - 0.030	0.027 - 0.030	0.036 - 0.054
0.026 - 0.033	0.039 - 0.046	0.052 - 0.055	0.057 - 0.066	0.072 - 0.096

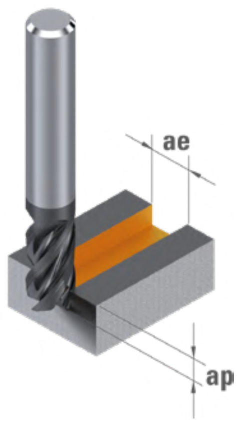
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	DIXI 7215 Vc [m/min]	DIXI 715 - FC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**475**	**620**	<0.4×ØD1	<1×L1
	Cast aluminium alloy >12% Si	23 - 25	**200**	**260**	<1×ØD1	<1.3×ØD1
	Copper alloy good machinability with Pb	26	**200**	**260**	<0.4×ØD1	<1×L1
	Copper alloy with difficult machinability	27 - 28	**140**	**180**	<0.4×ØD1	<1×L1
	Gold, silver	-	**200**	**325**	<0.4×ØD1	<1×L1

SLOTTING



		VDI 3323	DIXI 7215 Vc [m/min]	DIXI 715 - FC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**380**	**490**	1×ØD1	<1.5×ØD1
	Cast aluminium alloy >12% Si	23 - 25	**160**	**210**	1×ØD1	<1.3×ØD1
	Copper alloy good machinability with Pb	26	**160**	**210**	1×ØD1	<1.5×ØD1
	Copper alloy with difficult machinability	27 - 28	**110**	**150**	1×ØD1	<1×ØD1
	Gold, silver	-	**200**	**260**	1×ØD1	<1×ØD1

RAMPING

		VDI 3323	DIXI 7215 Vc [m/min]	DIXI 715 - FC Vc [m/min]	max. depth (mm)	Ramp angle α
N	Wrought aluminium alloy < 12% Si	21 - 22	**380**	**490**	<1×ØD1	<1.5×ØD1
	Cast aluminium alloy >12% Si	23 - 25	**160**	**210**	<1×ØD1	<1.3×ØD1
	Copper alloy good machinability with Pb	26	**160**	**210**	<1×ØD1	<1.5×ØD1
	Copper alloy with difficult machinability	27 - 28	**110**	**150**	<1×ØD1	<1×ØD1
	Gold, silver	-	**200**	**260**	<1×ØD1	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.058 - 0.086	0.115 - 0.140	0.170 - 0.230
0.048 - 0.072	0.095 - 0.120	0.140 - 0.190
0.048 - 0.072	0.095 - 0.120	0.140 - 0.190
0.038 - 0.058	0.075 - 0.100	0.120 - 0.150
0.038 - 0.058	0.075 - 0.100	0.120 - 0.150

Feed per tooth fz [mm]

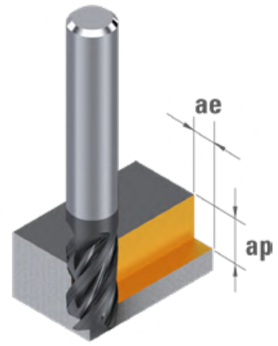
Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.044 - 0.064	0.085 - 0.110	0.130 - 0.170
0.036 - 0.054	0.070 - 0.090	0.110 - 0.140
0.036 - 0.054	0.070 - 0.090	0.110 - 0.140
0.029 - 0.044	0.055 - 0.080	0.090 - 0.110
0.029 - 0.044	0.055 - 0.080	0.090 - 0.110

Feed per tooth fz [mm]

Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.044 - 0.064	0.085 - 0.110	0.130 - 0.170
0.036 - 0.054	0.070 - 0.090	0.110 - 0.140
0.036 - 0.054	0.070 - 0.090	0.110 - 0.140
0.029 - 0.044	0.055 - 0.080	0.090 - 0.110
0.029 - 0.044	0.055 - 0.080	0.090 - 0.110

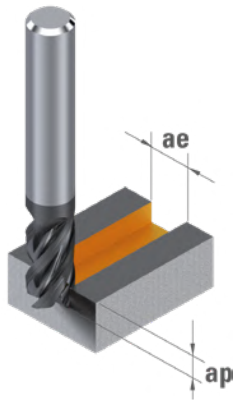
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
N	Plastics with good machinability (expanded PVC)	21 - 22	**400**	<0.70×ØD1	<1×L1
N	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	23 - 25	**300**	<0.70×ØD1	<1×L1
N	Plastics with difficult machinability (compact PVC, black PMMA)	26	**250**	<0.40×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
N	Plastics with good machinability (expanded PVC)	21 - 22	**400**	1×ØD1	<1.5×ØD1
N	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	23 - 25	**300**	1×ØD1	<1.5×ØD1
N	Plastics with difficult machinability (compact PVC, black PMMA)	26	**250**	1×ØD1	<1.5×ØD1

RAMPING

		VDI 3323	CARBIDE Vc [m/min]	ae (mm)	ap (mm)
N	Plastics with good machinability (expanded PVC)	21 - 22	**400**	<12°	<1.5×ØD1
N	Plastics with moderate machinability (PETG, PPH, PC, PE-PP)	23 - 25	**300**	<10°	<1.5×ØD1
N	Plastics with difficult machinability (compact PVC, black PMMA)	26	**250**	<8°	<1.5×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.230 - 0.260	0.290 - 0.310
0.180 - 0.210	0.230 - 0.250
0.150 - 0.180	0.190 - 0.210

Feed per tooth fz [mm]

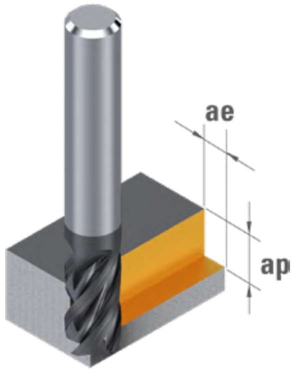
Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.170 - 0.200	0.220 - 0.230
0.140 - 0.160	0.180 - 0.190
0.110 - 0.140	0.150 - 0.160

Feed per tooth fz [mm]

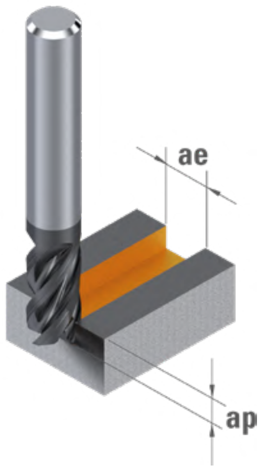
Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.140 - 0.160	0.180 - 0.200
0.110 - 0.130	0.140 - 0.160
0.090 - 0.011	0.120 - 0.140

Values based on dry use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING

		VDI 3323		C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**140**	< 0.40×ØD1	<1× L1
	Low alloyed steel < 800 N/mm²	6 - 9		**125**	< 0.35×ØD1	<1× L1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**85**	< 0.30×ØD1	<1× L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**95**	< 0.30×ØD1	<1× L1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**65**	< 0.25×ØD1	<1× L1
K	Grey cast iron < 250 HB	15 - 16		**175**	< 0.40×ØD1	<1× L1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**110**	< 0.40×ØD1	<1× L1
N	Copper alloy good machinability with Pb	26		**200**	< 0.40×ØD1	<1× L1
	Copper alloy with difficult machinability	27 - 28		**170**	< 0.40×ØD1	<1× L1
	Gold, silver	-		**150**	< 0.40×ØD1	<1× L1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**35**	< 0.20×ØD1	<1× L1
	Titanium, titanium alloy	36 - 37		**65**	< 0.40×ØD1	<1× L1

SLOTTING

		VDI 3323		C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**110**	1×ØD1	<1.50×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9		**95**	1×ØD1	<1.25×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**65**	1×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**70**	1×ØD1	<1×ØD1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**50**	1×ØD1	<0.80×ØD1
K	Grey cast iron < 250 HB	15 - 16		**130**	1×ØD1	<1.50×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20		**85**	1×ØD1	<1.25×ØD1
N	Copper alloy good machinability with Pb	26		**150**	1×ØD1	<1.50×ØD1
	Copper alloy with difficult machinability	27 - 28		**130**	1×ØD1	<1.50×ØD1
	Gold, silver	-		**115**	1×ØD1	<1.50×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**25**	1×ØD1	<0.50×ØD1
	Titanium, titanium alloy	36 - 37		**45**	1×ØD1	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

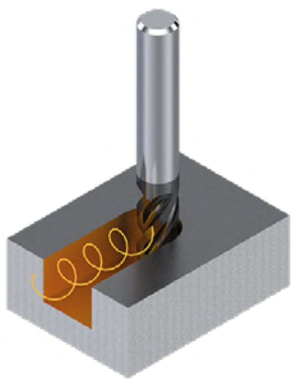
Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.036 - 0.048	0.060 - 0.070	0.095 - 0.110	0.115 - 0.135
0.032 - 0.044	0.055 - 0.065	0.085 - 0.095	0.105 - 0.120
0.028 - 0.038	0.050 - 0.060	0.075 - 0.085	0.090 - 0.110
0.028 - 0.038	0.050 - 0.060	0.075 - 0.085	0.090 - 0.110
0.026 - 0.034	0.040 - 0.050	0.065 - 0.075	0.080 - 0.095
0.044 - 0.058	0.070 - 0.085	0.115 - 0.130	0.140 - 0.160
0.036 - 0.048	0.060 - 0.070	0.095 - 0.110	0.115 - 0.135
0.054 - 0.072	0.090 - 0.110	0.145 - 0.160	0.175 - 0.200
0.044 - 0.058	0.070 - 0.085	0.115 - 0.130	0.140 - 0.160
0.044 - 0.058	0.070 - 0.085	0.115 - 0.130	0.140 - 0.160
0.018 - 0.024	0.030 - 0.035	0.050 - 0.055	0.060 - 0.065
0.044 - 0.058	0.070 - 0.085	0.115 - 0.130	0.140 - 0.160

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.029 - 0.038	0.048 - 0.056	0.076 - 0.088	0.090 - 0.110
0.026 - 0.036	0.044 - 0.052	0.068 - 0.076	0.085 - 0.095
0.020 - 0.026	0.036 - 0.042	0.052 - 0.060	0.065 - 0.075
0.017 - 0.022	0.030 - 0.036	0.046 - 0.052	0.055 - 0.065
0.016 - 0.020	0.024 - 0.030	0.040 - 0.046	0.050 - 0.055
0.035 - 0.046	0.056 - 0.068	0.092 - 0.104	0.110 - 0.130
0.029 - 0.038	0.048 - 0.056	0.076 - 0.088	0.090 - 0.110
0.043 - 0.058	0.072 - 0.088	0.116 - 0.128	0.140 - 0.160
0.035 - 0.046	0.056 - 0.068	0.092 - 0.104	0.110 - 0.130
0.035 - 0.046	0.056 - 0.068	0.092 - 0.104	0.110 - 0.130
0.009 - 0.012	0.016 - 0.018	0.026 - 0.028	0.030 - 0.035
0.026 - 0.034	0.042 - 0.052	0.070 - 0.078	0.085 - 0.095

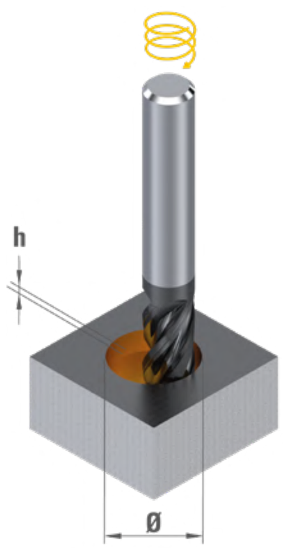
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

TROCHOIDAL MILLING



		VDI 3323	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**420**	<0.05×ØD1	<1×L1
	Low alloyed steel < 800 N/mm²	6 - 9	**380**	<0.04×ØD1	<1×L1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**260**	<0.04×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**190**	<0.04×ØD1	<1×L1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**130**	<0.03×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	**480**	<0.05×ØD1	<1×L1
	Ductile, malleable, nodular cast iron >250 HB	17 - 20	**300**	<0.05×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	**550**	<0.05×ØD1	<1×L1
	Copper alloy with difficult machinability	27 - 28	**470**	<0.05×ØD1	<1×L1
	Gold, silver	-	**410**	<0.05×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**60**	<0.03×ØD1	<1×L1
	Titanium, titanium alloy	36 - 37	**110**	<0.05×ØD1	<1×L1

HELICAL INTERPOLATION



$h = \pi \times ø \times \tan\alpha$

$1.3xD_1 < ø < 1.9xD_1$

		VDI 3323	C-TOP Vc [m/min]	Ramp angle α	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**120**	<6°	<1.2×L1
	Low alloyed steel < 800 N/mm²	6 - 9	**95**	<4°	<1×L1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**70**	<3°	<0.8×L1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**85**	<3°	<1×L1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**60**	<2°	<0.7×L1
K	Grey cast iron < 250 HB	15 - 16	**175**	<8°	<1.5×L1
	Ductile, malleable, nodular cast iron >250 HB	17 - 20	**100**	<4°	<1×L1
N	Copper alloy good machinability with Pb	26	**130**	<8°	<1.5×L1
	Copper alloy with difficult machinability	27 - 28	**120**	<4°	<1×L1
	Gold, silver	-	**150**	<3°	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**60**	<1°	<0.5×L1
	Titanium, titanium alloy	36 - 37	**110**	<2°	<1×L1

$n\,[rpm] = \dfrac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$

$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$

Feed per tooth fz [mm]

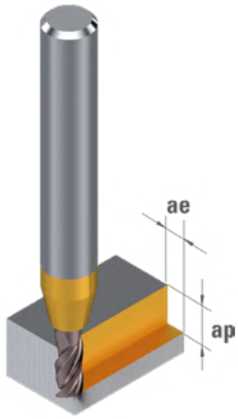
Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.046 - 0.060	0.080 - 0.090	0.120 - 0.140	0.140 - 0.170
0.040 - 0.055	0.070 - 0.080	0.110 - 0.120	0.130 - 0.150
0.036 - 0.050	0.060 - 0.070	0.100 - 0.110	0.120 - 0.130
0.036 - 0.050	0.060 - 0.070	0.100 - 0.110	0.120 - 0.130
0.032 - 0.040	0.050 - 0.060	0.080 - 0.090	0.100 - 0.120
0.054 - 0.070	0.090 - 0.110	0.140 - 0.160	0.170 - 0.200
0.046 - 0.060	0.080 - 0.090	0.120 - 0.140	0.140 - 0.170
0.046 - 0.060	0.080 - 0.090	0.120 - 0.140	0.140 - 0.170
0.040 - 0.055	0.070 - 0.080	0.110 - 0.120	0.130 - 0.150
0.040 - 0.055	0.070 - 0.080	0.110 - 0.120	0.130 - 0.150
0.022 - 0.030	0.040 - 0.050	0.060 - 0.070	0.070 - 0.080
0.046 - 0.060	0.080 - 0.090	0.120 - 0.140	0.140 - 0.170

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.022 - 0.030	0.038 - 0.046	0.060 - 0.070	0.070 - 0.085
0.020 - 0.028	0.034 - 0.040	0.055 - 0.060	0.065 - 0.075
0.018 - 0.024	0.030 - 0.036	0.050 - 0.055	0.060 - 0.065
0.018 - 0.024	0.030 - 0.036	0.050 - 0.055	0.060 - 0.065
0.016 - 0.022	0.026 - 0.032	0.040 - 0.045	0.050 - 0.060
0.028 - 0.036	0.046 - 0.054	0.070 - 0.080	0.085 - 0.100
0.022 - 0.030	0.038 - 0.046	0.060 - 0.070	0.070 - 0.085
0.022 - 0.030	0.038 - 0.046	0.060 - 0.070	0.070 - 0.085
0.020 - 0.028	0.034 - 0.040	0.055 - 0.060	0.065 - 0.075
0.020 - 0.028	0.034 - 0.040	0.055 - 0.060	0.065 - 0.075
0.012 - 0.016	0.018 - 0.022	0.030 - 0.035	0.035 - 0.040
0.022 - 0.030	0.038 - 0.046	0.060 - 0.070	0.070 - 0.085

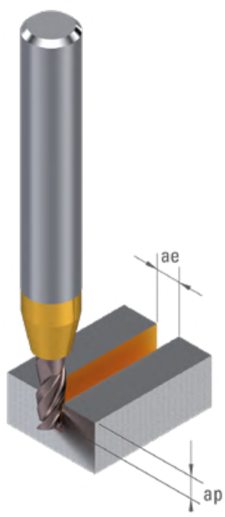
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING / ROUGHING



		VDI 3323	CARBIDE Vc [m/min] Ø D1 0.30 - 0.70	C-TOP Vc [m/min] Ø D1 0.30 - 0.70	CARBIDE Vc [m/min] Ø D1 0.80 - 1.50	C-TOP Vc [m/min] Ø D1 0.80 - 1.50	CARBIDE Vc [m/min] Ø D1 1.60 - 5.00	C-TOP Vc [m/min] Ø D1 1.60 - 5.00
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**120** - 280
P	Low alloyed steel < 800 N/mm²	6 - 9		**25** - 50		**50** - 125		**90** - 230
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**25** - 35		**50** - 85		**90** - 130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**25** - 50		**50** - 150		**100** - 230
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**20** - 45		**50** - 115		**75** - 180
K	Grey cast iron < 250 HB	15 - 16	**20** - 40	**30** - 50	**45** - 105	**50** - 150	**70** - 165	**150** - 280
K	Ductile, malleable, nodular cast iron >250 HB	17 - 20	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**110** - 250
N	Copper alloy good machinability with Pb	26	**20** - 40	**30** - 50	**50** - 105	**50** - 150	**80** - 165	**150** - 300
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**130** - 280
N	Gold, silver	-	**20** - 45	**30** - 50	**50** - 110	**50** - 150	**75** - 170	**160** - 320
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 30		**40** - 80		**60** - 120
S	Titanium, titanium alloy	36 - 37	**15** - 30	**30** - 45	**35** - 80	**50** - 110	**55** - 120	**120** - 170

SLOTTING



		VDI 3323	CARBIDE Vc [m/min] Ø D1 0.30 - 0.70	C-TOP Vc [m/min] Ø D1 0.30 - 0.70	CARBIDE Vc [m/min] Ø D1 0.80 - 1.50	C-TOP Vc [m/min] Ø D1 0.80 - 1.50	CARBIDE Vc [m/min] Ø D1 1.60 - 5.00	C-TOP Vc [m/min] Ø D1 1.60 - 5.00
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 150		**100** - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 50		**50** - 125		**75** - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 30		**50** - 70		**75** - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 50		**50** - 125		**85** - 195
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 40		**40** - 100		**65** - 155
K	Grey cast iron < 250 HB	15 - 16	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**130** - 240
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 50	**35** - 80	**50** - 140	**50** - 120	**95** - 215
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 150	**70** - 140	**130** - 255
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 150	**50** - 120	**110** - 240
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 150	**65** - 145	**135** - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 25		**30** - 65		**50** - 100
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 95	**45** - 100	**100** - 145

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

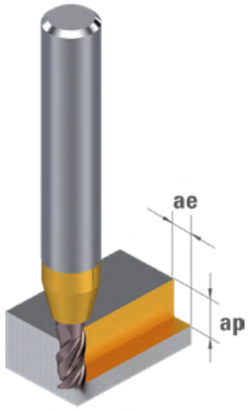
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.90×Ø <1.50×Ø	0.003 - 0.006	<0.90×Ø <1.50×Ø	0.005 - 0.012	<0.90×Ø <1.50×Ø	0.010 - 0.022	<0.90×Ø <1.50×Ø	0.018 - 0.036	<0.90×Ø <1.50×Ø
0.002 - 0.003	<0.90×Ø <1.50×Ø	0.003 - 0.005	<0.90×Ø <1.50×Ø	0.004 - 0.010	<0.90×Ø <1.50×Ø	0.009 - 0.019	<0.90×Ø <1.50×Ø	0.016 - 0.032	<0.90×Ø <1.50×Ø
0.002 - 0.003	<0.90×Ø <1.50×Ø	0.003 - 0.005	<0.90×Ø <1.50×Ø	0.004 - 0.010	<0.90×Ø <1.50×Ø	0.008 - 0.018	<0.90×Ø <1.50×Ø	0.015 - 0.030	<0.90×Ø <1.50×Ø
0.002 - 0.003	<0.90×Ø <1.50×Ø	0.003 - 0.005	<0.90×Ø <1.50×Ø	0.004 - 0.010	<0.90×Ø <1.50×Ø	0.008 - 0.018	<0.90×Ø <1.50×Ø	0.015 - 0.030	<0.90×Ø <1.50×Ø
0.001 - 0.003	<0.90×Ø <1.50×Ø	0.002 - 0.005	<0.90×Ø <1.50×Ø	0.004 - 0.009	<0.90×Ø <1.50×Ø	0.008 - 0.017	<0.90×Ø <1.50×Ø	0.014 - 0.028	<0.90×Ø <1.50×Ø
0.002 - 0.005	<0.90×Ø <1.50×Ø	0.004 - 0.007	<0.90×Ø <1.50×Ø	0.006 - 0.015	<0.90×Ø <1.50×Ø	0.012 - 0.028	<0.90×Ø <1.50×Ø	0.023 - 0.046	<0.90×Ø <1.50×Ø
0.002 - 0.004	<0.90×Ø <1.50×Ø	0.003 - 0.006	<0.90×Ø <1.50×Ø	0.005 - 0.013	<0.90×Ø <1.50×Ø	0.011 - 0.024	<0.90×Ø <1.50×Ø	0.020 - 0.040	<0.90×Ø <1.50×Ø
0.003 - 0.005	<0.90×Ø <1.50×Ø	0.005 - 0.009	<0.90×Ø <1.50×Ø	0.007 - 0.017	<0.90×Ø <1.50×Ø	0.014 - 0.032	<0.90×Ø <1.50×Ø	0.027 - 0.054	<0.90×Ø <1.50×Ø
0.002 - 0.004	<0.90×Ø <1.50×Ø	0.004 - 0.007	<0.90×Ø <1.50×Ø	0.006 - 0.014	<0.90×Ø <1.50×Ø	0.012 - 0.026	<0.90×Ø <1.50×Ø	0.022 - 0.044	<0.90×Ø <1.50×Ø
0.002 - 0.004	<0.90×Ø <1.50×Ø	0.003 - 0.006	<0.90×Ø <1.50×Ø	0.005 - 0.013	<0.90×Ø <1.50×Ø	0.011 - 0.024	<0.90×Ø <1.50×Ø	0.020 - 0.040	<0.90×Ø <1.50×Ø
0.001 - 0.002	<0.90×Ø <1.50×Ø	0.002 - 0.003	<0.90×Ø <1.50×Ø	0.002 - 0.006	<0.90×Ø <1.50×Ø	0.005 - 0.011	<0.90×Ø <1.50×Ø	0.009 - 0.018	<0.90×Ø <1.50×Ø
0.002 - 0.004	<0.90×Ø <1.50×Ø	0.004 - 0.007	<0.90×Ø <1.50×Ø	0.006 - 0.014	<0.90×Ø <1.50×Ø	0.012 - 0.026	<0.90×Ø <1.50×Ø	0.022 - 0.044	<0.90×Ø <1.50×Ø

Feed per tooth fz [mm]

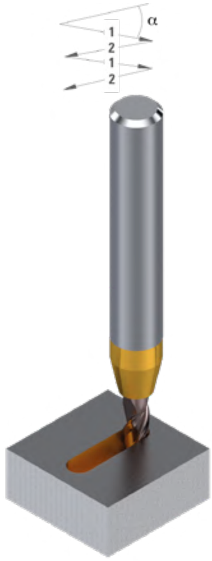
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0015 - 0.0030	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.010	<1.50×Ø	0.008 - 0.018	<1.50×Ø	0.015 - 0.030	<1.50×Ø
0.0014 - 0.0028	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.004 - 0.009	<1.50×Ø	0.007 - 0.017	<1.50×Ø	0.014 - 0.028	<1.50×Ø
0.0013 - 0.0026	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.003 - 0.008	<1.50×Ø	0.007 - 0.016	<1.50×Ø	0.013 - 0.026	<1.50×Ø
0.0013 - 0.0026	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.003 - 0.008	<1.50×Ø	0.007 - 0.016	<1.50×Ø	0.013 - 0.026	<1.50×Ø
0.0012 - 0.0024	<0.25×Ø	0.002 - 0.004	<0.50×Ø	0.003 - 0.008	<1.00×Ø	0.007 - 0.015	<1.00×Ø	0.012 - 0.024	<1.00×Ø
0.0020 - 0.0040	<0.50×Ø	0.003 - 0.006	<1.00×Ø	0.005 - 0.013	<1.50×Ø	0.011 - 0.024	<1.50×Ø	0.020 - 0.040	<1.50×Ø
0.0017 - 0.0034	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.011	<1.50×Ø	0.009 - 0.020	<1.50×Ø	0.017 - 0.034	<1.50×Ø
0.0023 - 0.0046	<0.50×Ø	0.004 - 0.007	<1.00×Ø	0.006 - 0.015	<1.50×Ø	0.012 - 0.028	<1.50×Ø	0.023 - 0.046	<1.50×Ø
0.0018 - 0.0036	<0.50×Ø	0.003 - 0.006	<1.00×Ø	0.005 - 0.012	<1.50×Ø	0.010 - 0.022	<1.50×Ø	0.018 - 0.036	<1.50×Ø
0.0017 - 0.0034	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.011	<1.50×Ø	0.009 - 0.020	<1.50×Ø	0.017 - 0.034	<1.50×Ø
0.0008 - 0.0016	<0.50×Ø	0.001 - 0.002	<0.25×Ø	0.002 - 0.005	<0.50×Ø	0.004 - 0.009	<1.00×Ø	0.008 - 0.016	<1.00×Ø
0.0018 - 0.0036	<0.25×Ø	0.003 - 0.006	<1.00×Ø	0.005 - 0.012	<1.50×Ø	0.010 - 0.022	<1.50×Ø	0.018 - 0.036	<1.50×Ø

ROUTING / FINISHING



		VDI 3323	Ø D_1 0.30 - 0.70		Ø D_1 0.80 - 1.50		Ø D_1 1.60 - 5.00	
			CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**150** - 350
P	Low alloyed steel < 800 N/mm²	6 - 9		**30** - 50		**50** - 150		**110** - 290
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**30** - 40		**50** - 105		**110** - 160
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**30** - 50		**50** - 150		**130** - 290
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**25** - 50		**50** - 150		**90** - 230
K	Grey cast iron < 250 HB	15 - 16	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**190** - 350
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**140** - 310
N	Copper alloy good machinability with Pb	26	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**100** - 210	**190** - 380
N	Copper alloy with difficult machinability	27 - 28	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**160** - 350
N	Gold, silver	-	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**200** - 400
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		**50** - 135		**80** - 150
S	Titanium, titanium alloy	36 - 37	**20** - 40	**30** - 50	**45** -150	**50** - 110	**70** - 150	**150** - 210

RAMPING



		VDI 3323	Ø D_1 0.30 - 0.70		Ø D_1 0.80 - 1.50		Ø D_1 1.60 - 5.00	
			CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 125		**100** - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 40		**50** - 100		**75** - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 25		**50** - 60		**75** - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 40		**50** - 100		**85** - 155
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 30		**40** - 80		**65** - 120
K	Grey cast iron < 250 HB	15 - 16	**15** - 35	**30** - 50	**40** - 90	**50** - 125	**60** - 140	**130** - 190
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 45	**35** - 80	**50** - 110	**50** - 120	**95** - 170
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 135	**70** - 140	**130** - 205
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 125	**50** - 120	**110** - 190
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 145	**65** - 145	**135** - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 20		**30** - 50		**50** - 80
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 75	**45** - 100	**100** - 115

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

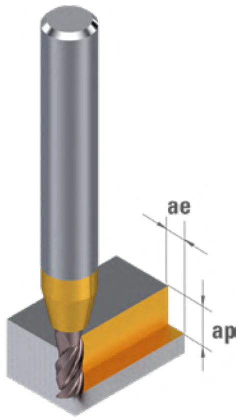
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.30×Ø <1.50×Ø	0.003 - 0.006	<0.30×Ø <1.50×Ø	0.005 - 0.012	<0.30×Ø <1.50×Ø	0.010 - 0.022	<0.30×Ø <1.50×Ø	0.018 - 0.036	<0.30×Ø <1.50×Ø
0.002 - 0.003	<0.30×Ø <1.50×Ø	0.003 - 0.005	<0.30×Ø <1.50×Ø	0.004 - 0.010	<0.30×Ø <1.50×Ø	0.009 - 0.019	<0.30×Ø <1.50×Ø	0.016 - 0.032	<0.30×Ø <1.50×Ø
0.002 - 0.003	<0.30×Ø <1.50×Ø	0.003 - 0.005	<0.30×Ø <1.50×Ø	0.004 - 0.010	<0.30×Ø <1.50×Ø	0.008 - 0.018	<0.30×Ø <1.50×Ø	0.015 - 0.030	<0.30×Ø <1.50×Ø
0.002 - 0.003	<0.30×Ø <1.50×Ø	0.003 - 0.005	<0.30×Ø <1.50×Ø	0.004 - 0.010	<0.30×Ø <1.50×Ø	0.008 - 0.018	<0.30×Ø <1.50×Ø	0.015 - 0.030	<0.30×Ø <1.50×Ø
0.001 - 0.003	<0.30×Ø <1.50×Ø	0.002 - 0.005	<0.30×Ø <1.50×Ø	0.004 - 0.009	<0.30×Ø <1.50×Ø	0.008 - 0.017	<0.30×Ø <1.50×Ø	0.014 - 0.028	<0.30×Ø <1.50×Ø
0.002 - 0.005	<0.30×Ø <1.50×Ø	0.004 - 0.007	<0.30×Ø <1.50×Ø	0.006 - 0.015	<0.30×Ø <1.50×Ø	0.012 - 0.028	<0.30×Ø <1.50×Ø	0.023 - 0.046	<0.30×Ø <1.50×Ø
0.002 - 0.004	<0.30×Ø <1.50×Ø	0.003 - 0.006	<0.30×Ø <1.50×Ø	0.005 - 0.013	<0.30×Ø <1.50×Ø	0.011 - 0.024	<0.30×Ø <1.50×Ø	0.020 - 0.040	<0.30×Ø <1.50×Ø
0.003 - 0.005	<0.30×Ø <1.50×Ø	0.005 - 0.009	<0.30×Ø <1.50×Ø	0.007 - 0.017	<0.30×Ø <1.50×Ø	0.014 - 0.032	<0.30×Ø <1.50×Ø	0.027 - 0.054	<0.30×Ø <1.50×Ø
0.002 - 0.004	<0.30×Ø <1.50×Ø	0.004 - 0.007	<0.30×Ø <1.50×Ø	0.006 - 0.014	<0.30×Ø <1.50×Ø	0.012 - 0.026	<0.30×Ø <1.50×Ø	0.022 - 0.044	<0.30×Ø <1.50×Ø
0.002 - 0.004	<0.30×Ø <1.50×Ø	0.003 - 0.006	<0.30×Ø <1.50×Ø	0.005 - 0.013	<0.30×Ø <1.50×Ø	0.011 - 0.024	<0.30×Ø <1.50×Ø	0.020 - 0.040	<0.30×Ø <1.50×Ø
0.001 - 0.002	<0.30×Ø <1.50×Ø	0.002 - 0.003	<0.30×Ø <1.50×Ø	0.002 - 0.006	<0.30×Ø <1.50×Ø	0.005 - 0.011	<0.30×Ø <1.50×Ø	0.009 - 0.018	<0.30×Ø <1.50×Ø
0.002 - 0.004	<0.30×Ø <1.50×Ø	0.004 - 0.007	<0.30×Ø <1.50×Ø	0.006 - 0.014	<0.30×Ø <1.50×Ø	0.012 - 0.026	<0.30×Ø <1.50×Ø	0.022 - 0.044	<0.30×Ø <1.50×Ø

Feed per tooth fz [mm]

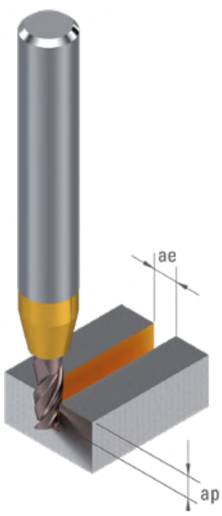
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00	
fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)
0.0010 - 0.0020	<30°	0.002 - 0.003	<30°	0.003 - 0.006	<30°	0.005 - 0.012	<30°	0.010 - 0.020	<30°
0.0009 - 0.0018	<30°	0.001 - 0.003	<30°	0.002 - 0.006	<30°	0.005 - 0.011	<30°	0.009 - 0.018	<30°
0.0008 - 0.0016	<30°	0.001 - 0.003	<30°	0.002 - 0.005	<30°	0.004 - 0.010	<30°	0.008 - 0.016	<30°
0.0008 - 0.0016	<30°	0.001 - 0.003	<30°	0.002 - 0.005	<30°	0.004 - 0.010	<30°	0.008 - 0.016	<30°
0.0008 - 0.0016	<15°	0.001 - 0.003	<15°	0.002 - 0.005	<15°	0.004 - 0.010	<15°	0.008 - 0.016	<15°
0.0013 - 0.0026	<30°	0.002 - 0.004	<30°	0.003 - 0.008	<30°	0.007 - 0.015	<30°	0.013 - 0.026	<30°
0.0011 - 0.0022	<30°	0.002 - 0.003	<30°	0.003 - 0.007	<30°	0.006 - 0.013	<30°	0.011 - 0.022	<30°
0.0015 - 0.0030	<35°	0.002 - 0.005	<35°	0.004 - 0.010	<35°	0.008 - 0.018	<35°	0.015 - 0.030	<35°
0.0012 - 0.0024	<35°	0.002 - 0.004	<35°	0.003 - 0.008	<35°	0.006 - 0.014	<35°	0.012 - 0.024	<35°
0.0011 - 0.0022	<35°	0.002 - 0.003	<35°	0.003 - 0.007	<35°	0.006 - 0.013	<35°	0.011 - 0.022	<35°
0.0005 - 0.0010	<8°	0.001 - 0.002	<8°	0.001 - 0.003	<8°	0.003 - 0.006	<8°	0.005 - 0.010	<8°
0.0012 - 0.0024	<15°	0.002 - 0.004	<15°	0.003 - 0.008	<15°	0.006 - 0.014	<15°	0.012 - 0.024	<15°

ROUTING / ROUGHING



		VDI 3323	Ø D1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		30 - 50		50 - 150		120 - 280
P	Low alloyed steel < 800 N/mm²	6 - 9		25 - 50		50 - 125		90 - 230
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		25 - 35		50 - 85		90 - 130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		25 - 50		50 - 150		100 - 230
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		20 - 45		50 - 115		75 - 180
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	15 - 35	30 - 50	40 - 90	50 - 150	60 - 140	110 - 250
N	Copper alloy good machinability with Pb	26	20 - 40	30 - 50	50 - 105	50 - 150	80 - 165	150 - 300
N	Copper alloy with difficult machinability	27 - 28	15 - 35	30 - 50	40 - 90	50 - 150	60 - 140	130 - 280
N	Gold, silver	-	20 - 45	30 - 50	50 - 110	50 - 150	75 - 170	160 - 320
S	Refractory alloy, Fe, Ni, Co base	31 - 35		15 - 30		40 - 80		60 - 120
S	Titanium, titanium alloy	36 - 37	15 - 30	30 - 45	35 - 80	50 - 110	55 - 120	120 - 170

SLOTTING



		VDI 3323	Ø D1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		25 - 50		50 - 150		100 - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		20 - 50		50 - 125		75 - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		20 - 30		50 - 70		75 - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		20 - 50		50 - 125		85 - 195
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		15 - 40		40 - 100		65 - 155
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	15 - 30	25 - 50	35 - 80	50 - 140	50 - 120	95 - 215
N	Copper alloy good machinability with Pb	26	20 - 35	30 - 50	45 - 90	50 - 150	70 - 140	130 - 255
N	Copper alloy with difficult machinability	27 - 28	15 - 35	30 - 50	35 - 80	50 - 150	50 - 120	110 - 240
N	Gold, silver	-	15 - 30	30 - 50	40 - 95	50 - 150	65 - 145	135 - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		15 - 25		30 - 65		50 - 100
S	Titanium, titanium alloy	36 - 37	10 - 25	25 - 35	30 - 65	50 - 95	45 - 100	100 - 145

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

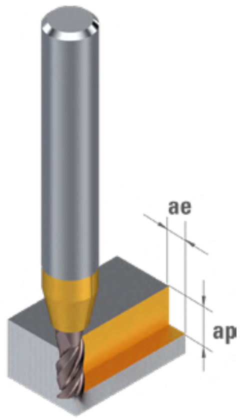
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.010 - 0.022	<0.90×Ø <2.00×Ø	0.018 - 0.036	<0.90×Ø <2.00×Ø	0.025 - 0.060	<0.30×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.009 - 0.019	<0.90×Ø <2.00×Ø	0.016 - 0.032	<0.90×Ø <2.00×Ø	0.023 - 0.054	<0.25×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.018	<0.90×Ø <2.00×Ø	0.015 - 0.030	<0.90×Ø <2.00×Ø	0.021 - 0.052	<0.25×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.018	<0.90×Ø <2.00×Ø	0.015 - 0.030	<0.90×Ø <2.00×Ø	0.021 - 0.052	<0.25×Ø <2.00×Ø
0.001 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.009	<0.90×Ø <2.00×Ø	0.008 - 0.017	<0.90×Ø <2.00×Ø	0.014 - 0.028	<0.90×Ø <2.00×Ø	0.020 - 0.048	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.013	<0.90×Ø <2.00×Ø	0.011 - 0.024	<0.90×Ø <2.00×Ø	0.020 - 0.040	<0.90×Ø <2.00×Ø	0.028 - 0.066	<0.30×Ø <2.00×Ø
0.003 - 0.005	<0.90×Ø <2.00×Ø	0.005 - 0.009	<0.90×Ø <2.00×Ø	0.007 - 0.017	<0.90×Ø <2.00×Ø	0.014 - 0.032	<0.90×Ø <2.00×Ø	0.027 - 0.054	<0.90×Ø <2.00×Ø	0.038 - 0.090	<0.15×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.007	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.012 - 0.026	<0.90×Ø <2.00×Ø	0.022 - 0.044	<0.90×Ø <2.00×Ø	0.030 - 0.072	<0.30×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.013	<0.90×Ø <2.00×Ø	0.011 - 0.024	<0.90×Ø <2.00×Ø	0.020 - 0.040	<0.90×Ø <2.00×Ø	0.028 - 0.066	<0.30×Ø <2.00×Ø
0.001 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.011	<0.90×Ø <2.00×Ø	0.009 - 0.018	<0.90×Ø <2.00×Ø	0.013 - 0.030	<0.30×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.007	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.012 - 0.026	<0.90×Ø <2.00×Ø	0.022 - 0.044	<0.90×Ø <2.00×Ø	0.030 - 0.072	<0.30×Ø <2.00×Ø

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0015-0.0030	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.010	<2.00×Ø	0.008 - 0.018	<2.00×Ø	0.015 - 0.030	<2.00×Ø	0.025 - 0.048	<1.00×Ø
0.0014-0.0020	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.004 - 0.009	<2.00×Ø	0.007 - 0.017	<2.00×Ø	0.014 - 0.028	<2.00×Ø	0.023 - 0.044	<1.00×Ø
0.0013-0.0026	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.003 - 0.008	<2.00×Ø	0.007 - 0.016	<2.00×Ø	0.013 - 0.026	<2.00×Ø	0.021 - 0.040	<1.00×Ø
0.0013-0.0026	<0.50×Ø	0.002 - 0.004	<1.00×Ø	0.003 - 0.008	<2.00×Ø	0.007 - 0.016	<2.00×Ø	0.013 - 0.026	<2.00×Ø	0.021 - 0.040	<1.00×Ø
0.0012-0.0024	<0.25×Ø	0.002 - 0.004	<0.50×Ø	0.003 - 0.008	<1.00×Ø	0.007 - 0.015	<1.00×Ø	0.012 - 0.024	<1.00×Ø	0.020 - 0.038	<0.50×Ø
0.0017-0.0034	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.011	<2.00×Ø	0.009 - 0.020	<2.00×Ø	0.017 - 0.034	<2.00×Ø	0.028 - 0.052	<1.00×Ø
0.0023-0.0046	<0.50×Ø	0.004 - 0.007	<1.00×Ø	0.006 - 0.015	<2.00×Ø	0.012 - 0.028	<2.00×Ø	0.023 - 0.046	<2.00×Ø	0.013 - 0.024	<1.00×Ø
0.0018-0.0036	<0.50×Ø	0.003 - 0.006	<1.00×Ø	0.005 - 0.012	<2.00×Ø	0.010 - 0.022	<2.00×Ø	0.018 - 0.036	<2.00×Ø	0.030 - 0.058	<1.00×Ø
0.0017-0.0034	<0.50×Ø	0.003 - 0.005	<1.00×Ø	0.004 - 0.011	<2.00×Ø	0.009 - 0.020	<2.00×Ø	0.017 - 0.034	<2.00×Ø	0.038 - 0.072	<1.00×Ø
0.0008-0.0016	<0.25×Ø	0.001 - 0.002	<0.25×Ø	0.002 - 0.005	<0.50×Ø	0.004 - 0.009	<1.00×Ø	0.008 - 0.016	<1.00×Ø	0.030 - 0.058	<0.50×Ø
0.0018-0.0036	<0.50×Ø	0.003 - 0.006	<1.00×Ø	0.005 - 0.012	<2.00×Ø	0.010 - 0.022	<2.00×Ø	0.018 - 0.036	<2.00×Ø	0.028 - 0.052	<1.00×Ø

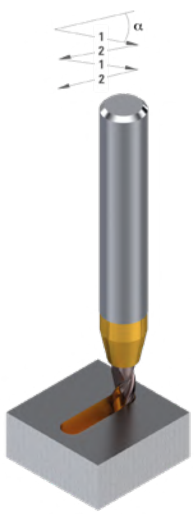
*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

ROUTING / FINISHING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**150** - 350
P	Low alloyed steel < 800 N/mm²	6 - 9		**30** - 50		**50** - 150		**110** - 290
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**30** - 40		**50** - 105		**110** - 160
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**30** - 50		**50** - 150		**130** - 290
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**25** - 50		**50** - 150		**90** - 230
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**140** - 310
N	Copper alloy good machinability with Pb	26	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**100** - 210	**190** - 380
N	Copper alloy with difficult machinability	27 - 28	**20** - 45	**30** - 50	**50** -150	**50** - 150	**80** - 180	**160** - 350
N	Gold, silver	-	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**200** - 400
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		**50** - 135		**80** - 150
S	Titanium, titanium alloy	36 - 37	**20** - 40	**30** - 50	**45** -150	**50** - 110	**70** - 150	**150** - 210

RAMPING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 125		**100** - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 40		**50** - 100		**75** - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 25		**50** - 60		**75** - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 40		**50** - 100		**85** - 155
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 30		**40** - 80		**65** - 120
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 45	**35** - 80	**50** - 110	**50** - 120	**95** - 170
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 135	**70** - 140	**130** - 205
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 125	**50** - 120	**110** - 190
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 145	**65** - 145	**135** - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 20		**30** - 50		**50** - 80
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 75	**45** - 100	**100** - 115

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

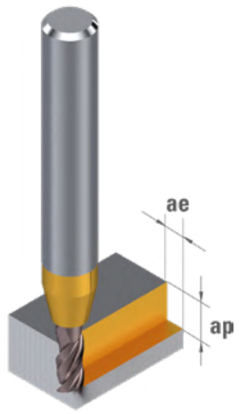
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.012	<0.20×Ø <2.00×Ø	0.010 - 0.022	<0.20×Ø <2.00×Ø	0.018 - 0.036	<0.20×Ø <2.00×Ø	0.030 - 0.060	<0.20×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.009 - 0.019	<0.15×Ø <2.00×Ø	0.016 - 0.032	<0.15×Ø <2.00×Ø	0.027 - 0.054	<0.15×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.008 - 0.018	<0.15×Ø <2.00×Ø	0.015 - 0.030	<0.15×Ø <2.00×Ø	0.026 - 0.052	<0.15×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.008 - 0.018	<0.15×Ø <2.00×Ø	0.015 - 0.030	<0.15×Ø <2.00×Ø	0.026 - 0.052	<0.15×Ø <2.00×Ø
0.001 - 0.003	<0.10×Ø <2.00×Ø	0.002 - 0.005	<0.10×Ø <2.00×Ø	0.004 - 0.009	<0.10×Ø <2.00×Ø	0.008 - 0.017	<0.10×Ø <2.00×Ø	0.014 - 0.028	<0.10×Ø <2.00×Ø	0.024 - 0.048	<0.10×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.024	<0.20×Ø <2.00×Ø	0.020 - 0.040	<0.20×Ø <2.00×Ø	0.033 - 0.066	<0.20×Ø <2.00×Ø
0.003 - 0.005	<0.20×Ø <2.00×Ø	0.005 - 0.009	<0.20×Ø <2.00×Ø	0.007 - 0.017	<0.20×Ø <2.00×Ø	0.014 - 0.032	<0.20×Ø <2.00×Ø	0.027 - 0.054	<0.20×Ø <2.00×Ø	0.045- 0.090	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.004 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.014	<0.20×Ø <2.00×Ø	0.012 - 0.026	<0.20×Ø <2.00×Ø	0.022 - 0.044	<0.20×Ø <2.00×Ø	0.036- 0.072	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.024	<0.20×Ø <2.00×Ø	0.020 - 0.040	<0.20×Ø <2.00×Ø	0.033- 0.066	<0.20×Ø <2.00×Ø
0.001 - 0.002	<0.08×Ø <2.00×Ø	0.002 - 0.003	<0.08×Ø <2.00×Ø	0.002 - 0.006	<0.08×Ø <2.00×Ø	0.005 - 0.011	<0.08×Ø <2.00×Ø	0.009 - 0.018	<0.08×Ø <2.00×Ø	0.015 - 0.030	<0.08×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.004 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.014	<0.20×Ø <2.00×Ø	0.012 - 0.026	<0.20×Ø <2.00×Ø	0.022 - 0.044	<0.20×Ø <2.00×Ø	0.036 - 0.072	<0.20×Ø <2.00×Ø

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)
0.0010 - 0.0020	<30°	0.002 - 0.003	<30°	0.003 - 0.006	<30°	0.005 - 0.012	<30°	0.010 - 0.020	<30°	0.025 - 0.048	<20°
0.0009 - 0.0018	<30°	0.001 - 0.003	<30°	0.002 - 0.006	<30°	0.005 - 0.011	<30°	0.009 - 0.018	<30°	0.023 - 0.044	<20°
0.0008 - 0.0016	<30°	0.001 - 0.003	<30°	0.002 - 0.005	<30°	0.004 - 0.010	<30°	0.008 - 0.016	<30°	0.021 - 0.040	<20°
0.0008 - 0.0016	<30°	0.001 - 0.003	<30°	0.002 - 0.005	<30°	0.004 - 0.010	<30°	0.008 - 0.016	<30°	0.021 - 0.040	<15°
0.0008 - 0.0016	<15°	0.001 - 0.003	<15°	0.002 - 0.005	<15°	0.004 - 0.010	<15°	0.008 - 0.016	<15°	0.020 - 0.038	<10°
0.0011 - 0.0022	<30°	0.002 - 0.003	<30°	0.003 - 0.007	<30°	0.006 - 0.013	<30°	0.011 - 0.022	<30°	0.028 - 0.052	<20°
0.0015 - 0.0030	<35°	0.002 - 0.005	<35°	0.004 - 0.010	<35°	0.008 - 0.018	<35°	0.015 - 0.030	<35°	0.038- 0.072	<25°
0.0012 - 0.0024	<35°	0.002 - 0.004	<35°	0.003 - 0.008	<35°	0.006 - 0.014	<35°	0.012 - 0.024	<35°	0.030- 0.058	<25°
0.0011 - 0.0022	<35°	0.002 - 0.003	<35°	0.003 - 0.007	<35°	0.006 - 0.013	<35°	0.011 - 0.022	<35°	0.028- 0.052	<25°
0.0005 - 0.0010	<8°	0.001 - 0.002	<8°	0.001 - 0.003	<8°	0.003 - 0.006	<8°	0.005 - 0.010	<8°	0.013 - 0.024	<5°
0.0012 - 0.0024	<15°	0.002 - 0.004	<15°	0.003 - 0.008	<15°	0.006 - 0.014	<15°	0.012 - 0.024	<15°	0.030 - 0.058	<15°

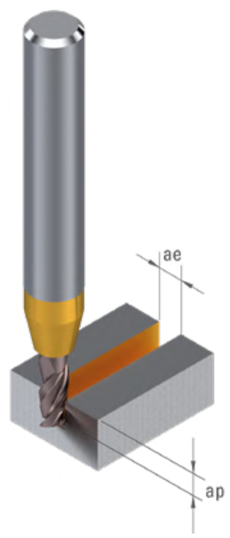
*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

ROUTING / ROUGHING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**120** - 280
P	Low alloyed steel < 800 N/mm²	6 - 9		**25** - 50		**50** - 125		**90** - 230
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**25** - 35		**50** - 85		**90** - 130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**25** - 50		**50** - 150		**100** - 230
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**20** - 45		**50** - 115		**75** - 180
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**110** - 250
N	Copper alloy good machinability with Pb	26	**20** - 40	**30** - 50	**50** - 105	**50** - 150	**80** - 165	**150** - 300
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**130** - 280
N	Gold, silver	-	**20** - 45	**30** - 50	**50** - 110	**50** - 150	**75** - 170	**160** - 320
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 30		**40** - 80		**60** - 120
S	Titanium, titanium alloy	36 - 37	**15** - 30	**30** - 45	**35** - 80	**50** - 110	**55** - 120	**120** - 170

SLOTTING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 150		**100** - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 50		**50** - 125		**75** - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 30		**50** - 70		**75** - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 50		**50** - 125		**85** - 195
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 40		**40** - 100		**65** - 155
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 50	**35** - 80	**50** - 140	**50** - 120	**95** - 215
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 150	**70** - 140	**130** - 255
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 150	**50** - 120	**110** - 240
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 150	**65** - 145	**135** - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 25		**30** - 65		**50** - 100
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 95	**45** - 100	**100** - 145

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

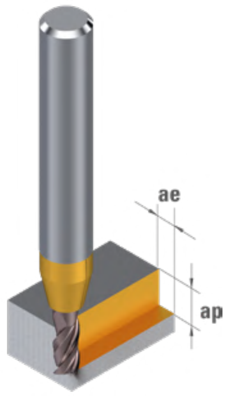
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.0002 - 0.0004	<0.90×Ø <2.00×Ø	0.0004 - 0.0009	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.009	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.010 - 0.024	<0.30×Ø <2.00×Ø
0.0002 - 0.0004	<0.90×Ø <2.00×Ø	0.0004 - 0.0008	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.008	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.009 - 0.022	<0.25×Ø <2.00×Ø
0.0002 - 0.0004	<0.90×Ø <2.00×Ø	0.0004 - 0.0007	<0.90×Ø <2.00×Ø	0.001 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.008	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.009 - 0.020	<0.25×Ø <2.00×Ø
0.0002 - 0.0004	<0.90×Ø <2.00×Ø	0.0004 - 0.0007	<0.90×Ø <2.00×Ø	0.001 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.008	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.009 - 0.020	<0.25×Ø <2.00×Ø
0.0002 - 0.0004	<0.90×Ø <2.00×Ø	0.0003 - 0.0007	<0.90×Ø <2.00×Ø	0.001 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.007	<0.90×Ø <2.00×Ø	0.005 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.020	<0.20×Ø <2.00×Ø
0.0002 - 0.0005	<0.90×Ø <2.00×Ø	0.0005 - 0.0010	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.010	<0.90×Ø <2.00×Ø	0.007 - 0.014	<0.90×Ø <2.00×Ø	0.0011 - 0.026	<0.30×Ø <2.00×Ø
0.0003 - 0.0007	<0.90×Ø <2.00×Ø	0.0006 - 0.0013	<0.90×Ø <2.00×Ø	0.001 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.014	<0.90×Ø <2.00×Ø	0.009 - 0.020	<0.90×Ø <2.00×Ø	0.0015- 0.036	<0.30×Ø <2.00×Ø
0.0002 - 0.0005	<0.90×Ø <2.00×Ø	0.0005 - 0.0010	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.011	<0.90×Ø <2.00×Ø	0.007 - 0.016	<0.90×Ø <2.00×Ø	0.0012- 0.028	<0.30×Ø <2.00×Ø
0.0002 - 0.0005	<0.90×Ø <2.00×Ø	0.0005 - 0.0010	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.010	<0.90×Ø <2.00×Ø	0.007 - 0.014	<0.90×Ø <2.00×Ø	0.0011 - 0.026	<0.30×Ø <2.00×Ø
0.0001 - 0.0002	<0.40×Ø <2.00×Ø	0.0002 - 0.0004	<0.50×Ø <2.00×Ø	0.0004 - 0.0010	<0.50×Ø <2.00×Ø	0.001 - 0.005	<0.50×Ø <2.00×Ø	0.003 - 0.006	<0.50×Ø <2.00×Ø	0.005 - 0.012	<0.15×Ø <2.00×Ø
0.0002 - 0.0005	<0.90×Ø <2.00×Ø	0.0005 - 0.0010	<0.90×Ø <2.00×Ø	0.001 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.011	<0.90×Ø <2.00×Ø	0.007 - 0.014	<0.90×Ø <2.00×Ø	0.012 - 0.028	<0.30×Ø <2.00×Ø

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0003 - 0.0006	<0.50×Ø	0.0005- 0.0012	<1.00×Ø	0.001 - 0.003	<2.00×Ø	0.002- 0.009	<2.00×Ø	0.008 - 0.016	<2.00×Ø	0.013 - 0.024	<1.00×Ø
0.0003 - 0.0006	<0.50×Ø	0.0005 - 0.0010	<1.00×Ø	0.0009 - 0.003	<2.00×Ø	0.002 - 0.008	<2.00×Ø	0.007 - 0.014	<2.00×Ø	0.011 - 0.022	<1.00×Ø
0.0003 - 0.0006	<0.50×Ø	0.0004 - 0.0010	<1.00×Ø	0.0008 - 0.003	<2.00×Ø	0.002 - 0.008	<2.00×Ø	0.006 - 0.012	<2.00×Ø	0.011 - 0.020	<1.00×Ø
0.0003 - 0.0006	<0.50×Ø	0.0004 - 0.0010	<1.00×Ø	0.0008 - 0.003	<2.00×Ø	0.002 - 0.008	<2.00×Ø	0.006 - 0.012	<2.00×Ø	0.011 - 0.020	<1.00×Ø
0.0002 - 0.0004	<0.25×Ø	0.0004 - 0.0009	<0.50×Ø	0.0008 - 0.003	<1.00×Ø	0.002 - 0.007	<1.00×Ø	0.006 - 0.012	<1.00×Ø	0.010 - 0.020	<0.25×Ø
0.0003 - 0.0006	<0.50×Ø	0.0006 - 0.0013	<1.00×Ø	0.0011 - 0.004	<2.00×Ø	0.003 - 0.010	<2.00×Ø	0.008 - 0.016	<2.00×Ø	0.014 - 0.026	<1.00×Ø
0.0005 - 0.0010	<0.80×Ø	0.0008 - 0.0017	<1.50×Ø	0.0014 - 0.005	<2.00×Ø	0.012 - 0.028	<2.00×Ø	0.011 - 0.022	<2.00×Ø	0.019 - 0.036	<1.50×Ø
0.0004 - 0.0008	<0.80×Ø	0.0006 - 0.0014	<1.50×Ø	0.0012 - 0.004	<2.00×Ø	0.010 - 0.022	<2.00×Ø	0.009 - 0.018	<2.00×Ø	0.015 - 0.028	<1.50×Ø
0.0003 - 0.0006	<0.80×Ø	0.0006 - 0.0013	<1.50×Ø	0.0011 - 0.004	<2.00×Ø	0.009 - 0.020	<2.00×Ø	0.008 - 0.016	<2.00×Ø	0.014 - 0.026	<1.50×Ø
0.0002 - 0.0004	<0.25×Ø	0.0003 - 0.0006	<0.25×Ø	0.0005 - 0.002	<0.50×Ø	0.001 - 0.005	<1.00×Ø	0.004 - 0.008	<1.00×Ø	0.006 - 0.012	<0.25×Ø
0.0003 - 0.0006	<0.50×Ø	0.0006 - 0.0013	<1.00×Ø	0.0011 - 0.004	<2.00×Ø	0.003 - 0.010	<2.00×Ø	0.009 - 0.018	<2.00×Ø	0.014 - 0.028	<1.00×Ø

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

ROUTING / FINISHING



		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**150** - 350
P	Low alloyed steel < 800 N/mm²	6 - 9		**30** - 50		**50** - 150		**110** - 290
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**30** - 40		**50** - 105		**110** - 160
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**30** - 50		**50** - 150		**130** - 290
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**25** - 50		**50** - 150		**90** - 230
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**140** - 310
N	Copper alloy good machinability with Pb	26	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**100** - 210	**190** - 380
N	Copper alloy with difficult machinability	27 - 28	**20** - 45	**30** - 50	**50** -150	**50** - 150	**80** - 180	**160** - 350
N	Gold, silver	-	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**200** - 400
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		**50** - 135		**80** - 150
S	Titanium, titanium alloy	36 - 37	**20** - 40	**30** - 50	**45** -150	**50** - 110	**70** - 150	**150** - 210

RAMPING

		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 150		**100** - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 50		**50** - 125		**75** - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 30		**50** - 70		**75** - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 50		**50** - 125		**85** - 195
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 40		**40** - 100		**65** - 155
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 50	**35** - 80	**50** - 140	**50** - 120	**95** - 215
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 150	**70** - 140	**130** - 255
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 150	**50** - 120	**110** - 240
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 150	**65** - 145	**135** - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 25		**30** - 65		**50** - 100
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 95	**45** - 100	**100** - 145

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.0005 - 0.0009	<0.20×Ø <2.00×Ø	0.0009 - 0.003	<0.20×Ø <2.00×Ø	0.002 - 0.008	<0.20×Ø <2.00×Ø	0.006 - 0.016	<0.20×Ø <2.00×Ø	0.014 - 0.027	<0.20×Ø <2.00×Ø	0.020 - 0.048	<0.20×Ø <2.00×Ø
0.0004 - 0.0008	<0.15×Ø <2.00×Ø	0.0008 - 0.003	<0.15×Ø <2.00×Ø	0.002 - 0.007	<0.15×Ø <2.00×Ø	0.006 - 0.015	<0.15×Ø <2.00×Ø	0.012 - 0.024	<0.15×Ø <2.00×Ø	0.018- 0.044	<0.15×Ø <2.00×Ø
0.0004 - 0.0008	<0.15×Ø <2.00×Ø	0.0007 - 0.002	<0.15×Ø <2.00×Ø	0.002 - 0.007	<0.15×Ø <2.00×Ø	0.005 - 0.014	<0.15×Ø <2.00×Ø	0.011 - 0.023	<0.15×Ø <2.00×Ø	0.017 - 0.040	<0.15×Ø <2.00×Ø
0.0004 - 0.0008	<0.15×Ø <2.00×Ø	0.0007 - 0.002	<0.15×Ø <2.00×Ø	0.002 - 0.007	<0.15×Ø <2.00×Ø	0.005 - 0.014	<0.15×Ø <2.00×Ø	0.011 - 0.023	<0.15×Ø <2.00×Ø	0.017 - 0.040	<0.15×Ø <2.00×Ø
0.0004 - 0.0007	<0.10×Ø <2.00×Ø	0.0007 - 0.002	<0.10×Ø <2.00×Ø	0.002 - 0.006	<0.10×Ø <2.00×Ø	0.005 - 0.013	<0.10×Ø <2.00×Ø	0.011 - 0.022	<0.10×Ø <2.00×Ø	0.016 - 0.038	<0.10×Ø <2.00×Ø
0.0005 - 0.0010	<0.20×Ø <2.00×Ø	0.0009 - 0.003	<0.20×Ø <2.00×Ø	0.003 - 0.008	<0.20×Ø <2.00×Ø	0.007 - 0.018	<0.20×Ø <2.00×Ø	0.015 - 0.030	<0.20×Ø <2.00×Ø	0.022 - 0.052	<0.20×Ø <2.00×Ø
0.0008- 0.0015	<0.20×Ø <2.00×Ø	0.0014- 0.005	<0.20×Ø <2.00×Ø	0.004 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.028	<0.20×Ø <2.00×Ø	0.023 - 0.046	<0.20×Ø <2.00×Ø	0.034- 0.082	<0.20×Ø <2.00×Ø
0.0006 - 0.0013	<0.20×Ø <2.00×Ø	0.0012 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.011	<0.20×Ø <2.00×Ø	0.009 - 0.023	<0.20×Ø <2.00×Ø	0.019- 0.038	<0.20×Ø <2.00×Ø	0.028- 0.068	<0.20×Ø <2.00×Ø
0.0006 - 0.0012	<0.20×Ø <2.00×Ø	0.0011 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.010	<0.20×Ø <2.00×Ø	0.008 - 0.021	<0.20×Ø <2.00×Ø	0.018 - 0.035	<0.20×Ø <2.00×Ø	0.026- 0.062	<0.20×Ø <2.00×Ø
0.0002 - 0.0005	<0.08×Ø <2.00×Ø	0.0004 - 0.001	<0.08×Ø <2.00×Ø	0.001 - 0.004	<0.08×Ø <2.00×Ø	0.003 - 0.008	<0.08×Ø <2.00×Ø	0.007 - 0.014	<0.08×Ø <2.00×Ø	0.010 - 0.024	<0.08×Ø <2.00×Ø
0.0005- 0.0011	<0.20×Ø <2.00×Ø	0.001- 0.003	<0.20×Ø <2.00×Ø	0.003 - 0.009	<0.20×Ø <2.00×Ø	0.007 - 0.019	<0.20×Ø <2.00×Ø	0.016 - 0.031	<0.20×Ø <2.00×Ø	0.023 - 0.056	<0.20×Ø <2.00×Ø

Feed per tooth fz [mm]

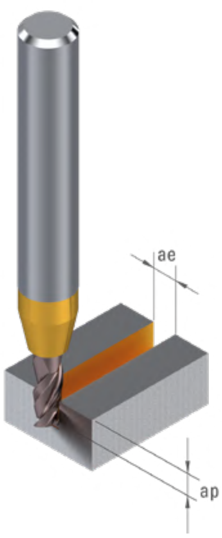
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)
0.0003 - 0.0006	<10°	0.0005- 0.0012	<10°	0.001 - 0.003	<10°	0.003- 0.007	<10°	0.006 - 0.012	<10°	0.010 - 0.024	<7.5°
0.0003 - 0.0006	<10°	0.0005 - 0.0010	<10°	0.0009 - 0.003	<10°	0.002 - 0.006	<10°	0.005 - 0.010	<10°	0.009 - 0.022	<7.5°
0.0003 - 0.0006	<10°	0.0004 - 0.0010	<10°	0.0008 - 0.003	<10°	0.002 - 0.006	<10°	0.005 - 0.010	<10°	0.009 - 0.020	<7.5°
0.0003 - 0.0006	<10°	0.0004 - 0.0010	<10°	0.0008 - 0.003	<10°	0.002 - 0.006	<10°	0.005 - 0.010	<10°	0.009 - 0.020	<7.5°
0.0002 - 0.0004	<5°	0.0004 - 0.0009	<5°	0.0008 - 0.003	<5°	0.002 - 0.006	<5°	0.005 - 0.010	<5°	0.008 - 0.020	<3.5°
0.0003 - 0.0006	<12.5°	0.0006 - 0.0013	<12.5°	0.0011 - 0.004	<12.5°	0.003 - 0.008	<12.5°	0.007 - 0.014	<12.5°	0.011 - 0.026	<10°
0.0005 - 0.0010	<12.5°	0.0008 - 0.0017	<12.5°	0.0014 - 0.005	<12.5°	0.004 - 0.011	<12.5°	0.009 - 0.018	<12.5°	0.015 - 0.036	<10°
0.0004 - 0.0008	<12.5°	0.0006 - 0.0014	<12.5°	0.0012 - 0.004	<12.5°	0.003 - 0.009	<12.5°	0.007 - 0.014	<12.5°	0.012 - 0.028	<10°
0.0003 - 0.0006	<12.5°	0.0006 - 0.0013	<12.5°	0.0011 - 0.004	<12.5°	0.003 - 0.008	<12.5°	0.007 - 0.014	<12.5°	0.011 - 0.026	<10°
0.0002 - 0.0004	<2.5°	0.0003 - 0.0006	<2.5°	0.0005 - 0.002	<2.5°	0.001 - 0.004	<2.5°	0.003 - 0.006	<2.5°	0.005 - 0.012	<2°
0.0004 - 0.0008	<5°	0.0006 - 0.0014	<5°	0.0012 - 0.004	<5°	0.003 - 0.009	<5°	0.007 - 0.014	<5°	0.012 - 0.028	<3.5°

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

RAMPING

			Ø D_1 0.30 - 1.50		Ø D_1 1.60 - 4.50		Ø D_1 4.60 - 10.00	
		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 125		**100** - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 40		**50** - 100		**75** - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 25		**50** - 60		**75** - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 40		**50** - 100		**85** - 155
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 30		**40** - 80		**65** - 120
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 45	**35** - 80	**50** - 110	**50** - 120	**95** - 170
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 135	**70** - 140	**130** - 205
N	Copper alloy with difficult machinability	27 - 28	**15** - 30	**30** - 50	**35** - 80	**50** - 125	**50** - 120	**110** - 190
N	Gold, silver	-	**15** - 35	**30** - 50	**40** - 95	**50** - 145	**65** - 145	**135** - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 20		**30** - 50		**50** - 80
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 75	**45** - 100	**100** - 115

SLOTTING



			Ø D_1 0.30 - 1.50		Ø D_1 1.60 - 4.50		Ø D_1 4.60 - 10.00	
		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	CARBIDE Vc [m/min]	C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 150		**100** - 240
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 50		**50** - 125		**75** - 195
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 30		**50** - 70		**75** - 110
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 50		**50** - 125		**85** - 195
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 40		**40** - 100		**65** - 155
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 50	**35** - 80	**50** - 140	**50** - 120	**95** - 215
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 150	**70** - 140	**130** - 255
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**35** - 80	**50** - 150	**50** - 120	**110** - 240
N	Gold, silver	-	**15** - 30	**30** - 50	**40** - 95	**50** - 150	**65** - 145	**135** - 270
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 25		**30** - 65		**50** - 100
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 95	**45** - 100	**100** - 145

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

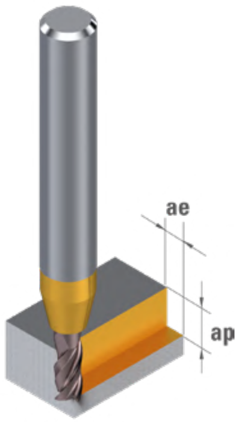
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)	fz	α(°)
0.0017 - 0.0034	<25°	0.003 - 0.005	<25°	0.005 - 0.011	<25°	0.009 - 0.021	<25°	0.017 - 0.034	<25°	0.025 - 0.048	<20°
0.0015 - 0.0030	<25°	0.003 - 0.005	<25°	0.004 - 0.010	<25°	0.008 - 0.018	<25°	0.015 - 0.030	<25°	0.023 - 0.044	<20°
0.0015 - 0.0030	<25°	0.002 - 0.005	<25°	0.004 - 0.009	<25°	0.008 - 0.017	<25°	0.015 - 0.030	<25°	0.021 - 0.040	<20°
0.0015 - 0.0030	<20°	0.002 - 0.005	<20°	0.004 - 0.009	<20°	0.008 - 0.017	<20°	0.015 - 0.030	<20°	0.021 - 0.040	<15°
0.0014 - 0.0028	<15°	0.002 - 0.004	<15°	0.004 - 0.009	<15°	0.007 - 0.016	<15°	0.014 - 0.028	<15°	0.020 - 0.038	<10°
0.0019 - 0.0038	<25°	0.003 - 0.006	<25°	0.005 - 0.012	<25°	0.010 - 0.023	<25°	0.019 - 0.038	<25°	0.028 - 0.052	<20°
0.0026 - 0.0052	<30°	0.004 - 0.008	<30°	0.007 - 0.016	<30°	0.014 - 0.031	<30°	0.026 - 0.052	<30°	0.038 - 0.072	<25°
0.0021 - 0.0042	<30°	0.003 - 0.007	<30°	0.005 - 0.013	<30°	0.011 - 0.025	<30°	0.021 - 0.042	<30°	0.030 - 0.058	<25°
0.0019 - 0.0038	<30°	0.003 - 0.006	<30°	0.005 - 0.012	<30°	0.010 - 0.023	<30°	0.019 - 0.038	<30°	0.028 - 0.052	<25°
0.0009 - 0.0018	<10°	0.001 - 0.003	<10°	0.002 - 0.005	<10°	0.005 - 0.010	<10°	0.009 - 0.018	<10°	0.013 - 0.024	<5°
0.0021 - 0.0042	<20°	0.003 - 0.007	<20°	0.005 - 0.013	<20°	0.011 - 0.025	<20°	0.021 - 0.042	<20°	0.030 - 0.058	<15°

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0015 - 0.0030	< 0.50 × Ø	0.003 - 0.005	< 1.00 × Ø	0.004 - 0.010	< 2.00 × Ø	0.008 - 0.018	< 2.00 × Ø	0.015 - 0.030	< 2.00 × Ø	0.025 - 0.048	< 1.00 × Ø
0.0014 - 0.0028	< 0.50 × Ø	0.002 - 0.004	< 1.00 × Ø	0.004 - 0.009	< 2.00 × Ø	0.007 - 0.017	< 2.00 × Ø	0.014 - 0.028	< 2.00 × Ø	0.023 - 0.044	< 1.00 × Ø
0.0013 - 0.0026	< 0.50 × Ø	0.002 - 0.004	< 1.00 × Ø	0.003 - 0.008	< 2.00 × Ø	0.007 - 0.016	< 2.00 × Ø	0.013 - 0.026	< 2.00 × Ø	0.021 - 0.040	< 1.00 × Ø
0.0013 - 0.0026	< 0.50 × Ø	0.002 - 0.004	< 1.00 × Ø	0.003 - 0.008	< 2.00 × Ø	0.007 - 0.016	< 2.00 × Ø	0.013 - 0.026	< 2.00 × Ø	0.021 - 0.040	< 1.00 × Ø
0.0012 - 0.0024	< 0.50 × Ø	0.002 - 0.004	< 1.00 × Ø	0.003 - 0.008	< 1.50 × Ø	0.007 - 0.015	< 1.00 × Ø	0.012 - 0.024	< 1.00 × Ø	0.020 - 0.038	< 0.50 × Ø
0.0017 - 0.0034	< 0.50 × Ø	0.003 - 0.005	< 1.00 × Ø	0.004 - 0.011	< 2.00 × Ø	0.009 - 0.020	< 2.00 × Ø	0.017 - 0.034	< 2.00 × Ø	0.028 - 0.052	< 1.00 × Ø
0.0023 - 0.0046	< 0.50 × Ø	0.004 - 0.007	< 1.00 × Ø	0.006 - 0.015	< 2.00 × Ø	0.009 - 0.020	< 2.00 × Ø	0.017 - 0.034	< 2.00 × Ø	0.038 - 0.072	< 1.00 × Ø
0.0018 - 0.0036	< 0.50 × Ø	0.003 - 0.006	< 1.00 × Ø	0.005 - 0.012	< 2.00 × Ø	0.004 - 0.009	< 2.00 × Ø	0.008 - 0.016	< 2.00 × Ø	0.030 - 0.058	< 1.00 × Ø
0.0017 - 0.0034	< 0.25 × Ø	0.003 - 0.005	< 1.00 × Ø	0.004 - 0.011	< 2.00 × Ø	0.010 - 0.022	< 2.00 × Ø	0.018 - 0.036	< 2.00 × Ø	0.028 - 0.052	< 1.00 × Ø
0.0008 - 0.0016	< 0.25 × Ø	0.001 - 0.002	< 0.50 × Ø	0.002 - 0.005	< 1.00 × Ø	0.004 - 0.009	< 1.00 × Ø	0.008 - 0.016	< 1.00 × Ø	0.013 - 0.024	< 0.50 × Ø
0.0018 - 0.0036	< 0.50 × Ø	0.003 - 0.006	< 1.00 × Ø	0.005 - 0.012	< 2.00 × Ø	0.010 - 0.022	< 2.00 × Ø	0.018 - 0.036	< 2.00 × Ø	0.030 - 0.058	< 1.00 × Ø

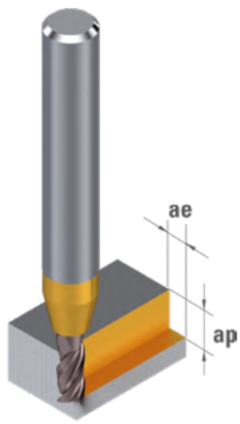
*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

ROUTING / ROUGHING



		VDI 3323	Ø D1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**120** - 180
P	Low alloyed steel < 800 N/mm²	6 - 9		**25** - 50		**50** - 150		**90** - 230
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**25** - 35		**50** - 85		**90** - 130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**25** - 50		**50** - 150		**100** - 230
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**20** - 45		**50** - 115		**75** - 180
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**110** - 250
N	Copper alloy good machinability with Pb	26	**20** - 40	**30** - 50	**50** - 105	**50** - 150	**80** - 165	**150** - 300
N	Copper alloy with difficult machinability	27 - 28	**15** - 35	**30** - 50	**40** - 90	**50** - 150	**60** - 140	**130** - 280
N	Gold, silver	-	**20** - 45	**30** - 50	**50** - 110	**50** - 150	**75** - 170	**160** - 320
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 30		**40** - 80		**60** - 120
S	Titanium, titanium alloy	36 - 37	**15** - 30	**30** - 45	**35** - 80	**50** - 110	**55** - 120	**120** - 170

ROUTING / FINISHING



		VDI 3323	Ø D1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**30** - 50		**50** - 150		**150** - 350
P	Low alloyed steel < 800 N/mm²	6 - 9		**30** - 50		**50** - 150		**110** - 290
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**30** - 40		**50** - 105		**110** - 160
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**30** - 50		**50** - 150		**130** - 290
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**25** - 50		**50** - 150		**90** - 230
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**140** - 310
N	Copper alloy good machinability with Pb	26	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**100** - 210	**190** - 380
N	Copper alloy with difficult machinability	27 - 28	**20** - 45	**30** - 50	**50** - 150	**50** - 150	**80** - 180	**160** - 350
N	Gold, silver	-	**25** - 50	**30** - 50	**50** - 150	**50** - 150	**90** - 210	**200** - 400
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**20** - 40		**50** - 135		**80** - 150
S	Titanium, titanium alloy	36 - 37	**20** - 40	**30** - 50	**45** - 150	**50** - 110	**70** - 150	**150** - 210

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.012	<0.90×Ø <2.00×Ø	0.010 - 0.022	<0.90×Ø <2.00×Ø	0.018 - 0.036	<0.90×Ø <2.00×Ø	0.025 - 0.060	<0.30×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.009 - 0.019	<0.90×Ø <2.00×Ø	0.016 - 0.032	<0.90×Ø <2.00×Ø	0.023 - 0.054	<0.25×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.018	<0.90×Ø <2.00×Ø	0.015 - 0.030	<0.90×Ø <2.00×Ø	0.021 - 0.052	<0.25×Ø <2.00×Ø
0.002 - 0.003	<0.90×Ø <2.00×Ø	0.003 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.010	<0.90×Ø <2.00×Ø	0.008 - 0.018	<0.90×Ø <2.00×Ø	0.015 - 0.030	<0.90×Ø <2.00×Ø	0.021 - 0.052	<0.25×Ø <2.00×Ø
0.001 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.005	<0.90×Ø <2.00×Ø	0.004 - 0.009	<0.90×Ø <2.00×Ø	0.008 - 0.017	<0.90×Ø <2.00×Ø	0.014 - 0.028	<0.90×Ø <2.00×Ø	0.020 - 0.048	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.013	<0.90×Ø <2.00×Ø	0.011 - 0.024	<0.90×Ø <2.00×Ø	0.020 - 0.040	<0.90×Ø <2.00×Ø	0.028 - 0.066	<0.30×Ø <2.00×Ø
0.003 - 0.005	<0.90×Ø <2.00×Ø	0.005 - 0.009	<0.90×Ø <2.00×Ø	0.007 - 0.017	<0.90×Ø <2.00×Ø	0.014 - 0.032	<0.90×Ø <2.00×Ø	0.027 - 0.054	<0.90×Ø <2.00×Ø	0.038 - 0.090	<0.30×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.007	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.012 - 0.026	<0.90×Ø <2.00×Ø	0.022 - 0.044	<0.90×Ø <2.00×Ø	0.030 - 0.072	<0.30×Ø <2.00×Ø
0.002 - 0.007	<0.90×Ø <2.00×Ø	0.003 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.013	<0.90×Ø <2.00×Ø	0.011 - 0.024	<0.90×Ø <2.00×Ø	0.020 - 0.040	<0.90×Ø <2.00×Ø	0.028 - 0.066	<0.30×Ø <2.00×Ø
0.001 - 0.002	<0.90×Ø <2.00×Ø	0.002 - 0.003	<0.90×Ø <2.00×Ø	0.002 - 0.006	<0.90×Ø <2.00×Ø	0.005 - 0.011	<0.90×Ø <2.00×Ø	0.009 - 0.018	<0.90×Ø <2.00×Ø	0.013 - 0.030	<0.15×Ø <2.00×Ø
0.002 - 0.004	<0.90×Ø <2.00×Ø	0.004 - 0.007	<0.90×Ø <2.00×Ø	0.006 - 0.014	<0.90×Ø <2.00×Ø	0.012 - 0.026	<0.90×Ø <2.00×Ø	0.022 - 0.044	<0.90×Ø <2.00×Ø	0.030 - 0.072	<0.30×Ø <2.00×Ø

Feed per tooth fz [mm]

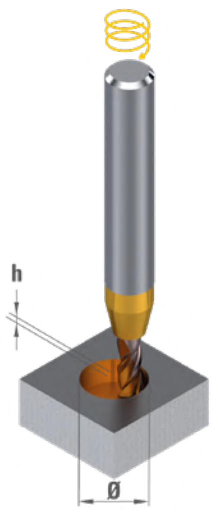
Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)	fz	ae ap (mm)
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.012	<0.20×Ø <2.00×Ø	0.010 - 0.022	<0.20×Ø <2.00×Ø	0.018 - 0.036	<0.20×Ø <2.00×Ø	0.030 - 0.060	<0.20×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.009 - 0.019	<0.15×Ø <2.00×Ø	0.016 - 0.032	<0.15×Ø <2.00×Ø	0.027 - 0.054	<0.15×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.008 - 0.018	<0.15×Ø <2.00×Ø	0.015 - 0.030	<0.15×Ø <2.00×Ø	0.026 - 0.052	<0.15×Ø <2.00×Ø
0.002 - 0.003	<0.15×Ø <2.00×Ø	0.003 - 0.005	<0.15×Ø <2.00×Ø	0.004 - 0.010	<0.15×Ø <2.00×Ø	0.008 - 0.018	<0.15×Ø <2.00×Ø	0.015 - 0.030	<0.15×Ø <2.00×Ø	0.026 - 0.052	<0.15×Ø <2.00×Ø
0.001 - 0.003	<0.10×Ø <2.00×Ø	0.002 - 0.005	<0.10×Ø <2.00×Ø	0.004 - 0.009	<0.10×Ø <2.00×Ø	0.008 - 0.017	<0.10×Ø <2.00×Ø	0.014 - 0.028	<0.10×Ø <2.00×Ø	0.024 - 0.048	<0.10×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.024	<0.20×Ø <2.00×Ø	0.020 - 0.040	<0.20×Ø <2.00×Ø	0.033 - 0.066	<0.20×Ø <2.00×Ø
0.003 - 0.005	<0.20×Ø <2.00×Ø	0.005 - 0.009	<0.20×Ø <2.00×Ø	0.007 - 0.017	<0.20×Ø <2.00×Ø	0.014 - 0.032	<0.20×Ø <2.00×Ø	0.027 - 0.054	<0.20×Ø <2.00×Ø	0.045 - 0.090	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.004 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.014	<0.20×Ø <2.00×Ø	0.012 - 0.026	<0.20×Ø <2.00×Ø	0.022 - 0.044	<0.20×Ø <2.00×Ø	0.036 - 0.072	<0.20×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.003 - 0.006	<0.20×Ø <2.00×Ø	0.005 - 0.013	<0.20×Ø <2.00×Ø	0.011 - 0.024	<0.20×Ø <2.00×Ø	0.020 - 0.040	<0.20×Ø <2.00×Ø	0.033 - 0.066	<0.20×Ø <2.00×Ø
0.001 - 0.002	<0.08×Ø <2.00×Ø	0.002 - 0.003	<0.08×Ø <2.00×Ø	0.002 - 0.006	<0.08×Ø <2.00×Ø	0.005 - 0.011	<0.08×Ø <2.00×Ø	0.009 - 0.018	<0.08×Ø <2.00×Ø	0.015 - 0.030	<0.08×Ø <2.00×Ø
0.002 - 0.004	<0.20×Ø <2.00×Ø	0.004 - 0.007	<0.20×Ø <2.00×Ø	0.006 - 0.014	<0.20×Ø <2.00×Ø	0.012 - 0.026	<0.20×Ø <2.00×Ø	0.022 - 0.044	<0.20×Ø <2.00×Ø	0.036 - 0.072	<0.20×Ø <2.00×Ø

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

DRILLING

		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 125		**100** - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 40		**50** - 100		**75** - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 25		**50** - 60		**75** - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 40		**50** - 100		**85** - 155
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 30		**40** - 80		**65** - 120
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 45	**35** - 80	**50** - 110	**50** - 120	**95** - 170
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 135	**70** - 140	**130** - 205
N	Copper alloy with difficult machinability	27 - 28	**15** - 30	**30** - 50	**35** - 80	**50** - 125	**50** - 120	**110** - 190
N	Gold, silver	-	**15** - 35	**30** - 50	**40** - 95	**50** - 145	**65** - 145	**135** - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 20		**30** - 50		**50** - 80
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 30	**30** - 65	**50** - 75	**45** - 100	**100** - 115

HELICAL MILLING



$h = \pi \times ø \times \tan \alpha$

$1.3xD_1 < ø < 1.9xD_1$

		VDI 3323	Ø D_1 0.30 - 1.50 CARBIDE Vc [m/min]	Ø D_1 0.30 - 1.50 C-TOP Vc [m/min]	Ø D_1 1.60 - 4.50 CARBIDE Vc [m/min]	Ø D_1 1.60 - 4.50 C-TOP Vc [m/min]	Ø D_1 4.60 - 10.00 CARBIDE Vc [m/min]	Ø D_1 4.60 - 10.00 C-TOP Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		**25** - 50		**50** - 125		**100** - 190
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 40		**50** - 100		**75** - 155
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 25		**50** - 60		**75** - 90
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 40		**50** - 100		**85** - 155
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**15** - 30		**40** - 80		**65** - 120
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**15** - 30	**25** - 45	**35** - 80	**50** - 110	**50** - 120	**95** - 170
N	Copper alloy good machinability with Pb	26	**20** - 35	**30** - 50	**45** - 90	**50** - 135	**70** - 140	**130** - 205
N	Copper alloy with difficult machinability	27 - 28	**15** - 30	**30** - 50	**35** - 80	**50** - 125	**50** - 120	**110** - 190
N	Gold, silver	-	**15** - 35	**30** - 50	**40** - 95	**50** - 145	**65** - 145	**135** - 220
S	Refractory alloy, Fe, Ni, Co base	31 - 35		**15** - 20		**30** - 50		**50** - 80
S	Titanium, titanium alloy	36 - 37	**10** - 25	**25** - 35	**30** - 65	**50** - 75	**45** - 100	**100** - 115

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)	fz	ap (mm)
0.0008 - 0.0016	<0.75×Ø	0.0014 - 0.0026	<1.00×Ø	0.0022 - 0.0052	<1.25×Ø	0.0035 - 0.008	<1.25×Ø	0.006 - 0.012	<1.25×Ø	0.007 - 0.016	<1.25×Ø
0.0008 - 0.0016	<0.50×Ø	0.0012 - 0.0024	<0.75×Ø	0.0020 - 0.0048	<1.00×Ø	0.0035 - 0.008	<1.00×Ø	0.005 - 0.010	<1.00×Ø	0.005 - 0.014	<1.00×Ø
0.0007 - 0.0014	<0.50×Ø	0.0012 - 0.0022	<0.75×Ø	0.0018 - 0.0044	<1.00×Ø	0.0030 - 0.007	<1.00×Ø	0.005 - 0.010	<1.00×Ø	0.004 - 0.010	<1.00×Ø
0.0005 - 0.0010	<0.25×Ø	0.0008 - 0.0016	<0.50×Ø	0.0014 - 0.0032	<0.75×Ø	0.0025 - 0.005	<0.75×Ø	0.004 - 0.008	<0.75×Ø	0.004 - 0.010	<0.75×Ø
0.0005 - 0.0010	<0.25×Ø	0.0008 - 0.0016	<0.50×Ø	0.0014 - 0.0032	<0.75×Ø	0.0025 - 0.005	<0.75×Ø	0.004 - 0.008	<0.75×Ø	0.004 - 0.010	<0.75×Ø
0.0007 - 0.0014	<0.75×Ø	0.0012 - 0.0022	<1.00×Ø	0.0018 - 0.0044	<1.25×Ø	0.0030 - 0.007	<1.25×Ø	0.005 - 0.010	<1.25×Ø	0.006 - 0.014	<1.25×Ø
0.0009 - 0.0018	<1×Ø	0.0016 - 0.0030	<1.25×Ø	0.0026 - 0.0060	<1.5×Ø	0.0045 - 0.010	<1.5×Ø	0.007 - 0.014	<1.5×Ø	0.008 - 0.018	< 1.5×Ø
0.0008 - 0.0016	<0.75×Ø	0.0012 - 0.0024	<1×Ø	0.0020 - 0.0048	<1.25×Ø	0.0035 - 0.008	<1.25×Ø	0.005 - 0.010	<1.25×Ø	0.006 - 0.014	<1.25×Ø
0.0007 - 0.0014	<0.75×Ø	0.0012 - 0.0022	<1×Ø	0.0018 - 0.0044	<1.25×Ø	0.0030 - 0.007	<1.25×Ø	0.005 - 0.010	<1.25×Ø	0.006 - 0.014	<1.25×Ø
0.0003 - 0.006	< 0×ØD1	0.0006 - 0.0010	<0.25× Ø	0.0008 - 0.0020	<0.5×Ø	0.0015 - 0.003	<0.5×Ø	0.002 - 0.004	<0.5×Ø	0.003 - 0.006	<0.5×Ø
0.0006 - 0.0012	<0.5×Ø	0.0001 - 0.0020	<0.75× Ø	0.0016 - 0.0040	<1×Ø	0.0030 - 0.006	<1×Ø	0.005- 0.010	<1×Ø	0.005 - 0.012	<1×Ø

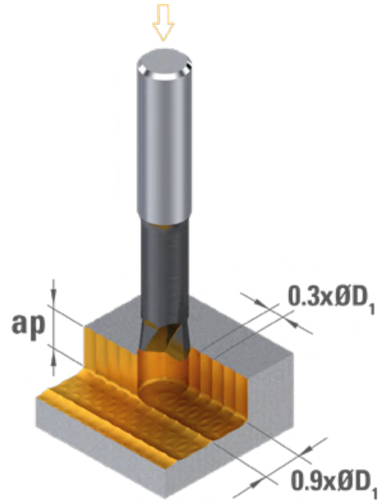
Feed per tooth fz [mm]

Ø D_1 0.30 - 0.50		Ø D_1 0.50 - 0.80		Ø D_1 0.80 - 1.60		Ø D_1 1.60 - 3.00		Ø D_1 3.00 - 5.00		Ø D_1 *5.00 - 10.00	
fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)	fz	α (°)
0.0017 - 0.0034	<20°	0.003 - 0.005	<25°	0.005 - 0.011	<25°	0.009 - 0.021	<25°	0.017 - 0.034	<25°	0.025 - 0.048	<20°
0.0015 - 0.0030	<20°	0.003 - 0.005	<25°	0.004 - 0.010	<25°	0.008 - 0.018	<25°	0.015 - 0.030	<25°	0.023 - 0.044	<20°
0.0015 - 0.0030	<20°	0.002 - 0.005	<25°	0.004 - 0.009	<25°	0.008 - 0.017	<25°	0.015 - 0.030	<25°	0.021 - 0.040	<20°
0.0015 - 0.0030	<15°	0.002 - 0.005	<20°	0.004 - 0.009	<20°	0.008 - 0.017	<20°	0.015 - 0.030	<20°	0.021 - 0.040	<15°
0.0014 - 0.0028	<10°	0.002 - 0.004	<15°	0.004 - 0.009	<15°	0.007 - 0.016	<15°	0.014 - 0.028	<15°	0.020 - 0.038	<10°
0.0022 - 0.0044	<20°	0.003 - 0.006	<25°	0.005 - 0.012	<25°	0.010 - 0.023	<25°	0.019 - 0.038	<25°	0.028 - 0.052	<20°
0.0026 - 0.0052	<25°	0.004 - 0.008	<30°	0.007 - 0.016	<30°	0.014 - 0.031	<30°	0.026 - 0.052	<30°	0.038 - 0.072	<25°
0.0021 - 0.0042	<25°	0.003 - 0.007	<30°	0.005 - 0.013	<30°	0.011 - 0.025	<30°	0.021 - 0.042	<30°	0.030 - 0.058	<25°
0.0019 - 0.0038	<25°	0.003 - 0.006	<30°	0.005 - 0.012	<30°	0.010 - 0.023	<30°	0.019 - 0.038	<30°	0.028 - 0.052	<25°
0.0009 - 0.0018	<5°	0.001 - 0.003	<10°	0.002 - 0.005	<10°	0.005 - 0.010	<10°	0.009 - 0.018	<10°	0.013 - 0.024	<5°
0.0021 - 0.0042	<15°	0.003 - 0.007	<20°	0.005 - 0.013	<20°	0.011 - 0.025	<20°	0.021 - 0.042	<20°	0.030 - 0.058	<15°

*D1 > 5.00mm --> Increase the cutting parameters if your spindle and workpiece support allow it.

PLUNGE MILLING

		VDI 3323	XIDUR Vc [m/min]	ap [mm]
P	Unalloyed steel, leaded steel	1 - 5	**175**	<1×ØD1
P	Low alloyed steel < 800 N/mm^2	6 - 9	**140**	<1×ØD1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	12 - 13	**80**	<0.8×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1 - 14.42	**60**	<1×ØD1
K	Grey cast iron < 250 HB	15 - 16	**110**	<1×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**70**	<1×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**300**	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**250**	<1×ØD1
N	Copper alloy with difficult machinability	26 - 28	**280**	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**80**	<0.8×ØD1
S	Titanium, titanium alloy	36 - 37	**70**	<0.8×ØD1
H	Hardened steel >45 HRC, hard cast iron	38 - 41	**50**	<0.8×ØD1



RAMPING

		VDI 3323	XIDUR Vc [m/min]	α [°]
P	Unalloyed steel, leaded steel	1 - 5	**200**	0.75
P	Low alloyed steel < 800 N/mm^2	6 - 9	**150**	0.75
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	12 - 13	**110**	0.50
M	Austenitic stainless steel < 700 N/mm^2	14.1 - 14.42	**80**	0.50
K	Grey cast iron < 250 HB	15 - 16	**150**	0.75
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**100**	0.75
N	Wrought aluminium alloy < 12% Si	21 - 22	**350**	1.20
N	Cast aluminium alloy >12% Si	23 - 25	**300**	1.00
N	Copper alloy with difficult machinability	26 - 28	**330**	1.20
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**60**	0.50
S	Titanium, titanium alloy	36 - 37	**80**	0.50
H	Hardened steel >45 HRC, hard cast iron	38 - 41	**200**	0.75

$$n\,[\mathrm{rpm}] = \frac{V_c\,[\mathrm{m/min}] \times 1000}{\pi \times D_1\,[\mathrm{mm}]}$$

$$V_f\,[\mathrm{mm/min}] = n\,[\mathrm{rpm}] \times f_z\,[\mathrm{mm}] \times Z$$

Feed per tooth fz [mm]

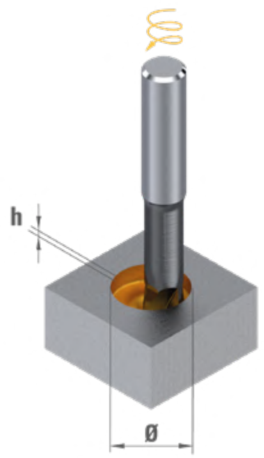
Ø D_1 0.50	Ø D_1 0.80	Ø D_1 1.00	Ø D_1 1.50	Ø D_1 2.00	Ø D_1 3.00	Ø D_1 4.00	Ø D_1 5.00	Ø D_1 6.00	Ø D_1 8.00	Ø D_1 10.00	Ø D_1 12.00
0.004	0.021	0.026	0.040	0.053	0.079	0.106	0.132	0.158	0.211	0.264	0.317
0.003	0.019	0.024	0.036	0.048	0.072	0.096	0.120	0.144	0.192	0.240	0.288
0.003	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.003	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.004	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.003	0.012	0.014	0.022	0.029	0.043	0.058	0.072	0.086	0.115	0.144	0.173
0.006	0.032	0.039	0.060	0.080	0.119	0.159	0.198	0.237	0.317	0.396	0.476
0.004	0.021	0.026	0.040	0.053	0.079	0.106	0.132	0.158	0.211	0.264	0.317
0.006	0.032	0.039	0.060	0.080	0.119	0.159	0.198	0.237	0.317	0.396	0.476
0.002	0.012	0.014	0.022	0.029	0.043	0.058	0.072	0.086	0.115	0.144	0.173
0.003	0.013	0.017	0.025	0.034	0.050	0.067	0.084	0.101	0.134	0.168	0.202
0.003	0.006	0.008	0.012	0.016	0.024	0.032	0.040	0.048	0.064	0.080	0.096

Feed per tooth fz [mm]

Ø D_1 0.50	Ø D_1 0.80	Ø D_1 1.00	Ø D_1 1.50	Ø D_1 2.00	Ø D_1 3.00	Ø D_1 4.00	Ø D_1 5.00	Ø D_1 6.00	Ø D_1 8.00	Ø D_1 10.00	Ø D_1 12.00
0.013	0.021	0.026	0.040	0.053	0.079	0.106	0.132	0.158	0.211	0.264	0.317
0.012	0.019	0.024	0.036	0.048	0.072	0.096	0.120	0.144	0.192	0.240	0.288
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.007	0.012	0.014	0.022	0.029	0.043	0.058	0.072	0.086	0.115	0.144	0.173
0.020	0.032	0.039	0.060	0.080	0.119	0.159	0.198	0.237	0.317	0.396	0.476
0.013	0.021	0.026	0.040	0.053	0.079	0.106	0.132	0.158	0.211	0.264	0.317
0.020	0.032	0.039	0.060	0.080	0.119	0.159	0.198	0.237	0.317	0.396	0.476
0.007	0.012	0.014	0.022	0.029	0.043	0.058	0.072	0.086	0.115	0.144	0.173
0.008	0.013	0.017	0.025	0.034	0.050	0.067	0.084	0.101	0.134	0.168	0.202
0.004	0.006	0.008	0.012	0.016	0.024	0.032	0.040	0.048	0.064	0.080	0.096

HELICAL INTERPOLATION

		VDI 3323	XIDUR Vc [m/min]	α [°]
P	Unalloyed steel, leaded steel	1 - 5	**250**	0.75°
	Low alloyed steel < 800 N/mm²	6 - 9	**200**	0.75°
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	12 - 13	**150**	0.50°
M	Austenitic stainless steel < 700 N/mm²	14.1 - 14.42	**110**	0.50°
K	Grey cast iron < 250 HB	15 - 16	**150**	0.75°
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**100**	0.75°
N	Wrought aluminium alloy < 12% Si	21 - 22	**400**	1.20°
	Cast aluminium alloy >12% Si	23 - 25	**350**	1.00°
	Copper alloy with difficult machinability	26 - 28	**380**	1.20°
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**80**	0.50°
	Titanium, titanium alloy	36 - 37	**100**	0.50°
H	Hardened steel >45 HRC, hard cast iron	38 - 41	**200**	0.75°

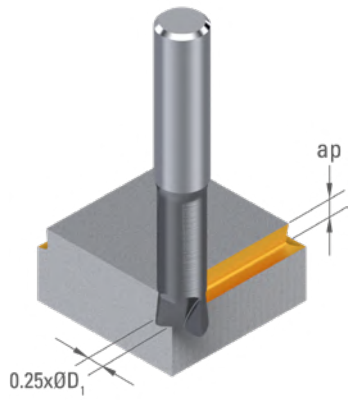


$h = \pi \times ø \times \tan\alpha$

$1.3xD_1 < ø < 1.9xD_1$

ROUTING

		VDI 3323	XIDUR Vc [m/min]	ap [mm]
P	Unalloyed steel, leaded steel	1 - 5	**250**	<0.50×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9	**200**	<0.50×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	12 - 13	**150**	<0.40×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1 - 14.42	**110**	<0.40×ØD1
K	Grey cast iron < 250 HB	15 - 16	**150**	<0.50×ØD1
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**100**	<0.50×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**400**	<0.50×ØD1
	Cast aluminium alloy >12% Si	23 - 25	**300**	<0.50×ØD1
	Copper alloy with difficult machinability	26 - 28	**350**	<0.50×ØD1
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**80**	<0.40×ØD1
	Titanium, titanium alloy	36 - 37	**100**	<0.40×ØD1
H	Hardened steel >45 HRC, hard cast iron	38 - 41	**200**	<0.40×ØD1



$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

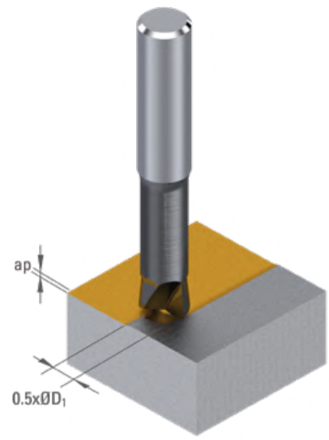
Ø D_1 0.50	Ø D_1 0.80	Ø D_1 1.00	Ø D_1 1.50	Ø D_1 2.00	Ø D_1 3.00	Ø D_1 4.00	Ø D_1 5.00	Ø D_1 6.00	Ø D_1 8.00	Ø D_1 10.00	Ø D_1 12.00
0.018	0.028	0.035	0.053	0.070	0.106	0.141	0.176	0.211	0.282	0.352	0.422
0.016	0.026	0.032	0.048	0.064	0.096	0.128	0.160	0.192	0.256	0.320	0.384
0.013	0.020	0.026	0.038	0.051	0.077	0.102	0.128	0.154	0.205	0.256	0.307
0.013	0.020	0.026	0.038	0.051	0.077	0.102	0.128	0.154	0.205	0.256	0.307
0.013	0.020	0.026	0.038	0.051	0.077	0.102	0.128	0.154	0.205	0.256	0.307
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.027	0.042	0.053	0.080	0.105	0.159	0.212	0.264	0.317	0.423	0.528	0.633
0.018	0.028	0.035	0.053	0.070	0.106	0.141	0.176	0.211	0.282	0.352	0.422
0.027	0.042	0.053	0.080	0.105	0.159	0.212	0.264	0.317	0.423	0.528	0.633
0.008	0.012	0.015	0.023	0.030	0.046	0.061	0.076	0.091	0.122	0.152	0.182
0.011	0.018	0.022	0.034	0.045	0.067	0.090	0.112	0.134	0.179	0.224	0.269
0.005	0.008	0.010	0.014	0.019	0.029	0.038	0.048	0.058	0.077	0.096	0.115

Feed per tooth fz [mm]

Ø D_1 0.50	Ø D_1 0.80	Ø D_1 1.00	Ø D_1 1.50	Ø D_1 2.00	Ø D_1 3.00	Ø D_1 4.00	Ø D_1 5.00	Ø D_1 6.00	Ø D_1 8.00	Ø D_1 10.00	Ø D_1 12.00
0.010	0.017	0.021	0.031	0.042	0.062	0.083	0.104	0.125	0.166	0.208	0.250
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.008	0.013	0.016	0.024	0.032	0.048	0.064	0.080	0.096	0.128	0.160	0.192
0.008	0.013	0.016	0.024	0.032	0.048	0.064	0.080	0.096	0.128	0.160	0.192
0.008	0.013	0.016	0.024	0.032	0.048	0.064	0.080	0.096	0.128	0.160	0.192
0.006	0.009	0.011	0.017	0.022	0.034	0.045	0.056	0.067	0.090	0.112	0.134
0.012	0.020	0.025	0.037	0.050	0.074	0.100	0.125	0.150	0.199	0.250	0.300
0.010	0.017	0.021	0.031	0.042	0.062	0.083	0.104	0.125	0.166	0.208	0.250
0.012	0.020	0.025	0.037	0.050	0.074	0.100	0.125	0.150	0.199	0.250	0.300
0.006	0.009	0.011	0.017	0.022	0.034	0.045	0.056	0.067	0.090	0.112	0.134
0.007	0.011	0.014	0.020	0.027	0.041	0.054	0.068	0.082	0.109	0.136	0.163
0.005	0.008	0.010	0.014	0.019	0.029	0.038	0.048	0.058	0.077	0.096	0.115

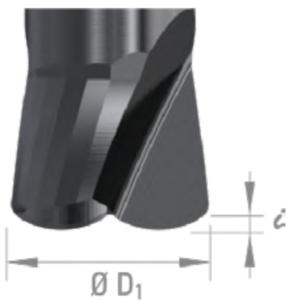
FACE MILLING

		VDI 3323	XIDUR Vc [m/min]	ap [mm]
P	Unalloyed steel, leaded steel	1 - 5	**250**	< 1x ¿
P	Low alloyed steel < 800 N/mm²	6 - 9	**200**	< 1x ¿
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	12 - 13	**150**	< 0.8x ¿
M	Austenitic stainless steel < 700 N/mm²	14.1 - 14.4	**110**	< 0.8x ¿
K	Grey cast iron < 250 HB	15 - 16	**150**	< 1x ¿
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**100**	< 1x ¿
N	Wrought aluminium alloy < 12% Si	21 - 22	**400**	< 1x ¿
N	Cast aluminium alloy >12% Si	23 - 25	**300**	< 1x ¿
N	Copper alloy with difficult machinability	26 - 28	**350**	< 1x ¿
S	Refractory alloy, Fe, Ni, Co base	31 - 35	**80**	< 0.5x ¿
S	Titanium, titanium alloy	36 - 37	**100**	< 0.5x ¿
H	Hardened steel >45 HRC, hard cast iron	38 - 41	**200**	< 0.8x ¿



This tool does not have a centre cutting edge.

For face milling operation, the ¿ value is depending on the Ø D_1



$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

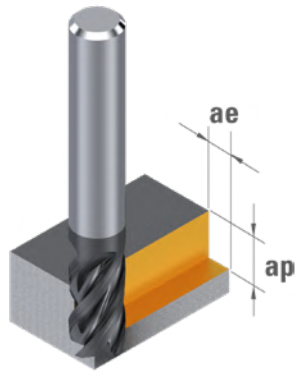
Feed per tooth fz [mm]

Ø D_1 0.50	Ø D_1 0.80	Ø D_1 1.00	Ø D_1 1.50	Ø D_1 2.00	Ø D_1 3.00	Ø D_1 4.00	Ø D_1 5.00	Ø D_1 6.00	Ø D_1 8.00	Ø D_1 10.00	Ø D_1 12.00
0.022	0.035	0.044	0.066	0.088	0.132	0.176	0.220	0.264	0.352	0.440	0.528
0.020	0.032	0.040	0.060	0.080	0.120	0.160	0.200	0.240	0.320	0.400	0.480
0.016	0.026	0.032	0.048	0.064	0.096	0.128	0.160	0.192	0.256	0.320	0.384
0.016	0.026	0.032	0.048	0.064	0.096	0.128	0.160	0.192	0.256	0.320	0.384
0.016	0.026	0.032	0.048	0.064	0.096	0.128	0.160	0.192	0.256	0.320	0.384
0.012	0.019	0.024	0.036	0.048	0.072	0.096	0.120	0.144	0.192	0.240	0.288
0.026	0.042	0.053	0.079	0.106	0.158	0.211	0.264	0.317	0.422	0.528	0.634
0.022	0.035	0.044	0.066	0.088	0.132	0.176	0.220	0.264	0.352	0.440	0.528
0.026	0.042	0.053	0.079	0.106	0.158	0.211	0.264	0.317	0.422	0.528	0.634
0.010	0.015	0.019	0.029	0.038	0.058	0.077	0.096	0.115	0.154	0.192	0.230
0.014	0.022	0.028	0.042	0.056	0.084	0.112	0.140	0.168	0.224	0.280	0.336
0.006	0.010	0.012	0.018	0.024	0.036	0.048	0.060	0.072	0.096	0.120	0.144
0.025	**0.04**	**0.05**	**0.10**	**0.15**	**0.20**	**0.25**	**0.30**	**0.35**	**0.40**	**0.45**	**0.50**

i value

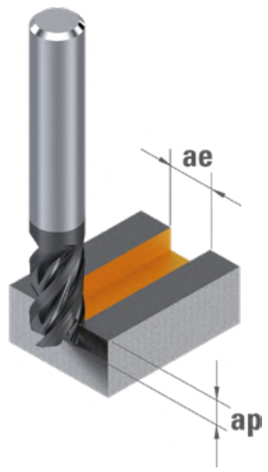
Download the cutting conditions (pdf + xls) and the dxf profiles on www.dixipolytool.com

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**150**	<0.4×D1	<2×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9		**125**	<0.3×D1	<2×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**85**	<0.3×D1	<2×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**95**	<0.3×D1	<2×ØD1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**65**	<0.25×D1	<2×ØD1
K	Grey cast iron < 250 HB	15 - 16	**170**	**180**	<0.4×D1	<2×ØD1
	Ductile, malleable, nodular cast iron>250HB	17 - 20	**95**	**130**	<0.3×D1	<2×ØD1
N	Copper alloy good machinability with Pb	26	**110**		<0.4×D1	<2×ØD1
	Copper alloy with difficult machinability	27 - 28	**95**		<0.4×D1	<2×ØD1
	Gold, silver	-	**165**		<0.4×D1	<2×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**35**	**45**	<0.15×D1	<2×ØD1
	Titanium, titanium alloy	36 - 37	**60**	**70**	<0.3×D1	<2×ØD1

SLOTTING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**115**	1×ØD1	<2×ØD1
	Low alloyed steel < 800 N/mm²	6 - 9		**95**	1×ØD1	<1.5×ØD1
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**65**	1×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**70**	1×ØD1	<1×ØD1
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**50**	1×ØD1	<0.8×ØD1
K	Grey cast iron < 250 HB	15 - 16	**100**	**135**	1×ØD1	<2×ØD1
	Ductile, malleable, nodular cast iron>250HB	17 - 20	**30**	**95**	1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	**110**		1×ØD1	<2×ØD1
	Copper alloy with difficult machinability	27 - 28	**95**		1×ØD1	<1.5×ØD1
	Gold, silver	-	**165**		1×ØD1	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**30**	**35**	1×ØD1	<0.2×ØD1
	Titanium, titanium alloy	36 - 37	**50**	**60**	1×ØD1	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

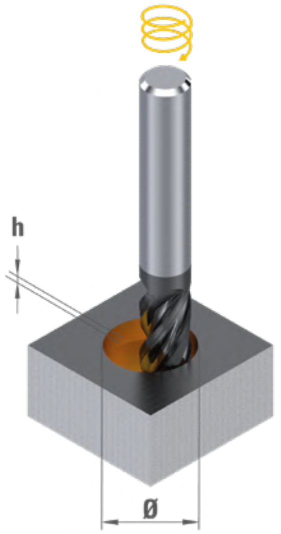
Ø D_1 0.40 - 0.80	Ø D_1 0.90 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.004 - 0.009	0.010 - 0.015	0.016 - 0.021	0.022 - 0.027	0.032 - 0.044	0.065 - 0.090	0.110 - 0.130
0.004 - 0.008	0.009 - 0.014	0.015 - 0.019	0.020 - 0.025	0.030 - 0.040	0.060 - 0.080	0.100 - 0.120
0.004 - 0.007	0.008 - 0.013	0.014 - 0.017	0.018 - 0.023	0.027 - 0.036	0.055 - 0.070	0.090 - 0.110
0.004 - 0.007	0.008 - 0.013	0.014 - 0.017	0.018 - 0.023	0.027 - 0.036	0.055 - 0.070	0.090 - 0.110
0.003 - 0.006	0.007 - 0.011	0.012 - 0.015	0.016 - 0.020	0.024 - 0.032	0.050 - 0.060	0.080 - 0.100
0.005 - 0.010	0.011 - 0.018	0.019 - 0.024	0.025 - 0.032	0.038 - 0.050	0.075 - 0.100	0.130 - 0.150
0.004 - 0.009	0.010 - 0.015	0.016 - 0.021	0.022 - 0.027	0.032 - 0.044	0.065 - 0.090	0.110 - 0.130
0.006 - 0.012	0.014 - 0.021	0.023 - 0.029	0.031 - 0.038	0.046 - 0.062	0.090 - 0.120	0.150 - 0.180
0.005 - 0.010	0.011 - 0.018	0.019 - 0.024	0.025 - 0.032	0.038 - 0.050	0.075 - 0.100	0.130 - 0.150
0.004 - 0.009	0.010 - 0.015	0.016 - 0.021	0.022 - 0.027	0.032 - 0.044	0.065 - 0.090	0.110 - 0.130
0.003 - 0.005	0.006 - 0.009	0.009 - 0.012	0.013 - 0.016	0.019 - 0.026	0.040 - 0.050	0.060 - 0.080
0.004 - 0.009	0.010 - 0.015	0.016 - 0.021	0.022 - 0.027	0.032 - 0.044	0.065 - 0.090	0.110 - 0.130

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.80	Ø D_1 0.90 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.003 - 0.006	0.007 - 0.010	0.010 - 0.014	0.014 - 0.018	0.021 - 0.028	0.040 - 0.060	0.070 - 0.085
0.003 - 0.005	0.006 - 0.009	0.010 - 0.012	0.013 - 0.016	0.020 - 0.026	0.040 - 0.050	0.065 - 0.080
0.003 - 0.005	0.005 - 0.008	0.009 - 0.011	0.012 - 0.015	0.018 - 0.024	0.035 - 0.050	0.060 - 0.070
0.003 - 0.005	0.005 - 0.008	0.009 - 0.011	0.012 - 0.015	0.018 - 0.024	0.035 - 0.050	0.060 - 0.070
0.002 - 0.004	0.005 - 0.007	0.008 - 0.010	0.010 - 0.013	0.016 - 0.020	0.035 - 0.040	0.050 - 0.065
0.003 - 0.007	0.007 - 0.012	0.012 - 0.016	0.016 - 0.021	0.025 - 0.032	0.050 - 0.070	0.085 - 0.100
0.003 - 0.006	0.007 - 0.010	0.010 - 0.014	0.014 - 0.018	0.021 - 0.028	0.040 - 0.060	0.070 - 0.085
0.004 - 0.008	0.009 - 0.014	0.015 - 0.019	0.020 - 0.025	0.030 - 0.040	0.060 - 0.080	0.100 - 0.115
0.003 - 0.007	0.007 - 0.012	0.012 - 0.016	0.016 - 0.021	0.025 - 0.032	0.050 - 0.070	0.085 - 0.100
0.003 - 0.006	0.007 - 0.010	0.010 - 0.014	0.014 - 0.018	0.021 - 0.028	0.040 - 0.060	0.070 - 0.085
0.002 - 0.003	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.012 - 0.016	0.025 - 0.030	0.040 - 0.050
0.003 - 0.006	0.007 - 0.010	0.010 - 0.014	0.014 - 0.018	0.021 - 0.028	0.040 - 0.060	0.070 - 0.085

Values based on use at micro-spray.. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

HELICAL MILLING

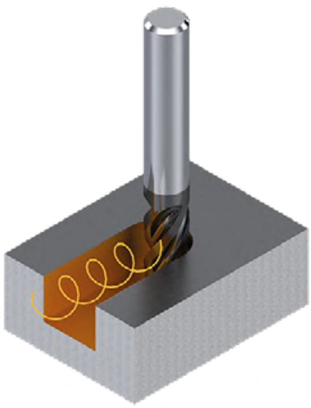


$h = \pi \times ø \times \tan \alpha$

$1.3xD_1 < ø < 1.9xD_1$

		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	Ramp angle α	Depth (mm)
P	Unalloyed steel, leaded steel	1 - 5		115	< 30°	< 1.5×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		95	< 30°	< 1.25×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		65	<30°	< 1×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		70	< 15°	< 1×ØD1
M	Nickel-free stainless steel/DUPLEX > 700 N/mm²	14.3-14.4		50	< 10°	< 1×ØD1
K	Grey cast iron < 250 HB	15 - 16	100	135	< 30°	< 1.5×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	70	95	< 30°	< 1.5×ØD1
N	Copper alloy good machinability with Pb	26	110		< 35°	< 1.5×ØD1
N	Copper alloy with difficult machinability	27 - 28	95		< 25°	< 1.25×ØD1
N	Gold, silver	-	165		< 25°	< 1.25×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	30	35	< 5°	<0.5×ØD1
S	Titanium, titanium alloy	36 - 37	50	60	< 10°	< 1×ØD1

TROCHOIDAL MILLING



		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		450	<0.05×ØD1	<2×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		375	<0.04×ØD1	<2×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		255	<0.04×ØD1	<2×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		190	<0.04×ØD1	<2×ØD1
M	Nickel-free stainless steel/DUPLEX > 700 N/mm²	14.3-14.4		130	<0.04×ØD1	<2×ØD1
K	Grey cast iron < 250 HB	15 - 16	470	495	<0.06×ØD1	<2×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	260	360	<0.04×ØD1	<2×ØD1
N	Copper alloy good machinability with Pb	26	305		<0.06×ØD1	<2×ØD1
N	Copper alloy with difficult machinability	27 - 28	260		<0.04×ØD1	<2×ØD1
N	Gold, silver	-	455		<0.04×ØD1	<2×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	55	80	<0.02×ØD1	<2×ØD1
S	Titanium, titanium alloy	36 - 37	105	125	<0.04×ØD1	<2×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

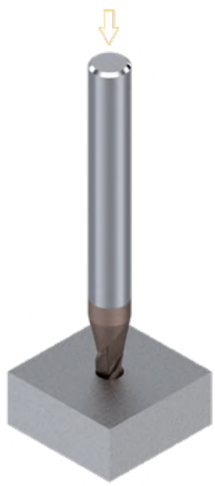
Ø D_1 0.40 - 0.80	Ø D_1 0.90 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.002 - 0.005	0.006 - 0.008	0.008 - 0.011	0.011 - 0.014	0.017 - 0.022	0.032 - 0.048	0.056 - 0.068
0.002 - 0.004	0.005 - 0.007	0.008 - 0.010	0.010 - 0.013	0.016 - 0.021	0.032 - 0.040	0.052 - 0.064
0.002 - 0.004	0.004 - 0.006	0.007 - 0.009	0.010 - 0.012	0.014 - 0.019	0.028 - 0.040	0.048 - 0.056
0.002 - 0.004	0.004 - 0.006	0.007 - 0.009	0.010 - 0.012	0.014 - 0.019	0.028 - 0.040	0.048 - 0.056
0.002 - 0.003	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.013 - 0.016	0.028 - 0.032	0.040 - 0.052
0.002 - 0.006	0.006 - 0.010	0.010 - 0.013	0.013 - 0.017	0.020 - 0.026	0.040 - 0.056	0.068 - 0.080
0.002 - 0.005	0.006 - 0.008	0.008 - 0.011	0.011 - 0.014	0.017 - 0.022	0.032 - 0.048	0.056 - 0.068
0.003 - 0.006	0.007 - 0.011	0.012 - 0.015	0.016 - 0.020	0.024 - 0.032	0.048 - 0.064	0.080 - 0.092
0.002 - 0.006	0.006 - 0.010	0.010 - 0.013	0.013 - 0.017	0.020 - 0.026	0.040 - 0.056	0.068 - 0.080
0.002 - 0.005	0.006 - 0.008	0.008 - 0.011	0.011 - 0.014	0.017 - 0.022	0.032 - 0.048	0.056 - 0.068
0.002 - 0.002	0.003 - 0.005	0.005 - 0.006	0.006 - 0.008	0.010 - 0.013	0.020 - 0.024	0.032 - 0.040
0.002 - 0.005	0.006 - 0.008	0.008 - 0.011	0.011 - 0.014	0.017 - 0.022	0.032 - 0.048	0.056 - 0.068

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.80	Ø D_1 0.90 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.007 - 0.016	0.020 - 0.031	0.033 - 0.041	0.044 - 0.055	0.066 - 0.088	0.130 - 0.170	0.200 - 0.240
0.006 - 0.015	0.018 - 0.028	0.030 - 0.038	0.040 - 0.050	0.060 - 0.080	0.120 - 0.160	0.180 - 0.220
0.006 - 0.013	0.016 - 0.025	0.027 - 0.035	0.036 - 0.046	0.055 - 0.072	0.110 - 0.150	0.170 - 0.200
0.006 - 0.013	0.016 - 0.025	0.027 - 0.035	0.036 - 0.046	0.055 - 0.072	0.110 - 0.150	0.170 - 0.200
0.005 - 0.012	0.015 - 0.023	0.025 - 0.031	0.033 - 0.041	0.049 - 0.066	0.100 - 0.130	0.150 - 0.180
0.008 - 0.019	0.023 - 0.036	0.038 - 0.048	0.051 - 0.064	0.076 - 0.102	0.155 - 0.200	0.240 - 0.280
0.007 - 0.016	0.020 - 0.031	0.033 - 0.041	0.044 - 0.055	0.066 - 0.088	0.130 - 0.170	0.200 - 0.240
0.010 - 0.023	0.028 - 0.043	0.046 - 0.059	0.062 - 0.077	0.093 - 0.124	0.185 - 0.250	0.290 - 0.340
0.008 - 0.019	0.023 - 0.036	0.038 - 0.048	0.051 - 0.064	0.076 - 0.102	0.155 - 0.200	0.240 - 0.280
0.007 - 0.016	0.020 - 0.031	0.033 - 0.041	0.044 - 0.055	0.066 - 0.088	0.130 - 0.170	0.200 - 0.240
0.004 - 0.009	0.011 - 0.018	0.019 - 0.024	0.025 - 0.032	0.038 - 0.050	0.075 - 0.100	0.120 - 0.140
0.007 - 0.016	0.020 - 0.031	0.033 - 0.041	0.044 - 0.055	0.066 - 0.088	0.130 - 0.170	0.200 - 0.240

DRILLING

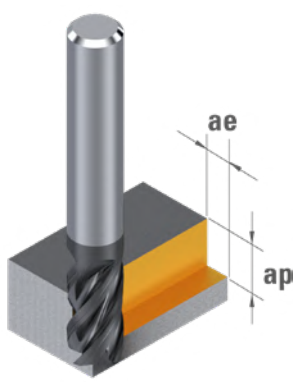
		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	Depth (mm)
P	Unalloyed steel, leaded steel	1 - 5		115	<1.25×ØD1
P	Low alloyed steel < 800 N/mm^2	6 - 9		95	<1×ØD1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13		65	<1×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2		70	<0.25×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4		50	<0.25×ØD1
K	Grey cast iron < 250 HB	15 - 16	100	135	<1.5×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	70	95	<1.5×ØD1
N	Copper alloy good machinability with Pb	26	110		<1.25×ØD1
N	Copper alloy with difficult machinability	27 - 28	95		<1×ØD1
N	Gold, silver	-	165		<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	30	35	<0.5×ØD1
S	Titanium, titanium alloy	36 - 37	60	55	<0.2×ØD1



DIXI 7253 - 7254 - 7264 - 7264-3D - 7265

ROUTING

		VDI 3323	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	160	<0.4×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm^2	6 - 9	140	<0.3×ØD1	<1×L1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	100	<0.3×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	95	<0.3×ØD1	<1×L1
M	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	85	<0.25×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	180	<0.4×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	150	<0.3×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	35	<0.15×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	65	<0.4×ØD1	<1×L1



$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.40 - 0.80	Ø D_1 0.90 - 1.40	Ø D_1 1.50 - 1.90	Ø D_1 2.00 - 2.50	Ø D_1 3.00 - 4.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.001 - 0.003	0.004 - 0.005	0.005 - 0.007	0.007 - 0.008	0.010 - 0.013	0.020 - 0.030	0.035 - 0.040
0.001 - 0.002	0.003 - 0.004	0.005 - 0.006	0.006 - 0.008	0.010 - 0.013	0.020 - 0.025	0.030 - 0.040
0.001 - 0.002	0.002 - 0.004	0.004 - 0.005	0.006 - 0.007	0.008 - 0.011	0.016 - 0.025	0.030 - 0.035
0.001 - 0.002	0.002 - 0.004	0.004 - 0.005	0.006 - 0.007	0.008 - 0.011	0.016 - 0.025	0.030 - 0.035
0.001 - 0.002	0.002 - 0.004	0.004 - 0.005	0.005 - 0.006	0.008 - 0.010	0.016 - 0.020	0.025 - 0.030
0.001 - 0.004	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.012 - 0.016	0.024 - 0.035	0.040 - 0.050
0.001 - 0.003	0.004 - 0.005	0.005 - 0.007	0.007 - 0.008	0.010 - 0.013	0.020 - 0.030	0.035 - 0.040
0.002 - 0.004	0.004 - 0.007	0.007 - 0.009	0.010 - 0.012	0.014 - 0.019	0.028 - 0.040	0.050 - 0.055
0.001 - 0.004	0.004 - 0.006	0.006 - 0.008	0.008 - 0.010	0.012 - 0.016	0.024 - 0.035	0.040 - 0.050
0.001 - 0.003	0.004 - 0.005	0.005 - 0.007	0.007 - 0.008	0.010 - 0.013	0.020 - 0.030	0.035 - 0.040
0.001 - 0.001	0.002 - 0.003	0.003 - 0.004	0.004 - 0.005	0.006 - 0.008	0.012 - 0.015	0.020 - 0.025
0.001 - 0.003	0.004 - 0.005	0.005 - 0.007	0.007 - 0.008	0.010 - 0.013	0.020 - 0.030	0.035 - 0.040

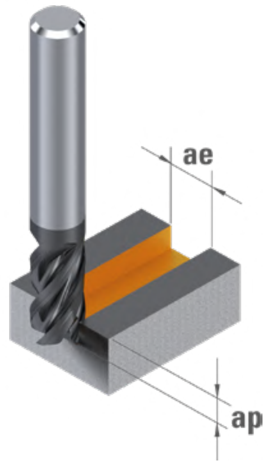
Feed per tooth fz [mm]

Ø D_1 1.50 - 2.00	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 16.00 - 20.00
0.013 - 0.018	0.026 - 0.045	0.050 - 0.070	0.090 - 0.105	0.125 - 0.155
0.012 - 0.016	0.024 - 0.040	0.050 - 0.060	0.080 - 0.095	0.110 - 0.140
0.011 - 0.014	0.022 - 0.035	0.040 - 0.060	0.070 - 0.085	0.100 - 0.125
0.011 - 0.014	0.022 - 0.035	0.040 - 0.060	0.070 - 0.085	0.100 - 0.125
0.010 - 0.013	0.020 - 0.030	0.040 - 0.050	0.065 - 0.075	0.090 - 0.110
0.016 - 0.021	0.032 - 0.050	0.060 - 0.080	0.105 - 0.125	0.145 - 0.180
0.013 - 0.018	0.026 - 0.045	0.050 - 0.070	0.090 - 0.105	0.125 - 0.155
0.007 - 0.010	0.014 - 0.025	0.030 - 0.040	0.050 - 0.060	0.065 - 0.085
0.014 - 0.019	0.028 - 0.050	0.060 - 0.080	0.095 - 0.115	0.135 - 0.170

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

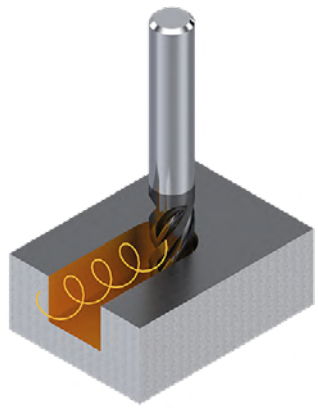
SLOTTING

		VDI 3323	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**110**	1×ØD1	<1×ØD1
P	Low alloyed steel < 800 N/mm^2	6 - 9	**100**	1×ØD1	<1×ØD1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	**70**	1×ØD1	<1×ØD1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	**65**	1×ØD1	<0.8×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	**60**	1×ØD1	<0.5×ØD1
K	Grey cast iron < 250 HB	15 - 16	**125**	1×ØD1	<1×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**105**	1×ØD1	<1×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**25**	1×ØD1	<0.3×ØD1
S	Titanium, titanium alloy	36 - 37	**45**	1×ØD1	<0.5×ØD1



TROCHOIDAL MILLING

		VDI 3323	CUTINOX Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**320**	<0.04×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm^2	6 - 9	**280**	<0.03×ØD1	<1×L1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	**200**	<0.03×ØD1	<1×L1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	**165**	<0.03×ØD1	<1×L1
M	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	**150**	<0.03×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	**450**	<0.04×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**375**	<0.03×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**55**	<0.02×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	**100**	<0.04×ØD1	<1×L1



RAMPING

		VDI 3323	CUTINOX Vc [m/min]	Ramp angle α	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**135**	<8°	<1×L1
P	Low alloyed steel < 800 N/mm^2	6 - 9	**120**	<6°	<1×L1
P	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	**85**	<5°	<1×L1
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	**80**	<5°	<1×L1
M	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	**70**	<5°	<1×L1
K	Grey cast iron < 250 HB	15 - 16	**155**	<10°	<1×L1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**130**	<6°	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35	**30**	<3°	<1×L1
S	Titanium, titanium alloy	36 - 37	**55**	<4°	<1×L1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 1.50 - 2.00	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 16.00 - 20.00
0.008 - 0.011	0.016 - 0.025	0.030 - 0.040	0.055 - 0.065	0.075 - 0.095
0.007 - 0.010	0.014 - 0.025	0.030 - 0.040	0.050 - 0.055	0.065 - 0.085
0.007 - 0.008	0.014 - 0.020	0.020 - 0.040	0.040 - 0.050	0.060 - 0.075
0.007 - 0.008	0.014 - 0.020	0.020 - 0.040	0.040 - 0.050	0.060 - 0.075
0.006 - 0.008	0.012 - 0.020	0.020 - 0.030	0.040 - 0.045	0.055 - 0.065
0.010 - 0.013	0.020 - 0.030	0.040 - 0.050	0.065 - 0.075	0.085 - 0.110
0.008 - 0.011	0.016 - 0.025	0.030 - 0.040	0.055 - 0.065	0.075 - 0.095
0.004 - 0.006	0.008 - 0.015	0.020 - 0.020	0.030 - 0.035	0.040 - 0.050
0.008 - 0.011	0.016 - 0.030	0.036 - 0.048	0.055 - 0.070	0.080 - 0.100

Feed per tooth fz [mm]

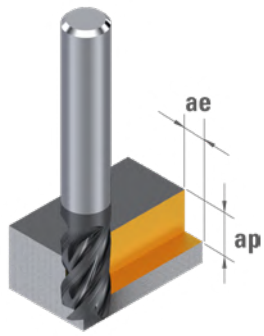
Ø D_1 1.50 - 2.00	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 16.00 - 20.00
0.018 - 0.024	0.036 - 0.060	0.070 - 0.100	0.120 - 0.145	0.170 - 0.210
0.016 - 0.022	0.032 - 0.055	0.060 - 0.090	0.110 - 0.130	0.150 - 0.190
0.014 - 0.019	0.028 - 0.050	0.060 - 0.080	0.095 - 0.115	0.135 - 0.170
0.014 - 0.019	0.028 - 0.050	0.060 - 0.080	0.095 - 0.115	0.135 - 0.170
0.013 - 0.017	0.026 - 0.040	0.050 - 0.070	0.085 - 0.100	0.120 - 0.145
0.022 - 0.029	0.044 - 0.070	0.090 - 0.120	0.145 - 0.175	0.200 - 0.250
0.018 - 0.024	0.036 - 0.060	0.070 - 0.100	0.120 - 0.145	0.170 - 0.210
0.009 - 0.012	0.018 - 0.030	0.040 - 0.050	0.060 - 0.070	0.085 - 0.105
0.018 - 0.024	0.036 - 0.060	0.070 - 0.100	0.120 - 0.145	0.170 - 0.210

Feed per tooth fz [mm]

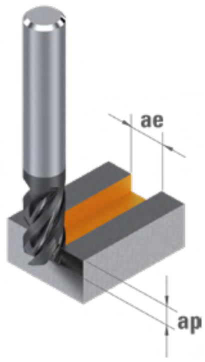
Ø D_1 1.50 - 2.00	Ø D_1 3.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 16.00 - 20.00
0.007 - 0.010	0.014 - 0.025	0.030 - 0.040	0.050 - 0.060	0.065 - 0.085
0.011 - 0.014	0.022 - 0.035	0.040 - 0.060	0.070 - 0.085	0.100 - 0.125
0.010 - 0.013	0.020 - 0.030	0.040 - 0.050	0.065 - 0.075	0.090 - 0.110
0.010 - 0.013	0.020 - 0.030	0.040 - 0.050	0.065 - 0.075	0.090 - 0.110
0.008 - 0.011	0.016 - 0.030	0.030 - 0.040	0.055 - 0.065	0.080 - 0.100
0.014 - 0.019	0.028 - 0.050	0.060 - 0.080	0.095 - 0.115	0.135 - 0.170
0.012 - 0.016	0.024 - 0.040	0.050 - 0.060	0.080 - 0.095	0.110 - 0.140
0.006 - 0.008	0.012 - 0.020	0.020 - 0.030	0.040 - 0.050	0.055 - 0.070
0.013 - 0.018	0.026 - 0.045	0.050 - 0.070	0.090 - 0.105	0.125 - 0.155

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING

		VDI 3323		XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**240**	<0.07×ØD1	<1×L1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**65**	<0.04×ØD1	<1×L1
H	Hardened steel (45 à 55 HRC)	38		**200**	<0.03×ØD1	<1×L1
	Hardened steel (55 à 65 HRC)	39		**120**	<0.02×ØD1	<1×L1

SLOTTING

		VDI 3323		XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		**200**	1×ØD1	<0.05×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**55**	1×ØD1	<0.04×ØD1
H	Hardened steel (45 à 55 HRC)	38		**165**	1×ØD1	<0.04×ØD1
	Hardened steel (55 à 65 HRC)	39		**100**	1×ØD1	<0.02×ØD1

RAMPING

		VDI 3323		XIDUR Vc [m/min]	Depth (mm)	Ramp angle α
P	Unalloyed steel, leaded steel	1 - 5		**180**	<1×ØD1	<5°
S	Refractory alloy, Fe, Ni, Co base	31- 35		**50**	<0.5×ØD1	<3°
H	Hardened steel (45 à 55 HRC)	38		**150**	<1×ØD1	<3°
	Hardened steel (55 à 65 HRC)	39		**90**	<0.8×ØD1	<2°

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.060 - 0.080	0.100 - 0.120	0.160 - 0.240
0.039 - 0.052	0.065 - 0.078	0.105 - 0.160
0.039 - 0.052	0.065 - 0.078	0.105 - 0.160
0.012 - 0.016	0.020 - 0.024	0.030 - 0.050

Feed per tooth fz [mm]

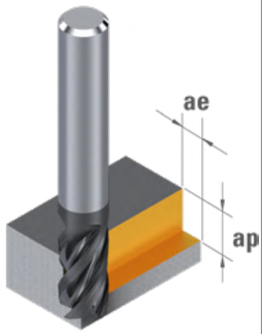
Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.054 - 0.072	0.090 - 0.108	0.145 - 0.220
0.035 - 0.047	0.058 - 0.07	0.095 - 0.140
0.035 - 0.047	0.058 - 0.07	0.095 - 0.140
0.011 - 0.014	0.018 - 0.022	0.025 - 0.050

Feed per tooth fz [mm]

Ø D_1 3.00 - 4.00	Ø D_1 5.00 - 6.00	Ø D_1 8.00 - 12.00
0.054 - 0.072	0.090 - 0.108	0.145 - 0.220
0.035 - 0.047	0.058 - 0.07	0.095 - 0.140
0.035 - 0.047	0.058 - 0.07	0.095 - 0.140
0.011 - 0.014	0.018 - 0.022	0.025 - 0.050

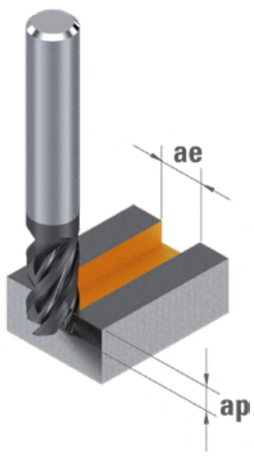
Values based on cutting oil use. The cutting parameters are very strongly influenced
by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !
For maximum tool life, use micro-lubrication for steels and hardened steels and cutting oil for refractory alloys

ROUTING



		VDI 3323	CARBIDE Vc [m/min]	TiAIN Vc[m/min]	DICUT Vc[m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		150			<0.3×ØD1	<1×L1
P	Low alloyed steel < 800 N/mm²	6 - 9		125			<0.25×ØD1	<1×L1
K	Grey cast iron < 250 HB	15 - 16	170	180			<0.4×ØD1	<1×L1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	105	130			<0.3×ØD1	<1×L1
N	Wrought aluminium alloy < 12% Si	21 - 22	175			245	<0.4×ØD1	<1×L1
N	Cast aluminium alloy >12% Si	23 - 25	150			200	<0.4×ØD1	<1×L1
N	Copper alloy good machinability with Pb	26	110		130	150	<0.4×ØD1	<1×L1
N	Copper alloy with difficult machinability	27 - 28	95	115	115	130	<0.3×ØD1	<1×L1
N	Graphite	-				200	<0.3×ØD1	<1×L1
N	Gold, Silber	-	165			230	<0.3×ØD1	<1×L1
S	Titanium, titanium alloy	36 - 37	60	70			<0.3×ØD1	<1×L1

SLOTTING



		VDI 3323	CARBIDE Vc[m/min]	TiAIN Vc[m/min]	DICUT Vc[m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5		115			<1×ØD1	<0.25×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		95			<1×ØD1	<0.2×ØD1
K	Grey cast iron < 250 HB	15 - 16	100	135			<1×ØD1	<0.5×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	85	95			<1×ØD1	<0.25×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	130			180	<1×ØD1	<1×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	115			160	<1×ØD1	<1×ØD1
N	Copper alloy good machinability with Pb	26	85		100	120	<1×ØD1	<1×ØD1
N	Copper alloy with difficult machinability	27 - 28	70	85	85	100	<1×ØD1	<0.25×ØD1
N	Graphite	-				160	<1×ØD1	<0.25×ØD1
N	Gold, Silber	-	125			175	<1×ØD1	<0.25×ØD1
S	Titanium, titanium alloy	36 - 37	55	60			<1×ØD1	<0.25×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

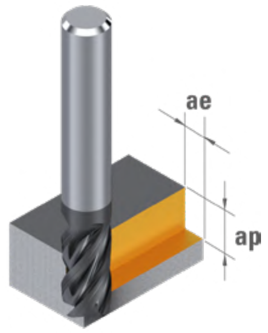
Ø D_1 1.00 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 16.00 - 20.00
0.012 - 0.036	0.048 - 0.070	0.090 - 0.120	0.130 - 0.140
0.011 - 0.033	0.044 - 0.065	0.080 - 0.110	0.120 - 0.130
0.014 - 0.042	0.056 - 0.085	0.100 - 0.130	0.160 - 0.170
0.012 - 0.036	0.048 - 0.070	0.090 - 0.120	0.130 - 0.140
0.019 - 0.057	0.076 - 0.115	0.140 - 0.180	0.210 - 0.230
0.017 - 0.051	0.068 - 0.100	0.120 - 0.160	0.190 - 0.200
0.017 - 0.051	0.068 - 0.100	0.120 - 0.160	0.190 - 0.200
0.014 - 0.042	0.056 - 0.085	0.100 - 0.130	0.160 - 0.170
0.013 - 0.038	0.050 - 0.075	0.090 - 0.120	0.140 - 0.150
0.012 - 0.036	0.048 - 0.070	0.090 - 0.120	0.130 - 0.140
0.014 - 0.042	0.056 - 0.085	0.100 - 0.130	0.160 - 0.170

Feed per tooth fz [mm]

Ø D_1 1.00 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00	Ø D_1 16.00 - 20.00
0.007 - 0.022	0.028 - 0.040	0.055 - 0.070	0.080 - 0.085
0.007 - 0.020	0.026 - 0.040	0.050 - 0.065	0.070 - 0.080
0.008 - 0.025	0.034 - 0.050	0.060 - 0.080	0.095 - 0.100
0.007 - 0.022	0.028 - 0.040	0.055 - 0.070	0.080 - 0.085
0.011 - 0.034	0.046 - 0.070	0.085 - 0.110	0.125 - 0.140
0.010 - 0.031	0.040 - 0.060	0.070 - 0.095	0.115 - 0.120
0.010 - 0.031	0.040 - 0.060	0.070 - 0.095	0.115 - 0.120
0.008 - 0.025	0.034 - 0.050	0.060 - 0.080	0.095 - 0.100
0.008 - 0.023	0.030 - 0.045	0.055 - 0.070	0.085 - 0.090
0.007 - 0.022	0.028 - 0.040	0.055 - 0.070	0.080 - 0.085
0.008 - 0.025	0.034 - 0.050	0.060 - 0.080	0.095 - 0.100

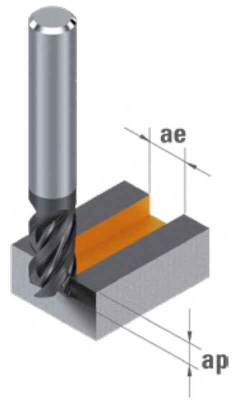
Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

ROUTING



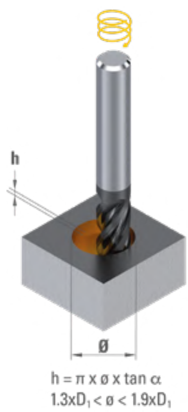
		VDI 3323	DIXI 7563 DIXI 7565 Vc [m/min]	DIXI 7563-FC DIXI 7565-FC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	385	550	0.45×ØD1	<0.95×L1
	Cast aluminium alloy >12% Si	23 - 25	175	250	0.35×ØD1	<0.95×L1
	Copper alloy good machinability with Pb	26	175	250	0.45×ØD1	<0.95×L1
	Copper alloy with difficult machinability	27 - 28	120	175	0.3×ØD1	<0.95×L1
	Gold, Silber	-	210	300	0.45×ØD1	<0.95×L1

SLOTTING



		VDI 3323	DIXI 7563 DIXI 7565 Vc [m/min]	DIXI 7563-FC DIXI 7565-FC Vc [m/min]	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	315	450	1×ØD1	< 1.2× ØD1
	Cast aluminium alloy >12% Si	23 - 25	140	200	1×ØD1	< 1× ØD1
	Copper alloy good machinability with Pb	26	140	200	1×ØD1	< 1.2× ØD1
	Copper alloy with difficult machinability	27 - 28	100	140	1×ØD1	< 1× ØD1
	Gold, Silber	-	175	250	1×ØD1	< 1× ØD1

HELICAL MILLING



		VDI 3323	DIXI 7563 DIXI 7565 Vc [m/min]	DIXI 7563-FC DIXI 7565-FC Vc [m/min]	Ramp angle α	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	315	450	< 10°	<1.2×ØD1
	Cast aluminium alloy >12% Si	23 - 25	140	200	< 8°	<1×ØD1
	Copper alloy good machinability with Pb	26	140	200	< 10°	<1.2×ØD1
	Copper alloy with difficult machinability	27 - 28	100	140	< 5°	<1×ØD1
	Gold, Silber	-	175	250	< 5°	<1×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.050 - 0.080	0.100 - 0.120	0.140 - 0.240
0.040 - 0.060	0.080 - 0.090	0.110 - 0.190
0.050 - 0.070	0.080 - 0.110	0.130 - 0.210
0.040 - 0.060	0.070 - 0.080	0.100 - 0.170
0.030 - 0.050	0.060 - 0.070	0.080 - 0.140

Feed per tooth fz [mm]

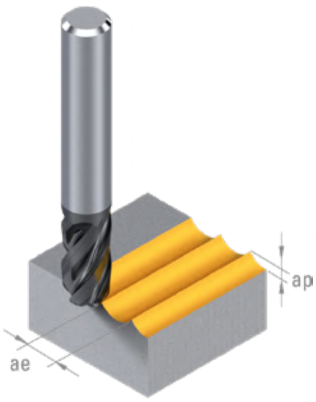
Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.040 - 0.060	0.070 - 0.080	0.100 - 0.170
0.030 - 0.040	0.060 - 0.060	0.080 - 0.130
0.040 - 0.050	0.006 - 0.080	0.090 - 0.150
0.030 - 0.040	0.050 - 0.060	0.070 - 0.120
0.020 - 0.040	0.040 - 0.050	0.060 - 0.100

Feed per tooth fz [mm]

Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 10.00	Ø D_1 12.00 - 16.00
0.030 - 0.050	0.060 - 0.060	0.080 - 0.140
0.020 - 0.030	0.050 - 0.050	0.060 - 0.100
0.030 - 0.040	0.050 - 0.060	0.070 - 0.120
0.020 - 0.030	0.040 - 0.050	0.060 - 0.100
0.020 - 0.030	0.030 - 0.040	0.050 - 0.080

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	TiAIN Vc [m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5			**175**		<0.5×ØD1	<0.12×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9			**150**		<0.5×ØD1	<0.1×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13			**125**		<0.5×ØD1	<0.08×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2			**110**		<0.5×ØD1	<0.08×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4			**100**		<0.5×ØD1	<0.06×ØD1
K	Grey cast iron < 250 HB	15 - 16	**225**		**250**		<0.5×ØD1	<0.16×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**185**		**205**		<0.5×ØD1	<0.12×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**325**				<0.5×ØD1	<0.16×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**275**				<0.5×ØD1	<0.14×ØD1
N	Copper alloy good machinability with Pb	26	**325**	**300**			<0.5×ØD1	<0.16×ØD1
N	Copper alloy with difficult machinability	27 - 28	**185**	**300**			<0.5×ØD1	<0.12×ØD1
N	Plastic, wood	29 - 30	**250**				<0.5×ØD1	<0.2×ØD1
N	Graphite	-				**250**	<0.5×ØD1	<0.2×ØD1
N	Gold, silver	-	**185**				<0.5×ØD1	<0.12×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35			**55**		<0.5×ØD1	<0.04×ØD1
S	Titanium, titanium alloy	36 - 37	**70**		**75**		<0.5×ØD1	<0.1×ØD1



DIXI 7047-8D / DIXI 7047-12D ⇒ (ap & ae) -25 %
DIXI 7047-15D / DIXI 7047-18D ⇒ (ap & ae) -50 %

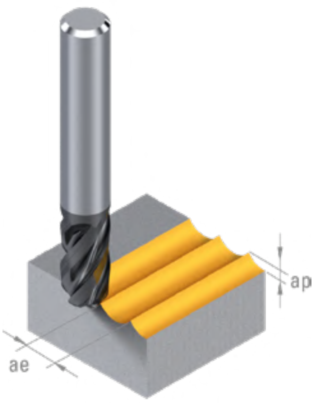
$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.20 - 0.60	Ø D_1 0.70 - 1.00	Ø D_1 1.10 - 1.50	Ø D_1 1.60 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0020 - 0.006	0.007 - 0.010	0.011 - 0.015	0.016 - 0.030	0.040 - 0.050	0.060 - 0.080	0.100 - 0.120
0.0018 - 0.005	0.006 - 0.009	0.010 - 0.014	0.014 - 0.027	0.036 - 0.045	0.050 - 0.070	0.090 - 0.110
0.0016 - 0.005	0.006 - 0.008	0.009 - 0.012	0.013 - 0.024	0.032 - 0.040	0.050 - 0.060	0.080 - 0.100
0.0016 - 0.005	0.006 - 0.008	0.009 - 0.012	0.013 - 0.024	0.032 - 0.040	0.050 - 0.060	0.080 - 0.100
0.0014 - 0.004	0.005 - 0.007	0.008 - 0.011	0.011 - 0.021	0.028 - 0.035	0.040 - 0.060	0.070 - 0.080
0.0024 - 0.007	0.008 - 0.012	0.013 - 0.018	0.019 - 0.036	0.048 - 0.060	0.070 - 0.100	0.120 - 0.140
0.0020 - 0.006	0.007 - 0.010	0.011 - 0.015	0.016 - 0.030	0.040 - 0.050	0.060 - 0.080	0.100 - 0.120
0.0030 - 0.009	0.011 - 0.015	0.017 - 0.023	0.024 - 0.045	0.060 - 0.075	0.090 - 0.120	0.150 - 0.180
0.0026 - 0.008	0.009 - 0.013	0.014 - 0.020	0.021 - 0.039	0.052 - 0.065	0.080 - 0.100	0.130 - 0.160
0.0030 - 0.009	0.011 - 0.015	0.017 - 0.023	0.024 - 0.045	0.060 - 0.075	0.090 - 0.120	0.150 - 0.180
0.0024 - 0.007	0.008 - 0.012	0.013 - 0.018	0.019 - 0.036	0.048 - 0.060	0.070 - 0.100	0.120 - 0.140
0.0030 - 0.009	0.011 - 0.015	0.017 - 0.023	0.024 - 0.045	0.060 - 0.075	0.090 - 0.120	0.150 - 0.180
0.0040 - 0.012	0.014 - 0.020	0.022 - 0.030	0.032 - 0.060	0.080 - 0.100	0.120 - 0.160	0.200 - 0.240
0.0026 - 0.008	0.009 - 0.013	0.014 - 0.020	0.021 - 0.039	0.052 - 0.065	0.080 - 0.100	0.130 - 0.160
0.0010 - 0.003	0.004 - 0.005	0.006 - 0.008	0.008 - 0.015	0.020 - 0.025	0.030 - 0.040	0.050 - 0.060
0.0020 - 0.006	0.007 - 0.010	0.011 - 0.015	0.016 - 0.030	0.040 - 0.050	0.060 - 0.080	0.100 - 0.120

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !



		VDI 3323	CARBIDE Vc [m/min]	DICUT Vc [m/min]	TiAlN Vc [m/min]	DIAMANT Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5			**175**		<0.50×ØD1	<0.15×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9			**150**		<0.50×ØD1	<0.12×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13			**125**		<0.50×ØD1	<0.10×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2			**110**		<0.50×ØD1	<0.10×ØD1
M	Nickel-free stainless steel/ DUPLEX >700 N/mm²	14.3-14.4			**100**		<0.50×ØD1	<0.08×ØD1
K	Grey cast iron < 250 HB	15 - 16	**225**		**250**		<0.50× ØD1	<0.20×ØD1
K	Ductile, malleable, nodular cast iron>250HB	17 - 20	**185**		**205**		<0.50×ØD1	<0.15×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**325**				<0.50×ØD1	<0.20×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**275**				<0.50×ØD1	<0.18×ØD1
N	Copper alloy good machinability with Pb	26	**325**	**300**			<0.50×ØD1	<0.20×ØD1
N	Copper alloy with difficult machinability	27 - 28	**185**	**300**			<0.50×ØD1	<0.15×ØD1
N	Plastic, wood	29 - 30	**250**				<0.50× ØD1	<0.25×ØD1
N	Graphite	-				**250**	<0.50×ØD1	<0.25×ØD1
N	Gold, silver	-	**200**				<0.50×ØD1	<0.10×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35			**55**		<0.25×ØD1	<0.05×ØD1
S	Titanium, titanium alloy	36 - 37	**70**		**75**		<0.50×ØD1	<0.12×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

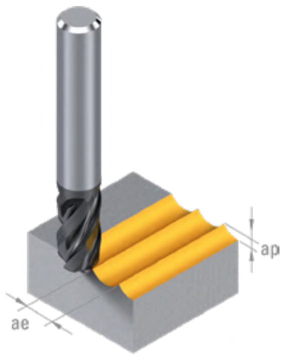
Ø D_1 0.06 - 0.20	Ø D_1 0.30 - 0.60	Ø D_1 0.70 - 1.50	Ø D_1 1.60 - 2.50	Ø D_1 3.00 - 6.00	Ø D_1 7.00 - 10.00	Ø D_1 12.00 - 20.00
0.0005 - 0.0020	0.003 - 0.006	0.007 - 0.015	0.016 - 0.025	0.030 - 0.060	0.070 - 0.100	0.120 - 0.200
0.0004 - 0.0018	0.003 - 0.005	0.006 - 0.014	0.014 - 0.023	0.028 - 0.055	0.060 - 0.090	0.110 - 0.180
0.0004 - 0.0016	0.002 - 0.005	0.006 - 0.012	0.013 - 0.020	0.024 - 0.050	0.060 - 0.080	0.100 - 0.160
0.0004 - 0.0016	0.002 - 0.005	0.006 - 0.012	0.013 - 0.020	0.024 - 0.050	0.060 - 0.080	0.100 - 0.160
0.0003 - 0.0014	0.002 - 0.004	0.005 - 0.011	0.011 - 0.018	0.022 - 0.040	0.050 - 0.070	0.080 - 0.140
0.0006 - 0.0024	0.004 - 0.007	0.008 - 0.018	0.019 - 0.030	0.036 - 0.070	0.080 - 0.120	0.140 - 0.240
0.0005 - 0.0020	0.003 - 0.006	0.007 - 0.015	0.016 - 0.025	0.030 - 0.060	0.070 - 0.100	0.120 - 0.200
0.0007 - 0.0030	0.005 - 0.009	0.011 - 0.023	0.024 - 0.038	0.046 - 0.090	0.110 - 0.150	0.180 - 0.300
0.0006 - 0.0026	0.004 - 0.008	0.009 - 0.020	0.021 - 0.033	0.040 - 0.080	0.090 - 0.130	0.160 - 0.260
0.0007 - 0.0030	0.005 - 0.009	0.011 - 0.023	0.024 - 0.038	0.046 - 0.090	0.110 - 0.150	0.180 - 0.300
0.0006 - 0.0024	0.004 - 0.007	0.008 - 0.018	0.019 - 0.030	0.036 - 0.070	0.080 - 0.120	0.140 - 0.240
0.0007 - 0.0030	0.005 - 0.009	0.011 - 0.023	0.024 - 0.038	0.046 - 0.090	0.110 - 0.150	0.180 - 0.300
0.0010 - 0.0040	0.006 - 0.012	0.014 - 0.030	0.032 - 0.050	0.060 - 0.120	0.140 - 0.200	0.240 - 0.400
0.0006 - 0.0026	0.004 - 0.008	0.009 - 0.020	0.021 - 0.033	0.040 - 0.080	0.090 - 0.130	0.160 - 0.260
0.0002 - 0.0010	0.002 - 0.003	0.004 - 0.008	0.008 - 0.013	0.016 - 0.030	0.040 - 0.050	0.060 - 0.100
0.0005 - 0.0020	0.003 - 0.006	0.007 - 0.015	0.016 - 0.025	0.030 - 0.060	0.070 - 0.100	0.120 - 0.200

Values based on cutting oil use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

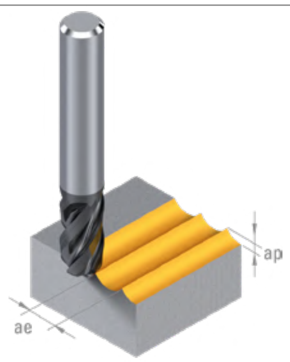
DIXI 7532 - 7542 - 7532-3D

		VDI 3323		XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**240**	<0.3×ØD1	<0.07×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**65**	<0.3×ØD1	<0.04×ØD1
H	Hardened steel (45 to 55 HRC)	38		**200**	<0.3×ØD1	<0.03×ØD1
H	Hardened steel (55 to 65 HRC)	39		**120**	<0.2×ØD1	<0.02×ØD1

DIXI 7532-5D - 8D

		VDI 3323		XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**240**	<0.3×ØD1	<0.07×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**65**	<0.3×ØD1	<0.04×ØD1
H	Hardened steel (45 to 55 HRC)	38		**200**	<0.3×ØD1	<0.03×ØD1
H	Hardened steel (55 to 65 HRC)	39		**120**	<0.2×ØD1	<0.02×ØD1

DIXI 7532-10D - 12D - 15D

		VDI 3323		XIDUR Vc [m/min]	ae (mm)	ap (mm)
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**240**	<0.3×ØD1	<0.07×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**65**	<0.3×ØD1	<0.04×ØD1
H	Hardened steel (45 to 55 HRC)	38		**200**	<0.3×ØD1	<0.03×ØD1
H	Hardened steel (55 to 65 HRC)	39		**120**	<0.2×ØD1	<0.02×ØD1

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.20 - 0.40	Ø D_1 0.50 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00
0.004 - 0.008	0.010 - 0.014	0.016 - 0.020	0.030 - 0.060	0.080 - 0.120	0.160 - 0.180
0.004 - 0.007	0.009 - 0.013	0.014 - 0.018	0.027 - 0.054	0.072 - 0.108	0.144 - 0.162
0.004 - 0.007	0.009 - 0.013	0.014 - 0.018	0.027 - 0.054	0.072 - 0.108	0.144 - 0.162
0.002 - 0.004	0.005 - 0.007	0.008 - 0.010	0.015 - 0.030	0.040 - 0.060	0.080 - 0.090

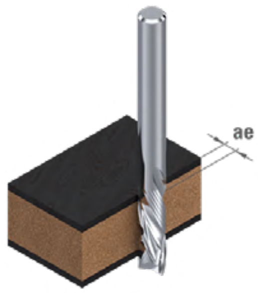
Feed per tooth fz [mm]

Ø D_1 0.20 - 0.40	Ø D_1 0.50 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00
0.003 - 0.006	0.008 - 0.011	0.013 - 0.016	0.024 - 0.048	0.064 - 0.096	0.130 - 0.145
0.003 - 0.006	0.007 - 0.010	0.011 - 0.014	0.022 - 0.043	0.058 - 0.086	0.115 - 0.130
0.003 - 0.006	0.007 - 0.010	0.011 - 0.014	0.022 - 0.043	0.058 - 0.086	0.115 - 0.130
0.002 - 0.003	0.004 - 0.006	0.006 - 0.008	0.012 - 0.024	0.032 - 0.048	0.065 - 0.070

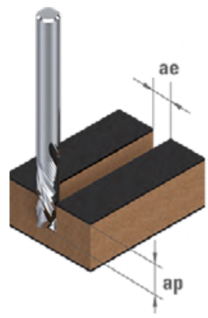
Feed per tooth fz [mm]

Ø D_1 0.20 - 0.40	Ø D_1 0.50 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.50 - 3.00	Ø D_1 4.00 - 6.00	Ø D_1 8.00 - 12.00
0.002 - 0.005	0.006 - 0.009	0.010 - 0.013	0.019 - 0.038	0.051 - 0.077	0.105 - 0.115
0.002 - 0.005	0.006 - 0.008	0.009 - 0.011	0.018 - 0.034	0.046 - 0.069	0.090 - 0.105
0.002 - 0.005	0.006 - 0.008	0.009 - 0.011	0.018 - 0.034	0.046 - 0.069	0.090 - 0.105
0.001 - 0.002	0.003 - 0.005	0.005 - 0.006	0.010 - 0.019	0.026 - 0.038	0.050 - 0.055

ROUTING

		VDI 3323		CARBIDE Vc [m/min]	ae (mm)
N	Plastics	29		**400**	<0.4×ØD1
	Wood	30		**350**	<0.6×ØD1

SLOTTING

		VDI 3323		CARBIDE Vc [m/min]	ae (mm)	ap (mm)
N	Plastics	29		**350**	1×ØD1	<1.5×ØD1
	Wood	30		**325**	1×ØD1	<2×ØD1

RAMPING

		VDI 3323		CARBIDE Vc [m/min]	Ramp angle α	Depth (mm)
N	Plastics	29		**350**	<10°	<1.5×ØD1
	Wood	30		**325**	<15°	<2×ØD1

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.085 - 0.105	0.120 - 0.130
0.070 - 0.090	0.100 - 0.110

Feed per tooth fz [mm]

Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.070 - 0.085	0.095 - 0.105
0.055 - 0.070	0.080 - 0.090

Feed per tooth fz [mm]

Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.045 - 0.055	0.060 - 0.065
0.035 - 0.045	0.050 - 0.055

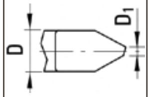
Values based on dry use. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !


DIXI 765

✓ = item from stock

* for non-ferrous material

1/2 ENGRAVING TOOLS

	Page		☐ CARBIDE	DINAC	DLC*	
DIXI 7017 δ = 30° - 120° 	292	D = 3.00-4.00 D_1 = 0.05-0.20	✓	✓	✓*	

2/3 ENGRAVING TOOLS

DIXI 7027 δ = 35° - 60° 	293	D = 3.00 D_1 = 0.05-0.15	✓	✓		

3/4 ENGRAVING TOOLS

DIXI 7007 δ = 30° - 90° 	294	D = 3.00 D_1 = 0.05-0.20 R 0.05 - R 0.20	✓	✓		

HELICAL ENGRAVING TOOLS

DIXI 7025 	295	D = 3.00-4.00 D_1 = 0.10-0.15	✓			

SEMI-FINISHED ENGRAVING TOOLS

DIXI 7012 	296	D = 3.00-8.00 D_1 = 1.00-2.60	✓			
DIXI 7016 	296	D = 2.00-8.00	✓			
DIXI 7020 	296	D = 2.00-10.00	✓			
DIXI 7024 	296	D = 3.00-6.00	✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
	◎	◎	○	○	○	◎	○	◎	◎	◎	○	○	
	◎	◎	◎	◎	○	◎	◎	◎	○	◎	○	◎	
	○	◎	◎	◎	○	○	◎	◎	○	◎	◎	◎	○
					◎	◎	○	○		○			

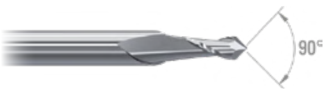
○ good ◎ excellent

✓ = item from stock

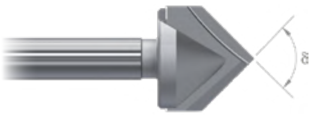
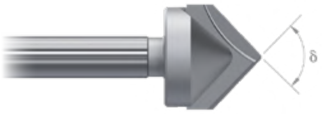
CHAMFERING TOOLS

CHAMFERING TOOLS		Page		☐ CARBIDE	■ TiAlN	■ CUTINOX	
DIXI 7623 Ø 0.50 - 12.00		297		✓	✓		
DIXI 7625 δ = 60° - 120°		298		✓			
DIXI 7624 Ø 0.20 - 5.70		299		✓			
DIXI 7656 R 0.10 - 1.00		300		✓	✓		
DIXI 7658 R 1.00 - 6.00		301		✓			

MULTIFUNCTION END MILLS

MULTIFUNCTION END MILLS		Page		☐ CARBIDE	■ TiAlN	■ CUTINOX	
DIXI 7632 Ø 0.10 - 12.00		302		✓		✓	

FOLDING AND SLOTTING END MILLS

FOLDING AND SLOTTING END MILLS		Page		☐ CARBIDE	■ TiAlN	■ CUTINOX	
DIXI 7626 δ = 60° - 160°		303		✓			
DIXI 7627 δ = 45° - 92°		304		✓			
DIXI 7628 δ = 92° - 135°		305		✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
	◎	○	○	○	◎	◎	◎	◎	○	◎	○	◎	
	○					◎	○	◎		◎			
	◎	○	○	○	◎	◎	◎	◎	○	◎	○	◎	
	◎	○	○	○	◎	◎	◎	◎	○	◎	○	◎	
	◎	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	

○	○	○	○	◎	◎	○	○	○	○	○	○	

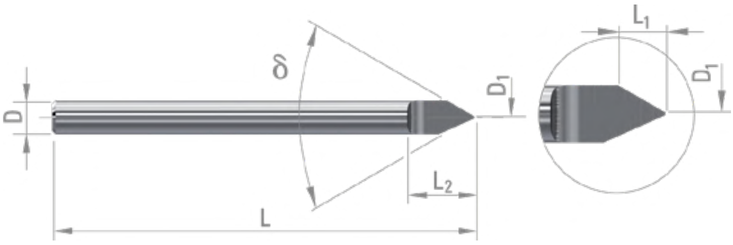
								◎				
								◎				
								◎				

○ good ◎ excellent

DIXI 7017

1/2 ENGRAVING TOOLS

P.306



- 1/2 engraving tools developed for general engraving.
- Easily regrindable.
- DINAC coating improves tool life in ferrous and non-ferrous materials.
- DLC coating improves tool life in non-ferrous materials.

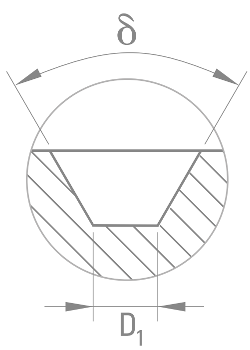
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎			◎		○	○	○	○	○				

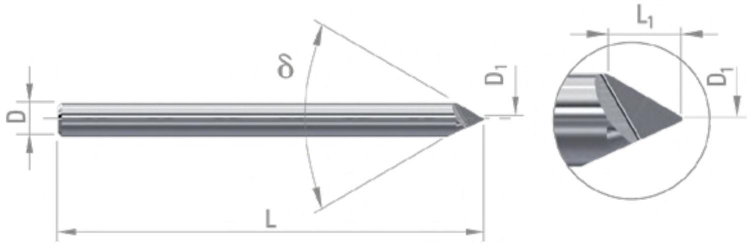
δ	L_1	L_2	D_{h6}	L	$D_{1\ \pm0.01}$	CARBIDE	DINAC	DLC *
30°	4.00	4.00	3	38	0.05	961336	962814	961337
					0.10	961338	962813	961339
					0.15	961340	962812	961342
					0.20	961341	962116	961343
50°	3.00	6.00	3	38	0.05	961326	961327	
					0.08	961328	961333	
					0.10	961329	961332	
					0.15	961330	961334	
					0.20	961331	961335	
60°	2.40	6.00	3	38	0.05	43536	959712	
					0.08	972400	972401	
					0.10	40939	959713	
					0.15	953721	960610	
					0.20	954292	960611	
60°	3.30	8.00	4	50	0.05	43537	959714	
					0.10	45813	959716	
					0.20	45814	959717	
90°	1.45	8.00	3	38	0.05	961246	961248	
					0.10	961247	961249	
120°	0.84	8.00	3	38	0.05	961322	961323	
					0.10	961324	961325	

* for non-ferrous material



2/3 ENGRAVING TOOLS

P.306



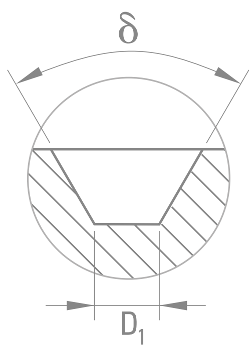
- 2/3 engraving tools developed for general engraving.
- Better rigidity compared to 1/2 geometry.
- DINAC coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○

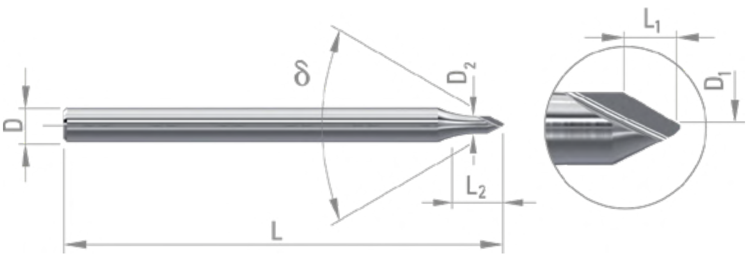
ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

δ	L_1	D_{h5}	L	$D_{1\ \pm 0.01}$	CARBIDE	DINAC
35°	4.60	3	38	0.05	326662	326682
				0.07	326663	326683
				0.08	326664	326684
				0.10	326665	326685
40°	3.90	3	38	0.05	326666	326686
				0.07	326667	326687
				0.08	326668	326688
				0.10	326669	326689
				0.15	326670	326690
50°	3.10	3	38	0.05	326671	326691
				0.07	326672	326692
				0.08	326673	326693
				0.10	326674	326694
				0.15	326675	326695
60°	2.50	3	38	0.05	326676	326696
				0.06	326677	326697
				0.07	326678	326698
				0.08	326679	326699
				0.10	326680	326700
				0.15	326681	326701



3/4 ENGRAVING TOOLS

P.306



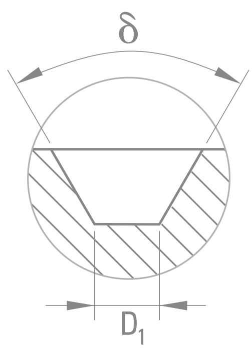
- 3/4 engraving tools developed for general engraving.
- Better rigidity compared to 1/2 geometry. Also recommended for crimping preparations.
- DINAC coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

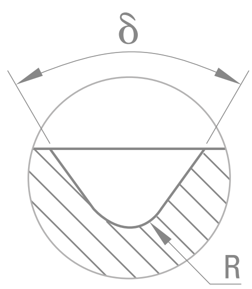
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎		○		◎	◎	○	◎	◎	○		○	

δ	L_1	L_2	D_2	D_{h6}	L	$D_{1\ \pm0.01}$	CARBIDE	DINAC
30°	2.50	3.40	1.50	3	38	0.05	976370	976374
						0.08	976371	976375
						0.10	976372	976376
						0.15	976373	976377
35°	2.00	3.40	1.50	3	38	0.05	65846	959722
						0.08	961244	961245
						0.10	65848	959724
						0.15	65850	959725
						0.20	65852	959726
40°	1.70	3.20	1.50	3	38	0.05	961225	961238
						0.08	961242	961243
						0.10	961226	961239
						0.15	961227	961240
						0.20	961228	961241
50°	1.40	2.30	1.50	3	38	0.05	976258	976264
						0.08	976260	976265
						0.10	976261	976266
						0.15	976263	976267
60°	1.10	2.30	1.50	3	38	0.05	976361	976365
						0.08	976362	976366
						0.10	976363	976367
						0.15	976364	976368
90°	0.60	2.30	1.50	3	38	0.10	414120	414121
						0.15	414122	414123



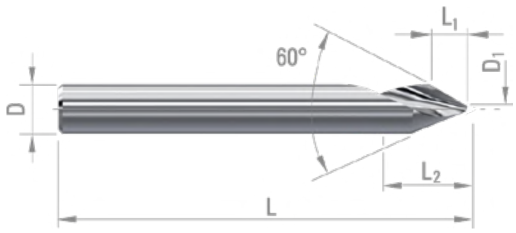
δ	L_1	L_2	D_2	D_{h6}	L	$R_{\pm0.01}$	CARBIDE	DINAC
35°	1.90	3.40	1.50	3	38	0.05	51736	959718
						0.10	51625	959719
						0.15	51734	959720
						0.20	51735	959721



DIXI 7025

HELICAL ENGRAVING TOOLS, 60°

P.306



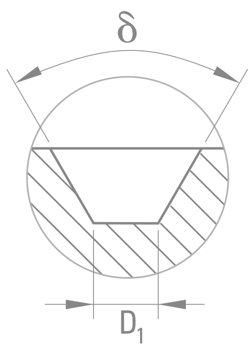
- 60° helical engraving tools developed for deep engraving of low hardness materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																		◎	◎				

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	○	○	○	○												

$D_{1\,\pm0.02}$	L_1	L_2	D_{h5}	L	CARBIDE
0.10	2.50	9	3	38	43624
0.15	3.30	12	4	50	45812



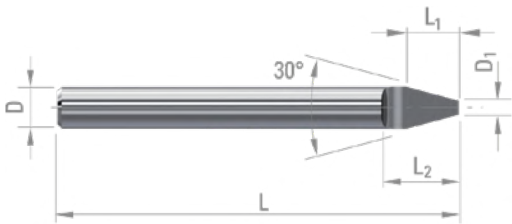
DIXI 7012

1/2 ENGRAVING TOOLS, 30°
SEMI-FINISHED STYLE

- 1/2 engraving tool blanks. Must be ground according to the shape and material to be machined.

D_1	L_1	L_2	D_{h5}	L	CARBIDE
*1.00	3.70	4	3	38	35505
*1.30	5.00	5	4	50	35666
*2.00	7.50	8	6	57	35506
*2.60	10.00	10	8	63	35668

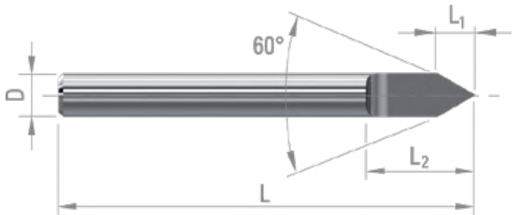
*not cutting



DIXI 7016

1/2 ENGRAVING TOOLS, 60°
SEMI-FINISHED STYLE

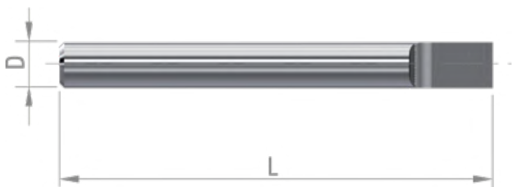
D_{h5}	L_1	L_2	L	CARBIDE
2	1.70	4	25	32852
3	2.60	6	38	23585
4	3.50	8	50	23586
5	4.30	10	50	35082
6	5.20	12	57	29726
8	6.90	14	63	29727



DIXI 7020

1/2 ENGRAVING TOOLS, 180°
SEMI-FINISHED STYLE

D_{h5}	L_1	L	CARBIDE
2	3	25	35671
3	4	38	35672
4	5	50	35673
5	6	50	35674
6	8	57	35675
8	10	63	35676
10	12	72	35677

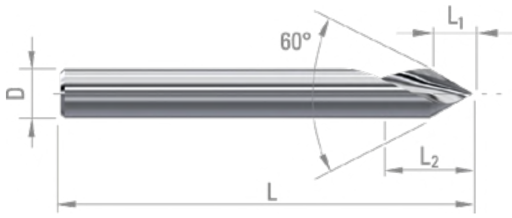


DIXI 7024

HELICAL ENGRAVING TOOLS, 60°
SEMI-FINISHED STYLE

- 60° helical engraving tools blanks. Must be ground according to the shape and material to be machined.

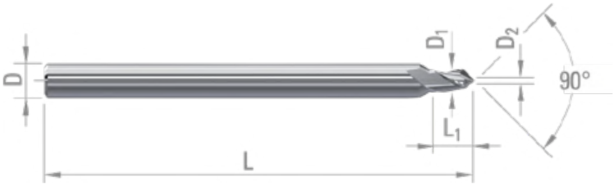
D_{h5}	L_1	L_2	L	CARBIDE
3	2.60	9	38	35678
4	3.50	12	50	35679
6	5.20	15	50	35680



Z = 3

P.308

CHAMFERING TOOLS



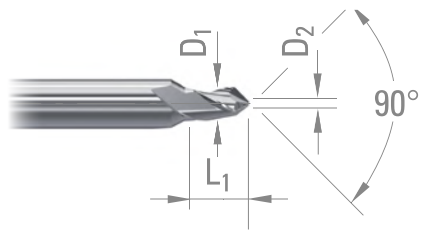
- 90° chamfering tools developed for general machining.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

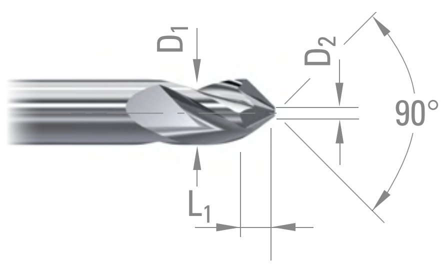
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○		◎	◎				

$D_{1\ e8}$ Ø<2.00 - 0/-0.01 Ø<3.00 - 0/-0.02	L_1	$D_{2\ \pm 0.05}$	D_{h5}	L	CARBIDE	TiAlN
*0.50	1.50	0.05	3	38	983778	
*0.80	1.50	0.08	3	38	956868	956870
*1.00	2.00	0.10	3	38	956867	956869
*2.00	3.00	0.20	3	38	956865	956866
*3.00	5.00	0.30	3	38	956861	956862
*4.00	6.00	0.40	4	50	956863	956864



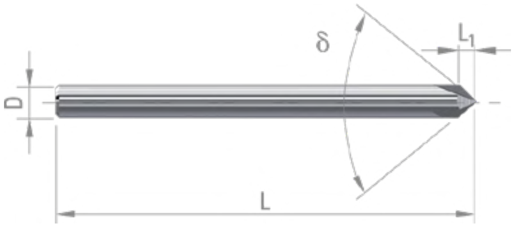
$D_{1\ h5}$	L_1	$D_{2\ \pm 0.05}$	D_{h5}	L	CARBIDE	TiAlN
5.00	2.25	0.50	5	50	49019	952294
6.00	2.70	0.60	6	57	49020	63603
8.00	3.60	0.80	8	63	49021	950927
10.00	4.50	1.00	10	72	49022	63604
12.00	5.40	1.20	12	73	49023	952295



Z = 3

P.306

CHAMFERING TOOLS INNER CORNERS



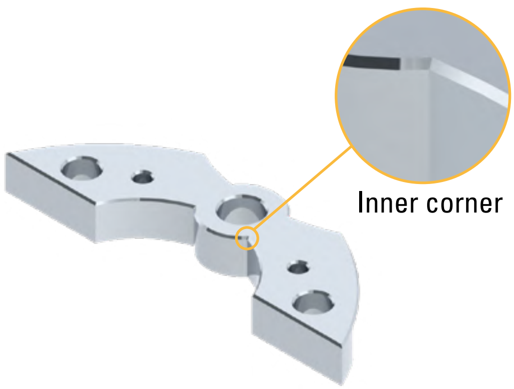
- Chamfering tools for inner corners developed to minimise manual bevelling operations.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

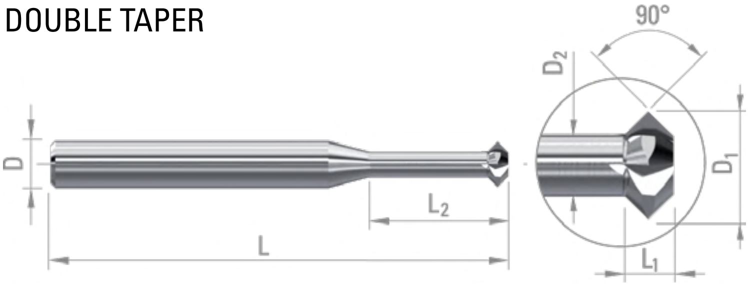
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎												

δ	L_1	D_{h5}	L	CARBIDE
60°	2.60	3	38	310782
90°	1.50	3	38	306130
120°	0.90	3	38	312243



P.308

CHAMFERING TOOLS DOUBLE TAPER



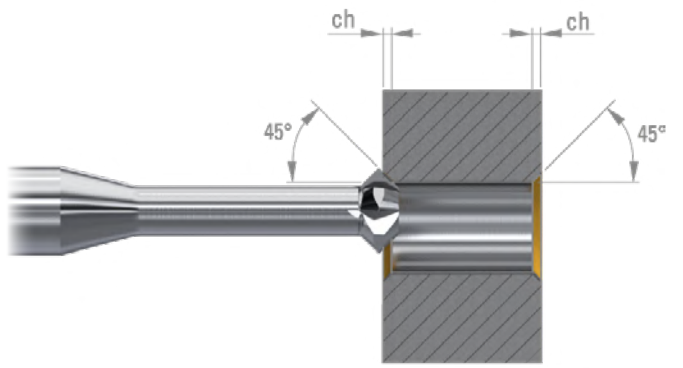
- Double taper chamfering tools developed for 45° bevelling and counter-bevelling.

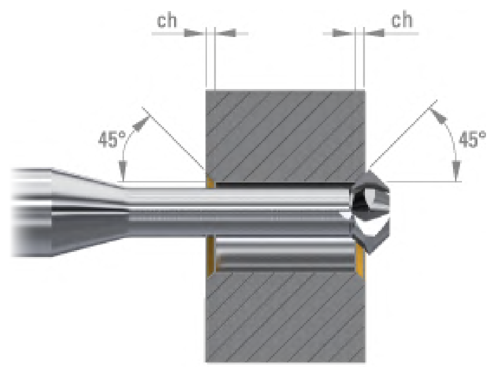
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○		◎	◎				

$D_{1\ 0/-0.02}$	L_1	D_2	L_2	ch	D_{h5}	L	Z	CARBIDE
0.20	0.11	0.12	0.40	0.04	3	38	1	997990
0.25	0.13	0.15	0.50	0.05	3	38	1	997991
0.30	0.15	0.18	0.60	0.06	3	38	1	997992
0.40	0.19	0.24	0.80	0.08	3	38	1	997993
0.50	0.23	0.30	1.00	0.10	3	38	1	997994
0.60	0.31	0.36	1.20	0.12	3	38	3	997995
0.70	0.35	0.42	1.40	0.14	3	38	3	997996
0.80	0.40	0.48	1.60	0.16	3	38	3	997997
0.90	0.44	0.54	1.80	0.18	3	38	3	997998
1.00	0.49	0.60	2.00	0.20	3	38	3	997999
1.20	0.60	0.70	2.40	0.25	3	38	4	998000
1.30	0.67	0.70	2.60	0.30	3	38	4	998001
1.80	0.92	1.00	5.40	0.40	3	38	4	998002
2.80	1.36	1.60	8.40	0.60	3	38	4	998003
3.70	1.80	2.10	11.10	0.80	6	57	4	998004
5.70	2.68	3.30	17.10	1.20	6	57	4	998005





DIXI 7656

Z = 2

CORNER ROUNDING END MILLS

P.308

- Corner rounding end mills developed for general machining.
- TiAIN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S						H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○		◎	◎				

$R_{\pm 0.02}$	D_1*	L_1	D_2	L_2	D_{h5}	L	CARBIDE	TiAIN
0.10	0.50	0.12	0.74	0.80	3	38	969577	969578
0.15	0.50	0.18	0.86	0.80	3	38	969586	969597
0.20	0.50	0.24	0.98	0.80	3	38	969587	969598
0.25	0.50	0.30	1.10	1.00	3	38	969588	969599
0.30	0.50	0.36	1.22	1.00	3	38	969589	969600
0.40	0.50	0.48	1.46	1.00	3	38	969590	969601
0.50	0.50	0.60	1.70	1.50	3	38	969591	969602
0.60	0.50	0.70	1.90	1.50	3	38	969592	969603
0.70	0.50	0.80	2.10	1.50	3	38	969593	969604
0.80	0.80	0.90	2.60	2.0	3	38	969594	969605
0.90	0.80	1.00	2.80	2.0	3	38	969595	969606
1.00	0.80	1.10	-	-	3	38	969596	969607

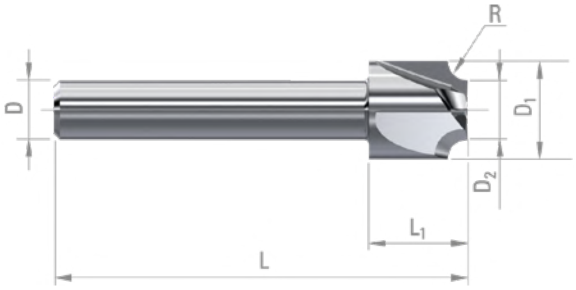
* not-cutting

DIXI 7658

Z = 4

P.308

CORNER ROUNDING END MILLS



- Corner rounding end mills developed for general machining.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	○	○	○		◎	◎	○	○	○	◎	◎				

$R_{\pm 0.02}$	$D_{1\ h5}$	L_1	D_2^*	D_{h5}	L	CARBIDE
1	10	10	8	6	42	381167
2	10	10	6	6	42	381168
3	12	10	6	8	42	381169
4	12	10	4	8	42	381170
5	16	10	6	8	42	381171
6	16	10	4	8	42	381172
6	20	10	8	8	42	381173

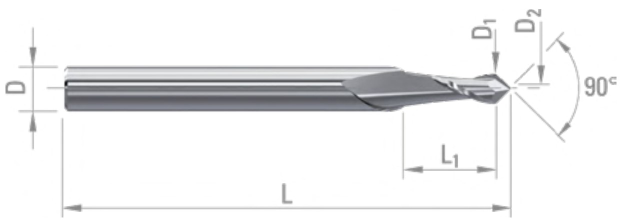
* not-cutting

DIXI 7632

Z = 2

MULTIFUNCTION END MILLS

P.310



- Multifunction end mills developed for general machining (spotting, drilling, chamfering, slotting, contouring).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

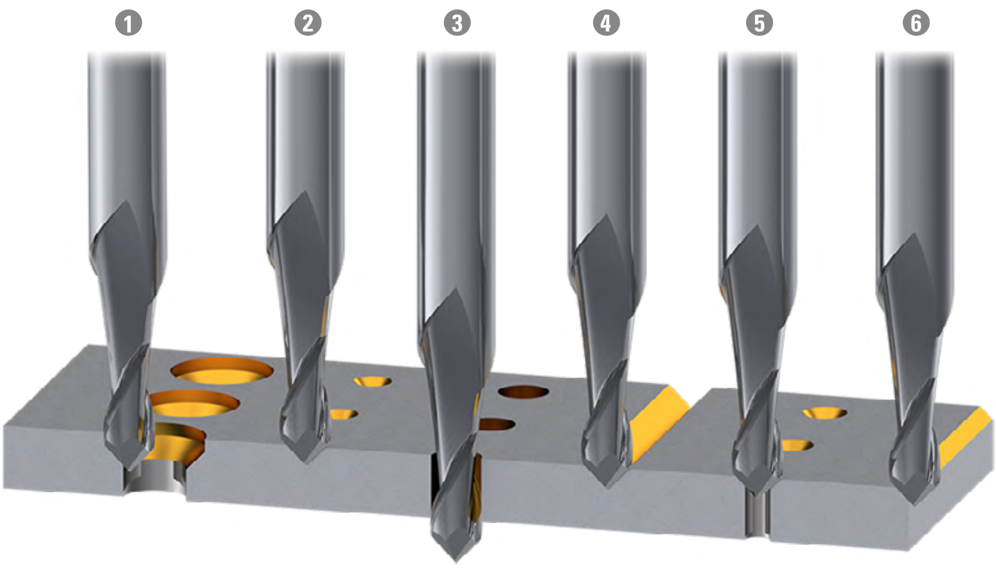
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	○	○	○	○				○	○		○	○				

$D_{1\ e8}$	L_1	D_2	D_{h5}	L	CARBIDE	CUTINOX
0.10	0.20	0.01	3	38	333883	333907
0.20	0.40	0.02	3	38	333884	333908
0.30	0.60	0.03	3	38	333885	333909
0.40	0.80	0.04	3	38	333886	333910
0.50	1.00	0.05	3	38	333887	333911
0.60	1.20	0.06	3	38	333888	333912
0.70	1.40	0.07	3	38	333889	333913
0.80	1.60	0.08	3	38	333890	333914
0.90	1.80	0.09	3	38	333891	333915
1.00	2.00	0.10	3	38	333892	333916
1.10	2.20	0.11	3	38	333893	333917
1.20	2.40	0.12	3	38	333894	333918

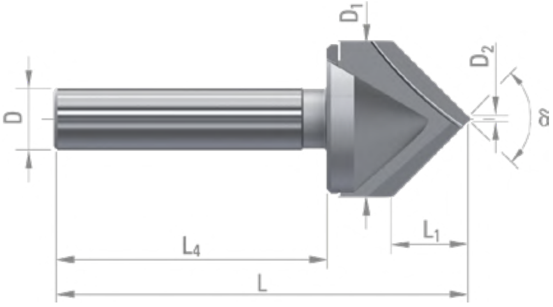
$D_{1\ e8}$	L_1	D_2	D_{h5}	L	CARBIDE	CUTINOX
1.30	2.60	0.13	3	38	333895	333919
1.40	2.80	0.14	3	38	333896	333920
1.50	3.00	0.15	3	38	333897	333921
2.00	4.00	0.20	3	38	333898	333922
2.50	5.00	0.25	3	38	333899	333923
3.00	6.00	0.30	4	50	333900	333924
4.00	8.00	0.40	5	50	333901	333925
5.00	10.00	0.50	6	50	333902	333926
6.00	12.00	0.60	8	60	333903	333927
8.00	16.00	0.80	10	70	333904	333928
10.00	18.00	1.00	12	70	333905	333929
12.00	20.00	1.20	12	70	333906	333930



1 Counterbore
2 Spotting
3 Drilling
4 Engraving
5 6 Chamfering

DIXI 7626 **Z = 2**

CHAMFERING TOOLS WITH BRAZED INSERT



- Chamfering tools with brazed insert developed for bevelling operation on plastic materials (PMMA, PET, PVC…), especially for POS applications.
- These tools allow burr-free machining.

○ good ◎ excellent

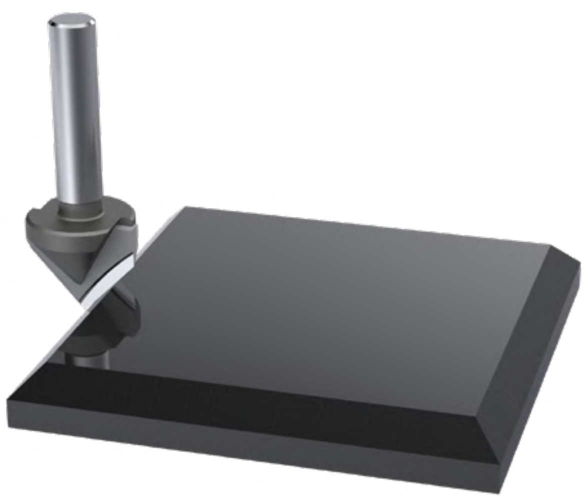
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

δ	$D_{1\ h6}$	L_1	L_4	D_{h6}	D_2^* ±0.05	L	CARBIDE new	CARBIDE regrinded
60°	20	17.0	35	8	0.30	60	381111	381120
90°	20	9.8	35	8	0.30	53	381112	381121
100°	20	8.2	35	8	0.30	51	381113	381122
110°	20	6.8	35	8	0.30	50	381114	381123
120°	20	5.6	35	8	0.30	49	381115	381124
130°	20	4.5	35	8	0.30	48	381116	381125
140°	20	3.5	35	8	0.30	47	381117	381126
150°	20	2.6	35	8	0.30	46	381118	381127
160°	20	1.7	35	8	0.30	45	381119	381128

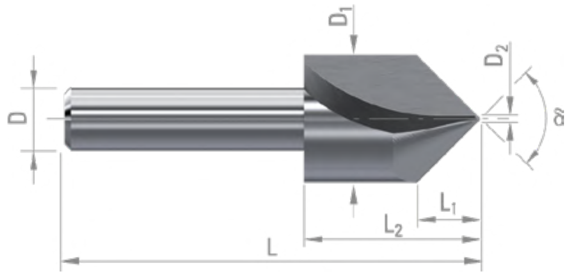
* not-cutting

Cutting conditions **n = 15'000 - 18'000 [rpm]**
Vf = 1'000 - 1'500 [mm/min]



DIXI 7627 Z = 2

FOLDING AND SLOTTING END MILLS



- Folding and slotting end mills developed for bending and grooving operations in plastic materials (PMMA, PET, PVC…), especially for POS applications.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

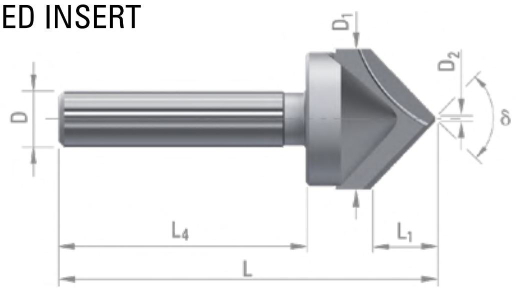
δ	$D_{1\ h5}$	L_1	L_2	D_{h5}	$D_{2\ \pm0.05}$	L	CARBIDE new	CARBIDE regrinded
45°	16	19.0	22	8	0.20	50	381129	381137
90°	8	3.9	22	8	0.20	50	381130	381138
90°	12	5.9	22	6	0.20	50	420802	
90°	12	5.9	22	12	0.20	50	381131	381139
90°	16	7.9	22	8	0.20	50	381132	381140
90°	16	7.9	22	16	0.20	50	381133	381141
90°	22	10.9	22	20	0.20	50	381134	381142
90°	24	11.9	22	20	0.20	50	381135	381143
92°	12	5.6	22	12	0.20	50	381136	381144

Cutting conditions **n = 15'000 - 18'000 [rpm]**
Vf = 2'000 [mm/min]

DIXI 7628

Z = 2

FOLDING AND SLOTTING END MILLS WITH BRAZED INSERT



- Folding and slotting end mills with brazed insert developed for bending and grooving operations in sandwich materials (Dibond®, Alucobond®), especially for POS applications.

○ good ◎ excellent

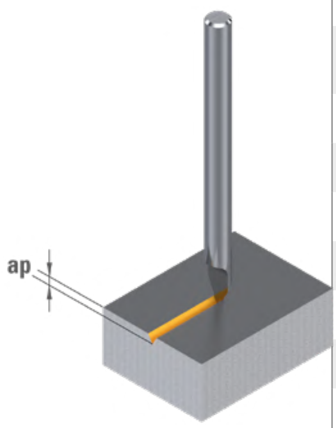
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎	◎									

δ	$D_{1\ h6}$	L_1	L_4	D_{h6}	$D_{2\ \pm 0.05}$	L	CARBIDE new	CARBIDE regrinded
92°	20	9.50	35	8	3	53	380752	380759
135°	20	4.00	35	8	2	47	380758	380760

Cutting conditions **n = 15'000 - 18'000 [rpm]**
Vf = 2'000 - 4'000 [mm/min]

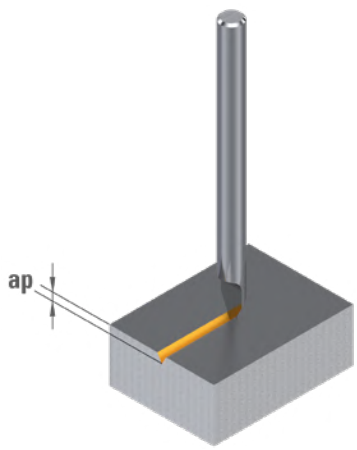
ENGRAVING



		VDI 3323	CARBIDE Vc [m/min]	DINAC Vc[m/min]	DLC Vc [m/min	D_1Ø0.05-0.10 ap (mm)	D_1Ø0.15-0.50 ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**20** - 35'000	**20** - 35'000		0.05 - 0.30	0.10 - 0.42
P	Low alloyed steel < 800 N/mm²	6 - 9		**20** - 35'000		0.05 - 0.25	0.10 - 0.34
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**20** - 35'000		0.05 - 0.20	0.10 - 0.26
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**20** - 35'000		0.05 - 0.20	0.10 - 0.34
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**20** - 35'000		0.05 - 0.25	0.10 - 0.30
K	Grey cast iron < 250 HB	15 - 16	**20** - 35'000	**20** - 35'000		0.05 - 0.45	0.10 - 0.45
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**20** - 35'000	**20** - 35'000		0.05 - 0.40	0.10 - 0.45
N	Wrought aluminium alloy < 12% Si	21 - 22	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.60	0.10 - 0.45
N	Cast aluminium alloy >12% Si	23 - 25	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.50
N	Copper alloy good machinability with Pb	26	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.45
N	Copper alloy with difficult machinability	27 - 28	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.40	0.10 - 0.45
N	Plastic, wood	29 - 30	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.45	0.10 - 0.45
N	Gold, silver	-	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.40	0.10 - 0.45
S	Refractory alloy, Fe, Ni, Co base	31- 35		**15** - 25'000			0.04 - 0.10
S	Titanium, titanium alloy	36 - 37	**20** - 35'000	**20** - 35'000	**20** - 35'000	0.05 - 0.35	0.10 - 0.45
H	Hardened steel >45 HRC, hard cast iron	38 - 41		**20** - 35'000			0.02 - 0.06

DIXI 7625

ENGRAVING



		VDI 3323	CARBIDE Vc [m/min]	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**20** - 35'000	<0.05
N	Wrought aluminium alloy < 12% Si	21 - 22	**20** - 35'000	<0.05
N	Copper alloy good machinability with Pb	26	**20** - 35'000	<0.05
N	Copper alloy with difficult machinability	27 - 28	**20** - 35'000	<0.05
N	Gold, silver	-	**20** - 35'000	<0.05

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed rate Vf [mm/min]

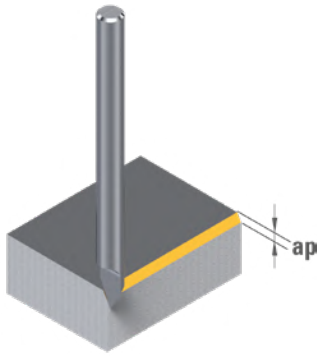
Ø D_1 0.05 - 0.10	Ø D_1 0.15 - 0.50
50 - 250	80 - 350
50 - 200	60 - 275
50 - 150	50 - 200
50 - 200	60 - 275
50 - 200	50 - 250
50 - 400	110 - 450
50 - 300	90 - 450
50 - 400	110 - 450
50 - 300	90 - 450
50 - 500	150 - 450
50 - 400	110 - 450
50 - 400	110 - 450
50 - 300	90 - 450
	20 - 100
50 - 300	80 - 375
	10 - 50

Feed rate Vf [mm/min]

Ø D_1 0.05 - 0.10
50 - 200
50 - 250
50 - 250
50 - 250
50 - 250

CHAMFERING

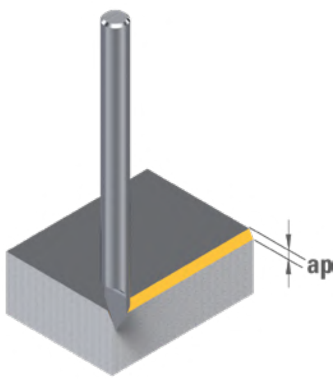
		VDI 3323	CARBIDE Vc [m/min]	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**20** - 35'000	<0.10
N	Wrought aluminium alloy < 12% Si	21 - 22	**20** - 35'000	<0.15
N	Copper alloy good machinability with Pb	26	**20** - 35'000	<0.10
N	Copper alloy with difficult machinability	27 - 28	**20** - 35'000	<0.10
N	Gold, silver	-	**20** - 35'000	<0.10



DIXI 7623 - 7624 - 7656 - 7658

CHAMFERING

		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	ae (mm)	ap (mm)
P	Unalloyed steel, leaded steel	1 - 5	**85**	**120**	<0.5×ØD1	<0.5×ØD1
P	Low alloyed steel < 800 N/mm²	6 - 9		**105**	<0.5×ØD1	<0.5×ØD1
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		**95**	<0.5×ØD1	<0.5×ØD1
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		**80**	<0.5×ØD1	<0.5×ØD1
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		**55**	<0.25×ØD1	<0.25×ØD1
K	Grey cast iron < 250 HB	15 - 16	**85**	**100**	<0.5×ØD1	<0.5×ØD1
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**55**	**80**	<0.5×ØD1	<0.5×ØD1
N	Wrought aluminium alloy < 12% Si	21 - 22	**220**		<0.75×ØD1	<0.75×ØD1
N	Cast aluminium alloy >12% Si	23 - 25	**150**		<0.75×ØD1	<0.75×ØD1
N	Copper alloy good machinability with Pb	26	**150**		<0.75×ØD1	<0.75×ØD1
N	Copper alloy with difficult machinability	27 - 28	**130**		<0.5×ØD1	<0.5×ØD1
N	Plastic, wood	29 - 30	**250**		<0.75×ØD1	<0.75×ØD1
N	Gold, silver	-	**150**		<0.5×ØD1	<0.5×ØD1
S	Refractory alloy, Fe, Ni, Co base	31- 35		**35**	<0.25×ØD1	<0.25×ØD1
S	Titanium, titanium alloy	36 - 37	**40**	**70**	<0.5×ØD1	<0.5×ØD1



$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed rate Vf [mm/min]

Ø D_1 0.05 - 0.10
80 - 250
80 - 250
80 - 250
80 - 250
80 - 250

Feed per tooth fz [mm]

Ø D_1 0.20 - 0.30	Ø D_1 0.40 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.20 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00	Ø D_1 16.00 - 20.00
0.002 - 0.003	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.100	0.120 - 0.160
0.001 - 0.003	0.004 - 0.006	0.007 - 0.009	0.011 - 0.027	0.036 - 0.045	0.054 - 0.070	0.080 - 0.090	0.100 - 0.150
0.001 - 0.002	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.065	0.070 - 0.080	0.090 - 0.130
0.001 - 0.002	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.065	0.070 - 0.080	0.090 - 0.130
0.001 - 0.002	0.003 - 0.005	0.006 - 0.007	0.008 - 0.021	0.028 - 0.035	0.042 - 0.055	0.060 - 0.070	0.080 - 0.110
0.002 - 0.004	0.005 - 0.008	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.095	0.110 - 0.120	0.140 - 0.190
0.002 - 0.003	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.100	0.120 - 0.160
0.002 - 0.005	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.140 - 0.140	0.170 - 0.240
0.002 - 0.004	0.005 - 0.009	0.010 - 0.013	0.016 - 0.039	0.052 - 0.065	0.078 - 0.105	0.120 - 0.120	0.150 - 0.210
0.002 - 0.005	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.140 - 0.140	0.170 - 0.240
0.002 - 0.004	0.005 - 0.008	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.095	0.110 - 0.120	0.170 - 0.240
0.002 - 0.005	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.140 - 0.140	0.150 - 0.210
0.002 - 0.003	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.100	0.090 - 0.100
0.001 - 0.002	0.002 - 0.004	0.004 - 0.005	0.006 - 0.015	0.020 - 0.025	0.030 - 0.040	0.050 - 0.050	0.050 - 0.050
0.002 - 0.003	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.100	0.090 - 0.100

Values based on use of cutting oil and emulsion. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DRILLING - SPOTTING

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	40	70
P	Low alloyed steel < 800 N/mm²	6 - 9	45	50
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	35	45
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	25	35
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	25	30
K	Grey cast iron < 250 HB	15 - 16	55	70
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	35	45
N	Wrought aluminium alloy < 12% Si	21 - 22	115	125
N	Cast aluminium alloy >12% Si	23 - 25	85	95
N	Copper alloy good machinability with Pb	26	100	110
N	Copper alloy with difficult machinability	27 - 28	65	75
N	Plastic, wood	29 - 30	150	165
N	Gold, silver	-	65	75
S	Refractory alloy, Fe, Ni, Co base	31- 35	20	30
S	Titanium, titanium alloy	36 - 37	40	50

CHAMFERING - SLOTTING - ENGRAVING - ROUTING

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	40	70
P	Low alloyed steel < 800 N/mm²	6 - 9	45	50
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	35	45
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	25	35
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	25	30
K	Grey cast iron < 250 HB	15 - 16	55	70
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	35	45
N	Wrought aluminium alloy < 12% Si	21 - 22	115	125
N	Cast aluminium alloy >12% Si	23 - 25	85	95
N	Copper alloy good machinability with Pb	26	100	110
N	Copper alloy with difficult machinability	27 - 28	65	75
N	Plastic, wood	29 - 30	150	165
N	Gold, silver	-	65	75
S	Refractory alloy, Fe, Ni, Co base	31- 35	20	30
S	Titanium, titanium alloy	36 - 37	40	50

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.10 - 0.30	Ø D_1 0.40 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.20 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0008 - 0.0030	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.110
0.0007 - 0.0020	0.004 - 0.006	0.007 - 0.009	0.011 - 0.027	0.036 - 0.045	0.054 - 0.070	0.080 - 0.100
0.0006 - 0.0020	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.065	0.070 - 0.090
0.0006 - 0.0020	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.065	0.070 - 0.090
0.0006 - 0.0020	0.003 - 0.005	0.006 - 0.007	0.008 - 0.021	0.028 - 0.035	0.042 - 0.055	0.065 - 0.080
0.0010 - 0.0030	0.005 - 0.008	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.095	0.110 - 0.130
0.0008 - 0.0030	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.110
0.0012 - 0.0040	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.135 - 0.160
0.0010 - 0.0040	0.005 - 0.009	0.010 - 0.013	0.016 - 0.039	0.052 - 0.065	0.078 - 0.105	0.150 - 0.140
0.0012 - 0.0040	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.135 - 0.160
0.0010 - 0.0030	0.005 - 0.008	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.095	0.110 - 0.130
0.0012 - 0.0040	0.006 - 0.011	0.012 - 0.015	0.018 - 0.045	0.060 - 0.075	0.090 - 0.120	0.135 - 0.160
0.0008 - 0.0030	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.110
0.0004 - 0.0010	0.002 - 0.004	0.004 - 0.005	0.006 - 0.015	0.020 - 0.025	0.030 - 0.040	0.045 - 0.050
0.0008 - 0.0030	0.004 - 0.007	0.008 - 0.010	0.012 - 0.030	0.040 - 0.050	0.060 - 0.080	0.090 - 0.110

Values based on use of cutting oil and emulsion. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

Feed per tooth fz [mm]

Ø D_1 0.10 - 0.30	Ø D_1 0.40 - 0.70	Ø D_1 0.80 - 1.00	Ø D_1 1.20 - 3.00	Ø D_1 4.00 - 5.00	Ø D_1 6.00 - 8.00	Ø D_1 10.00 - 12.00
0.0006 - 0.0024	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.064	0.072 - 0.088
0.0005 - 0.0016	0.003 - 0.005	0.006 - 0.007	0.009 - 0.022	0.029 - 0.036	0.043 - 0.056	0.064 - 0.080
0.0005 - 0.0016	0.002 - 0.005	0.005 - 0.006	0.008 - 0.019	0.026 - 0.032	0.038 - 0.052	0.056 - 0.072
0.0005 - 0.0016	0.002 - 0.005	0.005 - 0.006	0.008 - 0.019	0.026 - 0.032	0.038 - 0.052	0.056 - 0.072
0.0005 - 0.0016	0.002 - 0.004	0.005 - 0.006	0.006 - 0.017	0.022 - 0.028	0.034 - 0.044	0.052 - 0.064
0.0008 - 0.0024	0.004 - 0.006	0.008 - 0.010	0.011 - 0.029	0.038 - 0.048	0.058 - 0.076	0.088 - 0.104
0.0006 - 0.0024	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.064	0.072 - 0.088
0.0009 - 0.0032	0.005 - 0.009	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.07 - 0.096	0.108 - 0.128
0.0008 - 0.0032	0.004 - 0.007	0.008 - 0.010	0.013 - 0.031	0.042 - 0.052	0.062 - 0.084	0.092 - 0.112
0.0009 - 0.0032	0.005 - 0.009	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.096	0.108 - 0.128
0.0008 - 0.0030	0.004 - 0.006	0.008 - 0.010	0.011 - 0.029	0.038 - 0.048	0.058 - 0.076	0.088 - 0.104
0.0009 - 0.0032	0.005 - 0.009	0.010 - 0.012	0.014 - 0.036	0.048 - 0.060	0.072 - 0.096	0.108 - 0.128
0.0006 - 0.0024	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.064	0.072 - 0.088
0.0003 - 0.0008	0.002 - 0.003	0.003 - 0.004	0.005 - 0.012	0.016 - 0.020	0.024 - 0.032	0.036 - 0.040
0.0006 - 0.0024	0.003 - 0.006	0.006 - 0.008	0.010 - 0.024	0.032 - 0.040	0.048 - 0.064	0.072 - 0.088

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

✓ = item from stock

SLITTING SAWS			Page		☐ CARBIDE	■ CUTINOX			
DIXI 1531 Ø 15.00 - 125.00			318	ISO 2296, DIN 1840 A	✓				
DIXI 1533 Ø 15.00 - 160.00			320	DIN 1837, DIN 1840 A	✓				
DIXI 1539 Ø 10.00 - 50.00			323		✓				
DIXI 1534 Ø 20.00 - 100.00			326	DIN 1838, DIN 1840 A	✓				
DIXI 1537 Ø 50.00 - 100.00			327			✓			
DIXI 1640 R+L Ø 50.00 - 100.00			328		✓				

MILLING ARBORS			Page		CARBIDE	CUTINOX			
DIXI 2713 Ø 3.00 - 22.00			329						
DIXI 2714 Ø 5.00 - 16.00			329						

T-SLOT CUTTERS			Page		CARBIDE	CUTINOX			
DIXI 1525 Ø2.00 - Ø30.00			330		✓	✓			
DIXI 1528 Ø4.00 - Ø30.00			331		✓	✓			
DIXI 1527 Ø4.00 - Ø16.00			332		✓	✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
	◎	◎	○	○	◎	○	○	◎	○	◎	○	◎	
	◎	◎	○	○	◎	○	○	◎	○	◎	○	◎	
	◎	◎	○	○	◎	○	○	◎	○	◎	○	◎	
	○	○	○	◎	○	◎	◎	○	◎	◎	○	○	
	◎	◎	◎	◎	○	○	○				◎	◎	
	◎	◎	○	○	◎	◎	◎	◎	○	◎	○	◎	

◎	◎	○	○	◎	○	◎	◎	○	◎	○	○	
◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	
◎	◎	○	○	◎	○	◎	◎	○	◎	○	○	

○ good ◎ excellent

✓ = item from stock

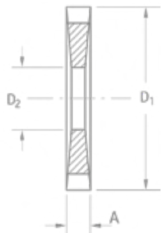
HOB CUTTERS			Page		☐ CARBIDE				
DIXI 1675 Ø 6.00 - 24.00			334		✓				
DIXI 1680 Ø 6.00 - 24.00			334		✓				
DIXI 1685 Ø 6.00 - 24.00			335		✓				
DIXI 1690 Ø 8.00 - 12.00			338		✓				
DIXI 1674 Ø 6.00 - 24.00			336		✓				
DIXI 1672 Ø 4.00 - 6.00			337		✓				
DIXI 1673 Ø 4.00 - 6.00			337		✓				

SUPPORTING DISCS									
DIXI 0700 **DIXI 0710**			339		✓				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	
	◎	◎	○	○		○	◎	◎		◎		○	

○ good ◎ excellent

SLITTING SAWS
COARSE PITCH TEETH



P.344 P.333

ISO 2296 DIN 1840 A

- Coarse pitch slitting saws developed for deep grooving. For optimal performance, it is recommended to have 3 to 5 teeth in material.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◯	◯	◯	◯

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◎	◎				

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
15	0.20	5	32	37180
15	0.30	5	24	37182
15	0.40	5	24	35382
15	0.50	5	24	35383
15	0.60	5	20	601
15	0.70	5	20	603
15	0.80	5	20	2532
15	0.90	5	20	7707
15	1.00	5	20	602
15	1.20	5	16	38947
15	1.50	5	16	38948
15	1.60	5	16	42457
15	1.80	5	16	42536
15	2.00	5	16	38949
20	0.20	5	40	35384
20	0.30	5	32	35385
20	0.40	5	32	3281
20	0.50	5	24	31481
20	0.60	5	24	604
20	0.70	5	24	605
20	0.80	5	24	37080
20	0.90	5	20	3282
20	1.00	5	20	3283
20	1.20	5	20	2425
20	1.50	5	20	3287
20	1.60	5	20	3288
20	1.80	5	20	3290
20	2.00	5	16	42458
20	2.50	5	16	42459

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
25	0.30	8	40	37740
25	0.40	8	32	42461
25	0.50	8	32	42376
25	0.60	8	24	42377
25	0.70	8	24	42378
25	0.80	8	24	2479
25	0.90	8	24	42379
25	1.00	8	24	42380
25	1.20	8	24	42462
25	1.50	8	20	3299
25	1.60	8	20	3300
25	1.80	8	20	3301
25	2.00	8	20	3303
25	2.50	8	20	3305
30	0.30	8	40	37845
30	0.40	8	40	37841
30	0.50	8	40	35386
30	0.60	8	32	30662
30	0.70	8	32	3309
30	0.80	8	32	41350
30	0.90	8	32	41351
30	1.00	8	32	36413
30	1.20	8	24	1327
30	1.50	8	24	3316
30	1.60	8	24	3317
30	1.80	8	24	3319
30	2.00	8	24	3321
30	2.50	8	20	42466
30	3.00	8	20	42467

SLITTING SAWS
COARSE PITCH TEETH

P.344 P.333

ISO 2296 DIN 1840 A

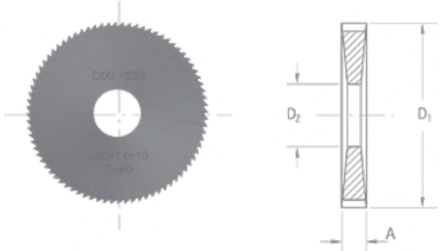
$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
30	4.00	8	20	42468
40	0.40	10	48	42470
40	0.50	10	40	2662
40	0.60	10	40	6348
40	0.70	10	40	17953
40	0.80	10	40	42471
40	0.90	10	32	38817
40	1.00	10	32	3034
40	1.20	10	32	3307
40	1.50	10	32	3326
40	1.60	10	32	3798
40	1.80	10	24	39499
40	2.00	10	24	42472
40	2.50	10	24	42473
40	3.00	10	24	42474
40	4.00	10	20	42475
50	0.40	13	48	26023
50	0.50	13	48	42477
50	0.60	13	48	42478
50	0.70	13	48	14681
50	0.80	13	40	3330
50	0.90	13	40	41064
50	1.00	13	40	8636
50	1.20	13	40	8637
50	1.40	13	32	3336
50	1.50	13	32	25731
50	1.60	13	32	3337
50	1.80	13	32	3657
50	2.00	13	32	2533
50	2.50	13	32	3339
50	3.00	13	24	42479
63	0.80	16	48	3342
63	0.90	16	48	49467
63	1.00	16	48	609
63	1.20	16	40	3658
63	1.50	16	40	3345
63	1.60	16	40	3346
63	1.80	16	40	3347
63	2.00	16	40	610
63	2.50	16	32	42483
63	3.00	16	32	611
80	0.80	22	64	6070

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
80	0.90	22	48	49665
80	1.00	22	48	3054
80	1.20	22	48	4016
80	1.50	22	48	3349
80	1.60	22	48	34808
80	1.80	22	40	22178
80	2.00	22	40	2807
80	2.50	22	40	42484
80	3.00	22	40	21847
100	1.00	22	64	38542
100	1.20	22	64	38543
100	1.50	22	48	35387
100	1.60	22	48	39146
100	1.80	22	48	38927
100	2.00	22	48	38928
100	2.50	22	48	36588
100	3.00	22	40	38713
125	1.00	22	80	42489
125	1.20	22	64	42490
125	1.50	22	64	38480
125	1.60	22	64	42492
125	1.80	22	64	42493
125	2.00	22	64	39005

DIXI 1533

SLITTING SAWS
FINE PITCH TEETH

f Vc Ap P.344 | P.333 | DIN 1837 | DIN 1840 A



- Fine pitch slitting saws developed for medium depth grooving. For optimal performance, it is recommended to have 3 to 5 teeth in material.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
15	0.20	5	64	36382
15	0.25	5	64	35635
15	0.30	5	48	3707
15	0.40	5	48	3708
15	0.50	5	48	613
15	0.60	5	40	5453
15	0.70	5	40	6183
15	0.80	5	40	3244
15	0.90	5	40	3245
15	1.00	5	40	614
15	1.10	5	32	43250
15	1.20	5	32	37174
15	1.50	5	32	40710
15	1.60	5	32	40711
15	1.80	5	32	40713
15	2.00	5	32	37175
20	0.20	5	80	617
20	0.25	5	64	618
20	0.30	5	64	34590
20	0.40	5	64	1659
20	0.50	5	48	18560
20	0.60	5	48	36647
20	0.70	5	48	39659
20	0.80	5	48	627
20	0.90	5	48	623
20	1.00	5	40	35565
20	1.10	5	40	2689
20	1.20	5	40	38141
20	1.30	5	40	3407

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
20	1.40	5	40	3408
20	1.50	5	40	624
20	1.60	5	40	3010
20	1.80	5	40	23600
20	2.00	5	32	625
20	2.50	5	32	36690
20	3.00	5	32	626
25	0.15	8	80	42274
25	0.20	8	80	61804
25	0.20	8	80	1660
25	0.25	8	80	3249
25	0.30	8	80	2421
25	0.35	8	80	1688
25	0.40	8	64	37661
25	0.50	8	64	14254
25	0.60	8	64	630
25	0.70	8	64	36365
25	0.80	8	48	632
25	0.90	8	48	633
25	1.00	8	48	634
25	1.10	8	48	2422
25	1.20	8	48	3250
25	1.30	8	48	3410
25	1.40	8	48	3412
25	1.50	8	40	35450
25	1.60	8	40	3413
25	1.80	8	40	3414
25	2.00	8	40	636
25	2.50	8	40	637

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SLITTING SAWS
FINE PITCH TEETH

DIN 1837
DIN 1840 A

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$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
25	3.00	8	32	38971
25	4.00	8	32	3728
30	0.20	8	100	14689
30	0.25	8	100	4262
30	0.30	8	80	638
30	0.40	8	80	639
30	0.50	8	80	18429
30	0.60	8	64	18375
30	0.70	8	64	37731
30	0.80	8	64	35516
30	0.90	8	64	36052
30	1.00	8	64	2376
30	1.10	8	48	35420
30	1.20	8	48	36384
30	1.30	8	48	3417
30	1.40	8	48	2424
30	1.50	8	48	2924
30	1.60	8	48	3418
30	1.70	8	48	5948
30	1.80	8	48	6362
30	2.00	8	48	645
30	2.50	8	40	6361
30	3.00	8	40	3419
30	4.00	8	40	33482
30	5.00	8	32	35095
40	0.20	10	128	24084
40	0.25	10	100	22049
40	0.30	10	100	35370
40	0.40	10	100	4690
40	0.50	10	80	648
40	0.60	10	80	677
40	0.70	10	80	649
40	0.80	10	80	35444
40	0.90	10	80	35369
40	1.00	10	64	653
40	1.10	10	64	3253
40	1.20	10	64	36049
40	1.30	10	64	43352
40	1.40	10	64	3422
40	1.50	10	64	36050
40	1.60	10	64	36051
40	1.70	10	64	6170
40	1.80	10	64	3424
40	2.00	10	48	656
40	2.50	10	48	36648

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
40	3.00	10	48	658
40	4.00	10	40	3737
40	5.00	10	40	35097
50	0.20	13	128	36385
50	0.25	13	128	3426
50	0.30	13	128	659
50	0.40	13	100	35234
50	0.50	13	100	31880
50	0.60	13	100	3030
50	0.70	13	100	2957
50	0.80	13	80	661
50	0.90	13	80	3255
50	1.00	13	80	662
50	1.10	13	80	1663
50	1.20	13	80	2536
50	1.30	13	80	3429
50	1.40	13	80	43114
50	1.50	13	64	37517
50	1.60	13	64	663
50	1.70	13	64	8001
50	1.80	13	64	36336
50	2.00	13	64	37806
50	2.50	13	64	37732
50	3.00	13	48	35636
50	4.00	13	48	667
50	5.00	13	48	35109
63	0.30	16	128	5398
63	0.40	16	128	669
63	0.50	16	128	2969
63	0.60	16	100	2634
63	0.70	16	100	3207
63	0.80	16	100	36739
63	0.90	16	100	36386
63	1.00	16	100	671
63	1.20	16	80	35233
63	1.40	16	80	5093
63	1.50	16	80	2774
63	1.60	16	80	676
63	1.70	16	80	3432
63	1.80	16	80	3433
63	2.00	16	80	672
63	2.50	16	64	673
63	3.00	16	64	674
63	4.00	16	64	3748
63	5.00	16	48	31882

SLITTING SAWS
FINE PITCH TEETH

f Vc Ap

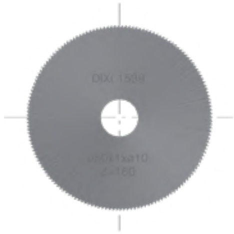
P.344 P.333

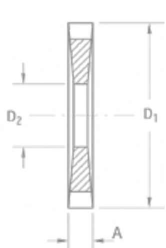
DIN 1837 DIN 1840 A

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
80	0.80	22	128	35817
80	0.90	22	100	46466
80	1.00	22	100	679
80	1.20	22	100	680
80	1.50	22	100	35721
80	1.60	22	100	19241
80	1.80	22	100	14115
80	2.00	22	80	17745
80	2.50	22	80	4030
80	3.00	22	80	684
80	4.00	22	64	21256
80	5.00	22	64	35122
100	0.80	22	128	685
100	1.00	22	128	35816
100	1.20	22	128	38383
100	1.50	22	100	36363
100	1.60	22	100	3438
100	1.80	22	100	6057
100	2.00	22	100	36048
100	2.50	22	100	689
100	3.00	22	80	36364
100	4.00	22	80	35138
100	5.00	22	80	35136
125	1.00	22	160	30687
125	1.20	22	128	35141
125	1.50	22	128	34954
125	2.00	22	128	34827
125	3.00	22	100	35294
160	1.20	32	160	34523
160	1.50	32	160	35299

DIXI 1539

SLITTING SAWS EXTRA FINE TEETH





P.344 P.333

- Extra fine teeth slitting saws developed for shallow grooving. For optimal performance, it is recommended to have 3 to 5 teeth in material.
- A typical application is the milling of watch screw slots.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

$D_{\pm 0.03}$	$A_{\pm 0.005}$	$D_{2\ H6}$	Z	CARBIDE
10	0.10	3	60	964494
10	0.11	3	60	964499
10	0.12	3	60	964500
10	0.13	3	60	964501
10	0.14	3	60	964502
10	0.15	3	60	964503
10	0.16	3	60	964504
10	0.17	3	60	964505
10	0.18	3	60	964506
10	0.19	3	60	964507
10	0.20	3	60	964508
10	0.22	3	60	965568
10	0.24	3	60	963179
15	0.08	5	80	45005
15	0.10	5	80	40599
15	0.11	5	80	57238
15	0.12	5	80	23559
15	0.13	5	80	46325
15	0.14	5	80	38354
15	0.15	5	80	40588
15	0.16	5	80	28784
15	0.17	5	80	57240
15	0.18	5	80	27224
15	0.19	5	80	46858
15	0.20	5	80	19385
15	0.21	5	80	66021
15	0.22	5	80	60191
15	0.23	5	80	58358
15	0.24	5	80	950356

$D_{\pm 0.03}$	$A_{\pm 0.005}$	$D_{2\ H6}$	Z	CARBIDE
15	0.25	5	80	19823
15	0.30	5	80	26517
15	0.35	5	80	40299
15	0.40	5	80	19825
15	0.50	5	80	19826
15	0.60	5	80	40300
15	0.70	5	80	40301
15	0.80	5	80	40302
15	0.90	5	80	40303
15	1.00	5	80	26518
15	1.10	5	80	40304
15	1.20	5	80	40305
15	1.40	5	80	40306
15	1.50	5	80	33843
20	0.12	5	100	40314
20	0.14	5	100	40307
20	0.15	5	100	43684
20	0.16	5	100	4913
20	0.18	5	100	16032
20	0.20	5	100	4914
20	0.25	5	100	28665
20	0.30	5	100	28340
20	0.35	5	100	40317
20	0.40	5	100	38355
20	0.50	5	100	35628
20	0.60	5	100	40320
20	0.70	5	100	40322
20	0.80	5	100	40324
20	0.90	5	100	40326

SLITTING SAWS EXTRA FINE TEETH

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$D_{\pm 0.03}$	$A_{\pm 0.005}$	$D_{2\,H6}$	Z	CARBIDE
20	1.00	5	100	40328
20	1.10	5	100	40330
20	1.20	5	100	40332
20	1.40	5	100	40334
20	1.50	5	100	40336
20	0.12	6	100	40315
20	0.14	6	100	40308
20	0.16	6	100	40309
20	0.18	6	100	40310
20	0.20	6	100	40311
20	0.25	6	100	40312
20	0.30	6	100	40313
20	0.35	6	100	40316
20	0.40	6	100	40318
20	0.50	6	100	40319
20	0.60	6	100	40321
20	0.70	6	100	40323
20	0.80	6	100	40325
20	0.90	6	100	40327
20	1.00	6	100	40329

D_{1js10}	$A_{\pm 0.01}$	$D_{2\,H6}$	Z	CARBIDE
25	0.20	6	120	3649
25	0.25	6	120	40339
25	0.30	6	120	40341
25	0.35	6	120	40343
25	0.40	6	120	40345
25	0.50	6	120	40347
25	0.60	6	120	40349
25	0.70	6	120	40351
25	0.80	6	120	40353
25	0.90	6	120	40355
25	1.00	6	120	40357
25	1.10	6	120	40359
25	1.20	6	120	40361
25	1.40	6	120	40363
25	1.50	6	120	40365
25	0.20	8	120	40338
25	0.25	8	120	40340
25	0.30	8	120	40342
25	0.35	8	120	40344
25	0.40	8	120	40346

D_{1js10}	$A_{\pm 0.01}$	$D_{2\,H6}$	Z	CARBIDE
25	0.50	8	120	40348
25	0.60	8	120	40350
25	0.70	8	120	40352
25	0.80	8	120	40354
25	0.90	8	120	40356
25	1.00	8	120	40358
25	1.10	8	120	40360
25	1.20	8	120	40362
25	1.40	8	120	40364
25	1.50	8	120	40366
30	0.30	8	128	40367
30	0.35	8	128	40368
30	0.40	8	128	40369
30	0.50	8	128	40370
30	0.60	8	128	40371
30	0.70	8	128	40372
30	0.80	8	128	40373
30	0.90	8	128	40374
30	1.00	8	128	40375
30	1.10	8	128	40376
30	1.20	8	128	40377
30	1.40	8	128	40378
30	1.50	8	128	40379
40	0.30	8	160	40393
40	0.35	8	160	40395
40	0.40	8	160	40397
40	0.50	8	160	40399
40	0.60	8	160	40401
40	0.70	8	160	40403
40	0.80	8	160	40405
40	0.90	8	160	40407
40	1.00	8	160	40409
40	1.20	8	160	40413
40	1.40	8	160	40415
40	1.50	8	160	40417
40	0.30	10	160	40394
40	0.35	10	160	40396
40	0.40	10	160	40398
40	0.50	10	160	40400
40	0.60	10	160	40402
40	0.70	10	160	40404
40	0.80	10	160	40406

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SLITTING SAWS
EXTRA FINE TEETH

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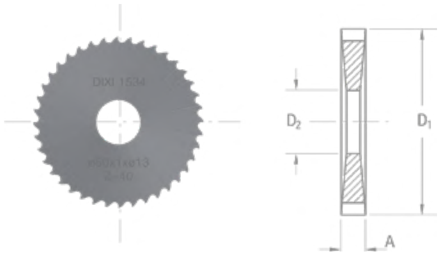
D_{1js10}	$A_{\pm 0.01}$	$D_{2\,H6}$	Z	CARBIDE
40	0.90	10	160	40408
40	1.00	10	160	40410
40	1.10	10	160	40412
40	1.20	10	160	40414
40	1.50	10	160	40418
50	0.30	10	160	40445
50	0.40	10	160	40447
50	0.50	10	160	40448
50	0.60	10	160	40449
50	0.70	10	160	40450
50	0.80	10	160	40451
50	0.90	10	160	40452
50	1.00	10	160	40453
50	1.20	10	160	40455
50	1.50	10	160	40457

DIXI 1534

SLITTING SAWS
HELLER PITCH TEETH



P.344 P.333

DIN 1838 DIN 1840 A

- Heller slitting saws developed for deep grooving of long chip materials. For optimal performance, it is recommended to have 3 to 5 teeth in material.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel	Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	○	○	○	◎		◎	○	○	○	○	○	○				

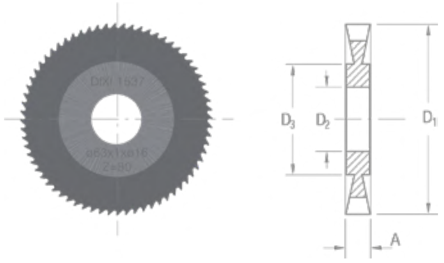
$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
20	0.30	5	32	34869
20	0.50	5	24	29836
20	0.60	5	24	29541
20	0.70	5	24	29282
20	0.80	5	24	31598
20	1.00	5	20	39176
20	1.20	5	20	42582
20	1.50	5	20	31267
25	0.30	8	40	29785
25	0.50	8	32	42427
25	0.60	8	32	42428
25	0.80	8	24	29542
25	0.90	8	24	42430
25	1.00	8	24	30411
25	1.50	8	20	38204
30	0.30	8	40	42434
30	0.40	8	40	42435
30	0.50	8	40	28826
30	0.60	8	32	3308
30	0.80	8	32	38804
30	1.00	8	32	38806
30	1.20	8	24	36576
30	1.30	8	24	38114
30	1.50	8	24	36577
30	1.60	8	24	38756
30	2.00	8	24	35379
40	0.50	10	40	34152
40	0.80	10	40	29793
40	1.00	10	32	32137

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE
40	2.00	10	24	35310
50	0.50	13	48	14901
50	0.80	13	40	29704
50	1.00	13	40	5111
50	1.50	13	32	39153
50	2.00	13	32	37281
63	0.40	16	64	34999
63	0.50	16	64	2872
63	0.60	16	48	37364
63	0.80	16	48	29794
63	1.00	16	48	28979
63	1.30	16	40	40597
63	1.50	16	40	28990
63	1.60	16	40	41638
63	1.80	16	40	37787
63	2.00	16	40	28845
63	2.50	16	32	35380
63	3.00	16	32	28828
80	0.80	22	64	36043
80	1.00	22	48	29219
80	1.20	22	48	35967
80	1.50	22	48	18568
80	2.00	22	40	28829
100	0.80	22	64	35381
100	1.00	22	64	35429
100	1.20	22	64	35431
100	1.50	22	48	25267
100	2.00	22	48	29408

DIXI 1537 CUTINOX

SLITTING SAWS FOR STAINLESS STEEL

P.346 P.333



- Fine pitch slitting saws developed to cut-off stainless steel.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

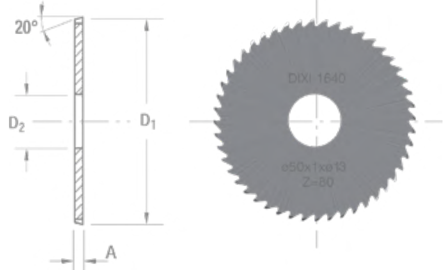
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○								◎	◎	○	◎	◎				

$D_{1\ js12}$	$A_{\pm 0.01}$	D_3	$D_{2\ H6}$	Z	CARBIDE
50	0.80	30	13	68	954330
50	1.00	30	13	68	954331
63	0.60	40	16	80	60407
63	0.70	40	16	80	995182
63	0.80	40	16	80	60408
63	1.00	40	16	80	60409
80	0.60	50	22	100	60410
80	0.80	50	22	100	60411
80	1.00	50	22	100	60414
100	0.80	60	22	120	60412
100	1.00	60	22	120	60413

DIXI 1640 R + L

PARTING OFF SLITTING SAWS
LEFT AND RIGHT HAND CUTTING



P.346 P.333

- Parting off slitting saws, right cut, developed to cut-off turned workpieces without cutting pins. Short chip formation contrary to turning inserts.
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

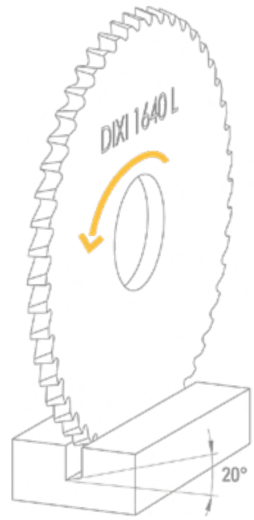
◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◯	◯	◯	◯	◯	◎	◎				

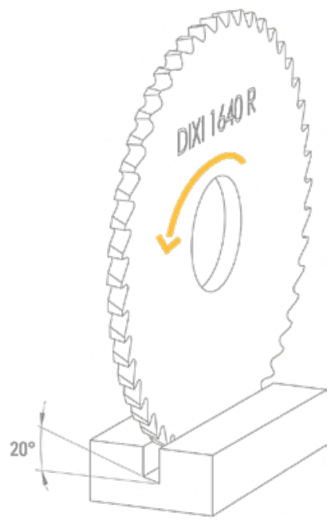
DIXI 1640 L

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE	CUTINOX
50	0.50	13	100	977529	977548
50	0.80	13	80	977530	957215
50	1.00	13	80	977531	977549
63	0.50	16	128	977532	977552
63	0.80	16	100	954255	977553
63	1.00	16	100	977533	955787
80	0.80	22	128	975393	975569
80	1.00	22	100	977534	977554
100	0.80	22	100	977535	977555
100	1.00	22	100	977536	977556



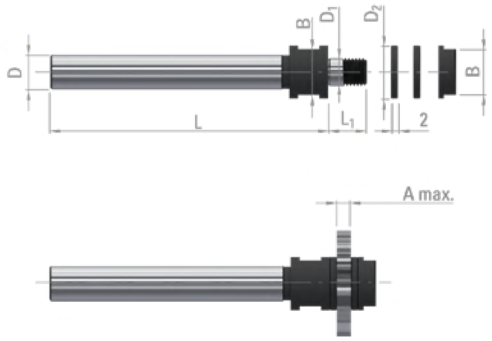
DIXI 1640 R

$D_{1\ js12}$	$A_{\pm 0.01}$	$D_{2\ H6}$	Z	CARBIDE	CUTINOX
50	0.50	13	100	977520	977537
50	0.80	13	80	977521	977538
50	1.00	13	80	59024	977539
63	0.50	16	128	977522	977540
63	0.80	16	100	977523	977541
63	1.00	16	100	977524	977542
80	0.80	22	128	977525	977543
80	1.00	22	100	977526	977544
100	0.80	22	100	977527	977545
100	1.00	22	100	977528	977547



DIXI 2713

MILLING ARBORS WITH FRONT CLAMPING

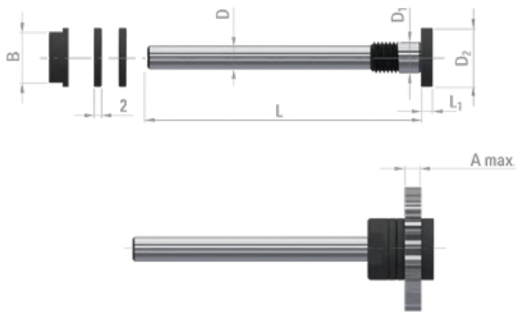


- Milling arbors with front clamping. Use for right-hand revolution. Each arbor is supplied with two spacers and a nut.

$D_{1\ h6}$	D_{h6}	D_2	L	L_1	B	$A_{max.}$	Art.
3	5	5	60	7.00	4	3	968329
5	6	10	70	10.00	8	6	953911
5	10	10	80	10.00	8	6	953917
6	10	12	80	10.50	10	6	953918
8	10	15	80	10.00	13	6	954975
8	12	15	90	11.0	13	6	953919
10	10	18	80	10.50	15	6	954976
10	16	18	100	11.50	15	6	953920
13	16	22	110	12.00	19	6	953921
16	20	26	120	13.00	22	6	953922
22	16	32	120	12.00	27	6	347691

DIXI 2714

MILLING ARBORS WITH REAR CLAMPING



- Milling arbors with rear clamping allowing a front space reduction. Use for right-hand revolution. Each arbor is supplied with two spacers and a nut.

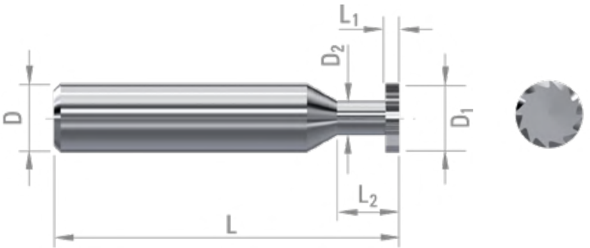
$D_{1\ h6}$	D_{h6}	D_2	L	L_1	B	$A_{max.}$	Art.
5	4	10	50	3.00	8	6	953923
6	5	12	60	3.00	10	6	953924
8	6	15	70	3.00	13	6	953925
8	7	15	80	3.00	13	6	953926
10	6	18	70	3.50	15	6	953927
10	8	18	90	3.50	15	6	953928
13	10	22	110	3.50	19	6	953929
16	12	26	120	3.50	22	6	953930

DIXI 1525

TOOLS ON REQUEST

T-SLOT CUTTERS STRAIGHT FLUTE

P.346 P.333



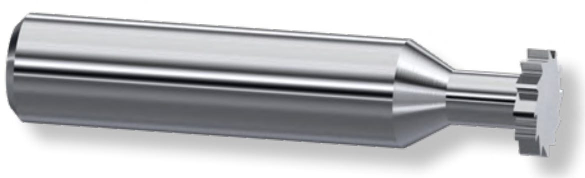
- Straight flute T-slot cutters developed for general machining.
- Semi-finished products available from stock and adaptable to your needs (thickness and number of teeth).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

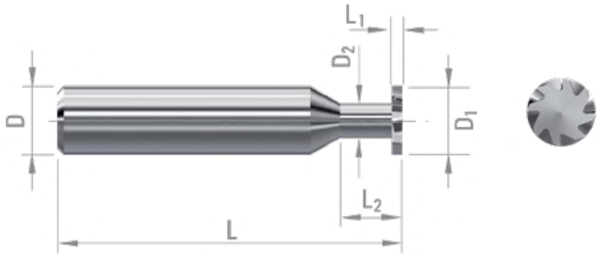
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○				

D_1 Ø < 4.0 ± 0.01 Ø ≥ 4.0 -0.05/-0.10	L_1	$D_{2\ 0/-0.20}$	$L_{2\ \pm 0.2}$	D_{h5}	L	Z	CARBIDE	CUTINOX
2	0.20 - 1.00	1.00	3.00	4	42	3 - 6	☐	☐
3	0.20 - 1.50	1.50	3.50	4	42	3 - 6	☐	☐
4	0.20 - 1.50	2.50	6.00	4	42	3 - 6	☐	☐
5	0.50 - 1.50	3.00	6.00	5	42	3 - 6	☐	☐
6	0.50 - 2.50	3.50	7.00	6	42	4 - 8	☐	☐
8	0.50 - 3.00	4.00	9.00	8	50	5 - 10	☐	☐
10	0.50 - 4.00	5.00	9.00	10	50	5 - 12	☐	☐
12	0.50 - 3.50	5.00	11.50	6	50	6 - 16	☐	☐
12	0.50 - 4.00	6.00	14.00	10	50	6 - 16	☐	☐
15	0.50 - 5.00	8.00	14.00	10	60	8 - 18	☐	☐
16	0.50 - 2.90	8.00	14.00	10	60	8 - 20	☐	☐
16	3.00 - 6.00	8.00	14.00	10	60	8 - 20	☐	☐
18	0.50 - 2.90	8.00	14.00	10	60	10 - 24	☐	☐
18	3.00 - 6.00	8.00	14.00	10	60	10 - 24	☐	☐
20	0.50 - 2.90	8.00	11.00	10	60	10 - 24	☐	☐
20	3.00 - 6.00	8.00	14.00	10	60	10 - 24	☐	☐
25	0.50 - 3.90	8.00	13.00	10	60	10 - 32	☐	☐
25	4.00 - 8.00	8.00	18.00	10	60	10 - 32	☐	☐
30	0.50 - 3.90	8.00	18.00	10	60	10 - 36	☐	☐
30	4.00 - 8.00	8.00	18.00	10	60	10 - 36	☐	☐



T-SLOT CUTTERS STAGGERED TOOTH

P.346 P.333



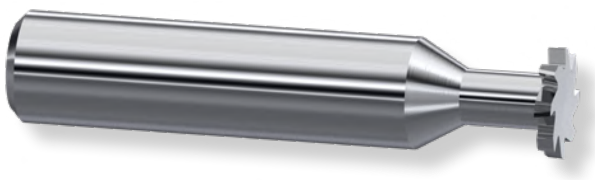
- Staggered tooth T-slot cutters developed to reduce vibrations and to improve surface finish by slotting.
- Semi-finished products available from stock and adaptable to your needs (thickness and number of teeth).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

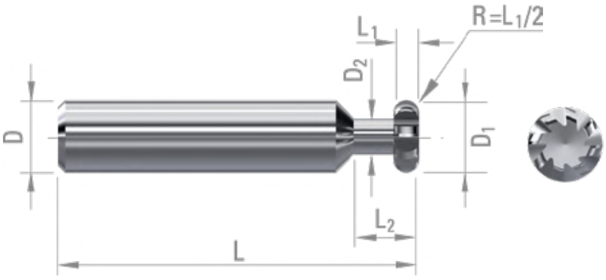
D_1 (Ø < 4.0 ± 0.01; Ø ≥ 4.0 -0.05/-0.10)	L_1	D_2 0/-0.20	L_2 ± 0.2	D_{h5}	L	Z	CARBIDE	CUTINOX
4	0.50 - 3.00	2.50	6.00	4	42	4 - 6	☐	☐
5	0.50 - 3.00	3.00	6.00	5	42	4 - 6	☐	☐
6	0.50 - 3.00	3.50	7.00	6	42	4 - 6	☐	☐
8	1.00 - 4.00	4.00	9.00	8	50	4 - 8	☐	☐
10	1.00 - 4.00	5.00	9.00	10	50	6 - 10	☐	☐
12	0.50 - 3.50	5.00	11.50	6	50	6 - 10	☐	☐
12	1.00 - 5.00	6.00	14.00	10	60	6 - 10	☐	☐
15	1.50 - 6.00	8.00	14.00	10	60	8 - 14	☐	☐
16	1.50 - 3.90	8.00	14.00	10	60	8 - 14	☐	☐
16	4.00 - 6.00	8.00	14.00	10	60	8 - 14	☐	☐
18	1.50 - 3.90	8.00	14.00	10	60	10 - 16	☐	☐
18	4.00 - 6.00	8.00	14.00	10	60	10 - 16	☐	☐
20	1.50 - 3.90	8.00	11.00	10	60	10 - 18	☐	☐
20	4.00 - 6.00	8.00	14.00	10	60	10 - 18	☐	☐
25	1.50 - 4.90	8.00	13.00	10	60	10 - 24	☐	☐
25	5.00 - 10.00	8.00	18.00	10	60	14 - 24	☐	☐
30	1.50 - 4.90	8.00	13.00	10	60	18 - 28	☐	☐
30	5.00 - 10.00	8.00	18.00	10	60	18 - 28	☐	☐



DIXI 1527

T-SLOT CUTTERS FULL RADIUS

P.346 P.333



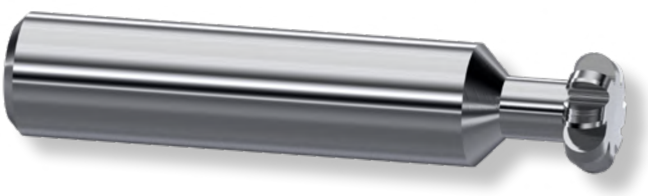
- Full radius T-slot cutters developed for shape grooving.
- Semi-finished products available from stock and adaptable to your needs (thickness and/or radius).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

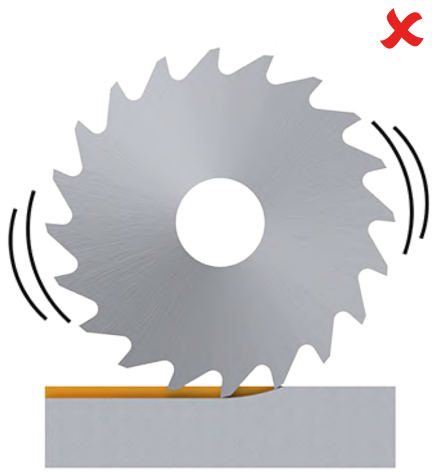
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	○	○				

D_1 Ø < 4.0 ± 0.01 Ø ≥ 4.0 -0.05/-0.10	L_1	D_2 0/-0.20	L_2 ± 0.2	D_{h5}	L	Z	CARBIDE	CUTINOX
4	0.40 - 1.50	1.50	6.00	4	42	4	☐	☐
6	0.50 - 2.00	3.50	7.00	6	42	6	☐	☐
8	1.00 - 3.00	4.00	9.00	8	50	6	☐	☐
10	1.00 - 4.00	5.00	9.00	10	50	8	☐	☐
12	0.50 - 3.50	5.00	11.50	6	50	10	☐	☐
12	1.00 - 5.00	6.00	14.00	10	50	10	☐	☐
16	1.00 - 6.00	8.00	14.00	10	60	12	☐	☐

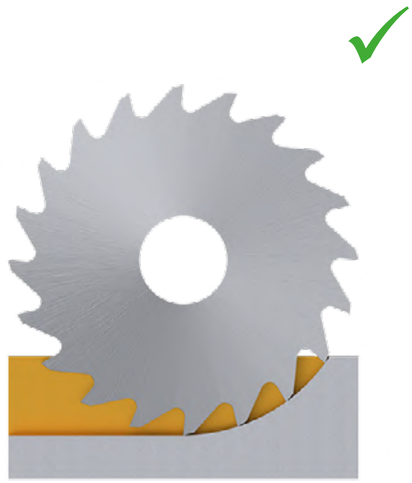


Other tooth shapes see page 267

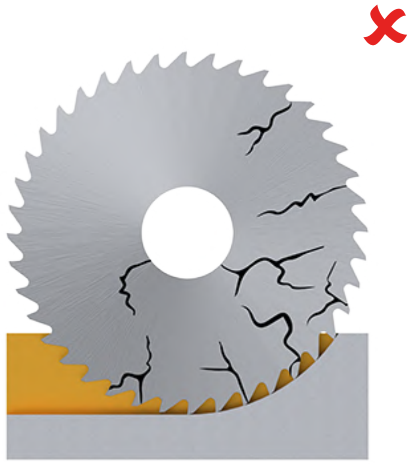
WORKING DEPTH



1 - 2 teeth in material
Not enough teeth
= risk of vibration



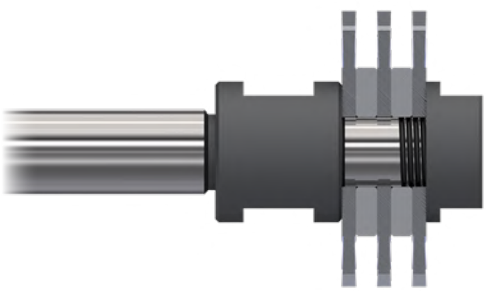
3 - 4 material teeth
= stable machining



More than 4 teeth in material
Too many teeth
= risk of breakage

ASSEMBLY IN MILLING TRAINS

For assembly in a milling train, provide a hub to ensure parallelism between the various components.



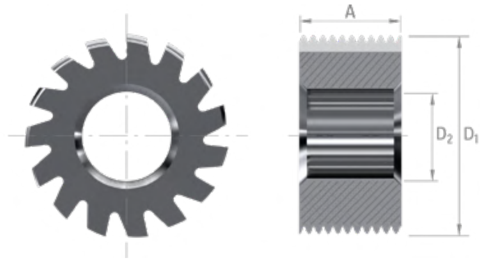
CUSTOMIZED TOOLS

Shape tools to your specifications.

See pages 342 for suggested shapes.

On request Dixi adjusts keyways on all sawmill gauges

HOB CUTTERS
EPICYCLIC AND INVOLUTE PROFILE



- **DIXI 1675 -** Hob cutters for epicyclic teeth developed for generation hobbing of gears and wheels (NIHS, EVJ, CETEHOR standards...). Regrindable logarithmic profile.
- **DIXI 1680 -** Hob cutters for involute teeth developed for generation hobbing of gears and wheels (DIN 867 like). Regrindable logarithmic profile.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯						

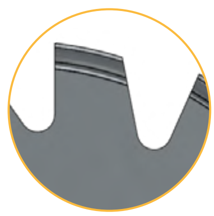
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◯	◯	◎	◎	◎	◎	◎	◎	◎							◎	◎				

D_1	A	$D_{2\,H3}$	Z	CARBIDE
6	4 - 6	3.50	12	☐
8	4 - 6	3.50	12 - 15	☐
10	4 - 6	3.50	12 - 15	☐
10	6	4.50	12 - 15	☐
12	6	3.50	12 - 15	☐
12	6 - 8	4.50	12 - 15	☐
16	4 - 10	8.00	12 - 15	☐
18	6	8.00	12 - 15	☐
18	6 - 8	8.00	12 - 15	☐
24	8 - 15	8.00	12 - 15	☐

Module (m) = 0.03 - 0.50

Coatings on request

Regrindable logarithmic relief

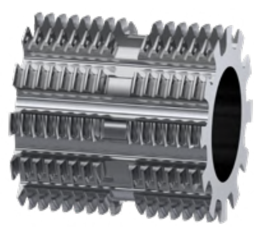


Resulting tooth profile

DIXI 1675 Epicyclic

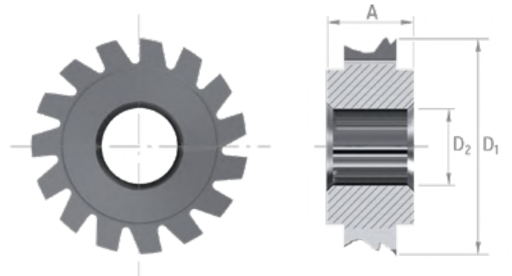
DIXI 1680 Involute

DOUBLE STRAWER ON REQUEST



If milling arbors are required, please contact the machine manufacturers.

HOB CUTTERS FOR INDEX



- Hob cutters developed for generation hobbing of gears with asymmetrical profile (escape and locking wheels). Regrindable logarithmic profile.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○						

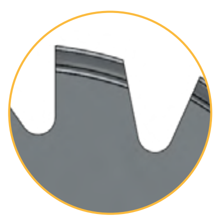
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎							○	○				

D_1	A	$D_{2\ H3}$	Z	CARBIDE
6	4 - 6	3.50	12	☐
8	2 - 4 - 6	3.50	12	☐
10	2 - 6	3.50	12	☐
10	2 - 6	4.50	12	☐
12	2 - 6	3.50	12	☐
12	6 - 8	4.50	12	☐
16	4 - 10	8.00	12	☐
18	6	6.00	12	☐
18	6 - 8	8.00	12	☐
24	8	8.00	12	☐

Coatings on request

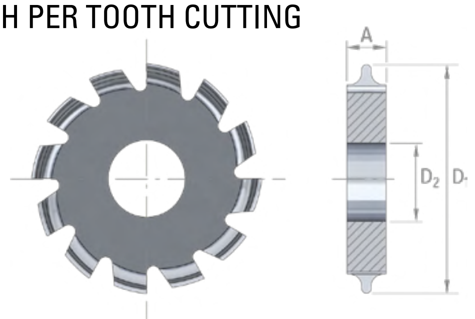
Resulting tooth profile

Regrindable logarithmic relief



If milling arbors are required, please contact the machine manufacturers.

MODULE CUTTERS
TOOTH PER TOOTH CUTTING



- Module cutters developed for radial, frontal and conical tooth-by-tooth cutting. Regrindable logarithmic profile.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○						

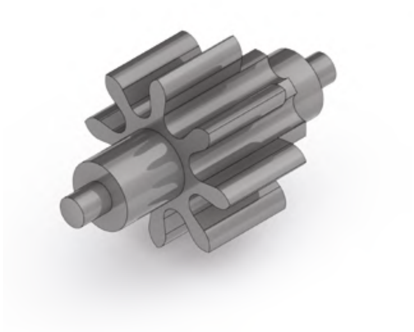
ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎							○	○				

D_1	A	$D_{2\ H3}$	Z	CARBIDE
6	4 - 6	3.50	6 - 12	☐
8	2 - 6	3.50	6 -12	☐
10	2 - 6	3.50	6 -12	☐
10	2	4.50	6 -12	☐
10	6	4.50	6 -12	☐
12	2	3.50	6 -12	☐
12	6	3.50	6 -12	☐
12	6 - 8	4.50	6 -12	☐
16	4 - 10	8.00	6 -12	☐
18	6	6.00	6 -12	☐
18	6 - 8	8.00	6 -12	☐
24	8 - 15	8.00	6 -12	☐

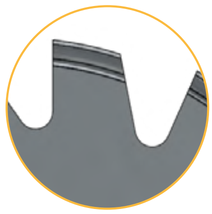
Module (m) = 0.03 - 0.50

Coatings on request

Resulting tooth profile



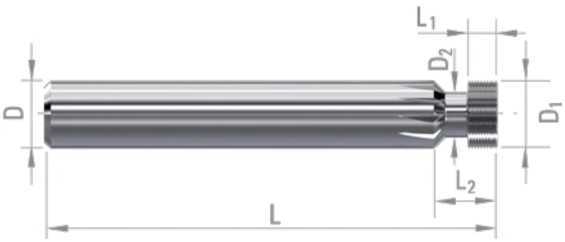
Regrindable logarithmic relief



If milling arbors are required, please contact the machine manufacturers.

DIXI 1672 - 1673

HOB CUTTERS



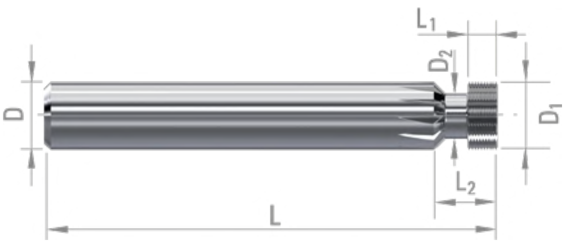
- **DIXI 1672** - Monobloc hob cutters for epicyclic teeth developed for generation hobbing of small gears and wheels (NIHS,EVJ, CETEHOR standards...). Ideal for direct collet clamping on sliding head turning machines. Regrindable logarithmic profile.
- **DIXI 1673** - Monobloc module cutters developed for radial, frontal and conical tooth-by-tooth hobbing. Ideal for direct collet clamping on sliding head turning machines. Regrindable logarithmic profile

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯						

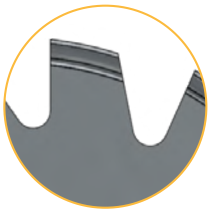
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◯	◯	◎	◎	◎	◎	◎	◎	◎							◯	◯				

DIXI 1672



D_1	L_1	D_2	L_2	D_{h5}	L	Z	CARBIDE
4	4	2.40	4	4	40	6 - 10	☐
5	4	3.00	4	5	40	6 - 10	☐
5	4	4.00	4	6	40	6 - 10	☐
6	4	4.00	4	6	40	6 - 10	☐

Regrindable
logarithmic relief

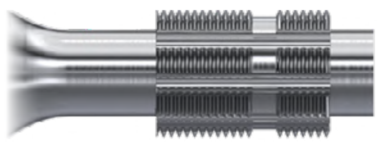


DIXI 1673

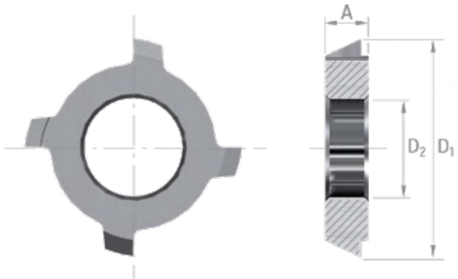
D_1	L_1	D_2	L_2	D_{h5}	L	Z	CARBIDE
4	2	2.40	4	4	40	5	☐
5	2	3.00	4	5	40	6	☐
5	2	4.00	4	6	40	6	☐
6	2	4.00	4	6	40	6	☐

Module (m) = 0.03 - 0.50

DOUBLE STRAWER
Coatings on request



HOB CUTTERS
FRONTAL GEAR CUTTING



- Hob cutters developed for frontal gear cutting. Regrindable logarithmic profile.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○						

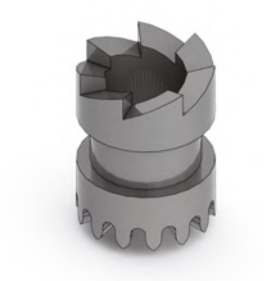
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	◎	◎	◎	◎	◎	◎	◎							○	○				

D_1	A	$D_{2\ H3}$	Z	CARBIDE
8	2	3.50	2 - 6	☐
10	2	3.50 - 4.50	2 - 6	☐
12	2	3.50 - 4.50	2 - 6	☐

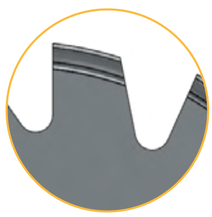
Module (m) = 0.03 - 0.50

Coatings on request

Resulting tooth profile



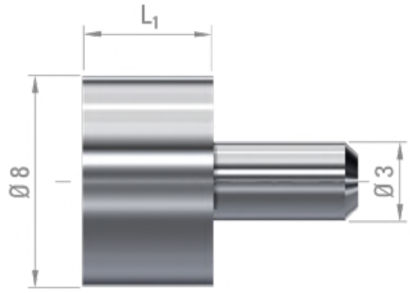
Regrindable
logarithmic relief



If milling arbors are required, please contact the machine manufacturers.

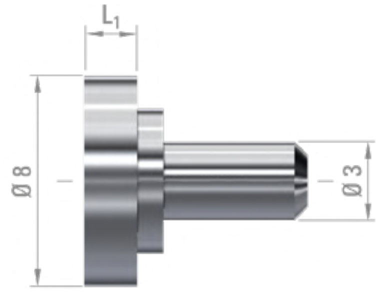
SUPPORTING DISCS

DIXI 0700-A



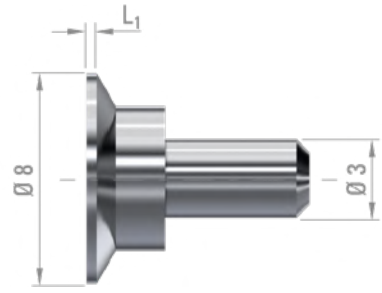
L_1 width from 3 to 5 mm
Up to 8 slots

DIXI 0700-B



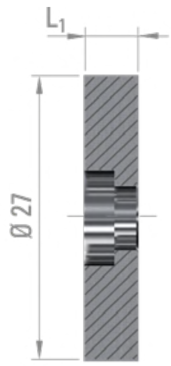
L_1 width from 1 to 2.99 mm
Up to 8 slots

DIXI 0700-C



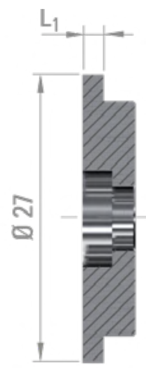
L_1 width from 0.05 to 0.99 mm
Up to 8 slots

DIXI 0710-D



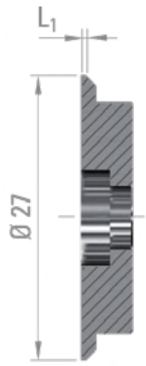
L_1 width 5 mm
Up to 24 slots

DIXI 0710-E



L_1 width from 1 to 4 mm
Up to 24 slots

DIXI 0710-F

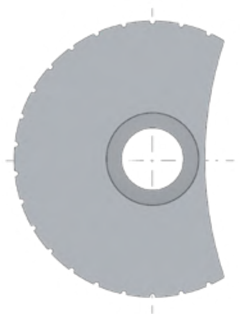


L_1 width from 0.05 to 0.99 mm
Up to 24 slots

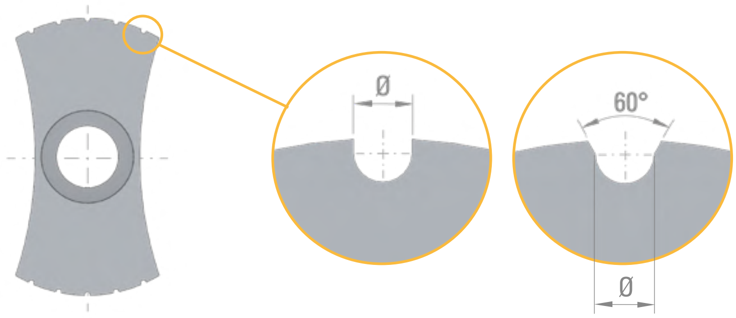
Special discs shapes for DIXI 0710

Slot shapes

G



H **U** **V**



	Number of discs	DIXI Ref.	Width L_1	Disc shape **G** or **H**	Slot shape **U** or **V**	Slot Ø	Number of slots
Ex.	1	0710-E	1	G	U	0.20	3
					V	0.24	5

INFORMATION ABOUT THE PART TO PRODUCE

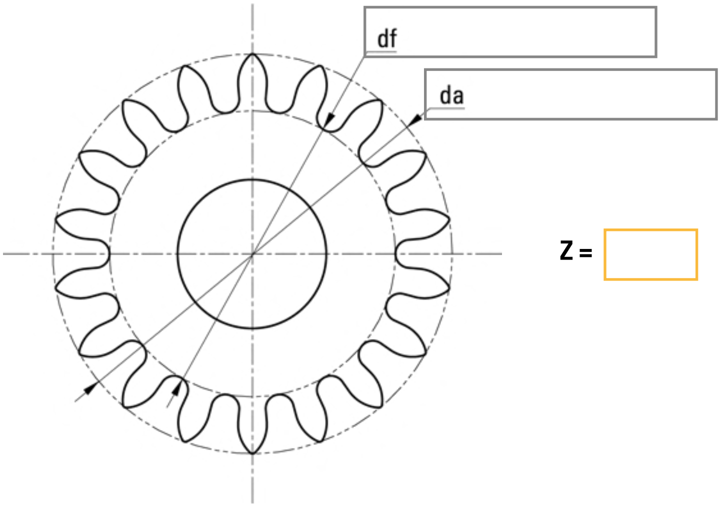
Norm

Design

DXF

Material to be machined

Module (m)



Z =

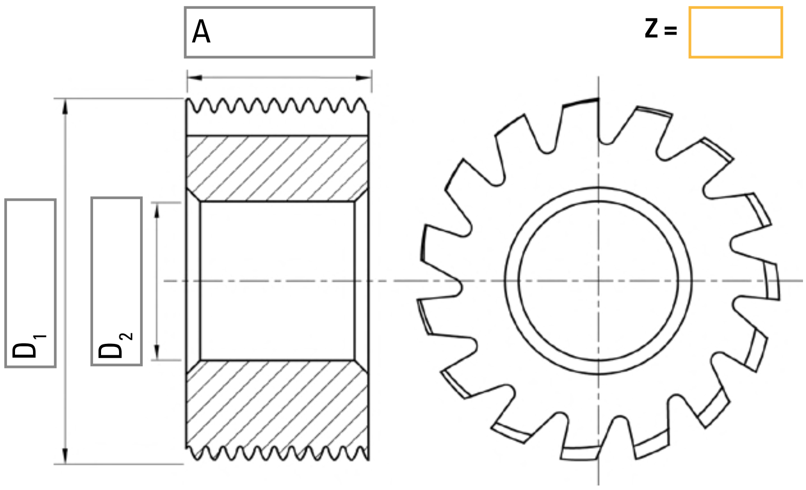
DIXI 1675

Helix angle (profile) **R** ☐ **L** ☐

Number of profiles

Coating

Quantity



DIXI 1672

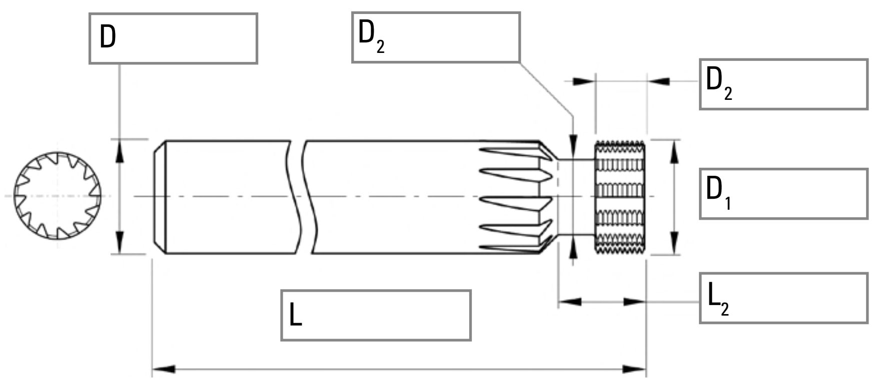
Z =

Helix angle (profile) **R** ☐ **L** ☐

Number of profiles

Coating

Quantity



Notice

INFORMATION ABOUT THE PART TO PRODUCE

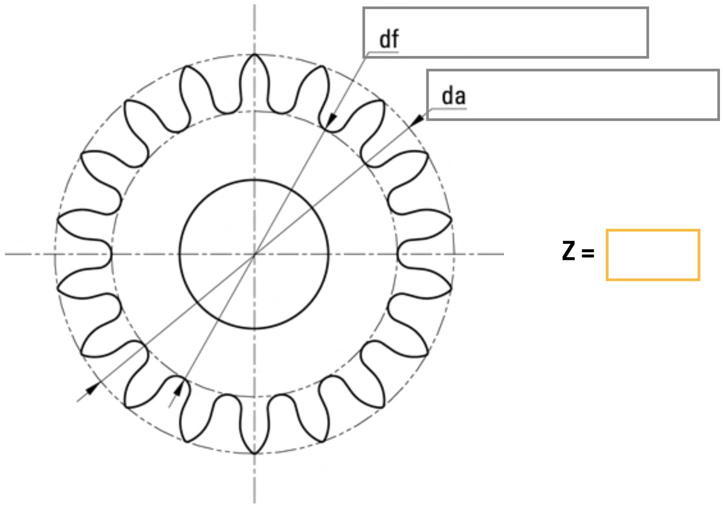
Norm

Design

DXF

Material to be machined

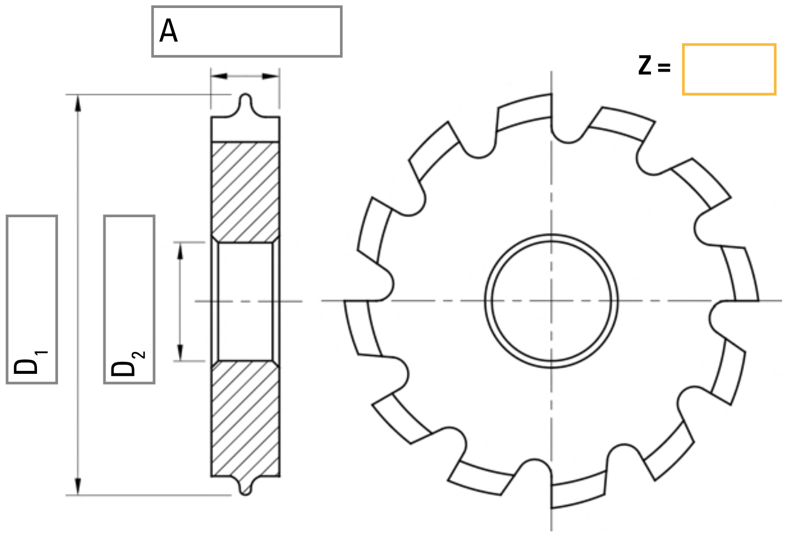
Module (m)



DIXI 1674

Coating

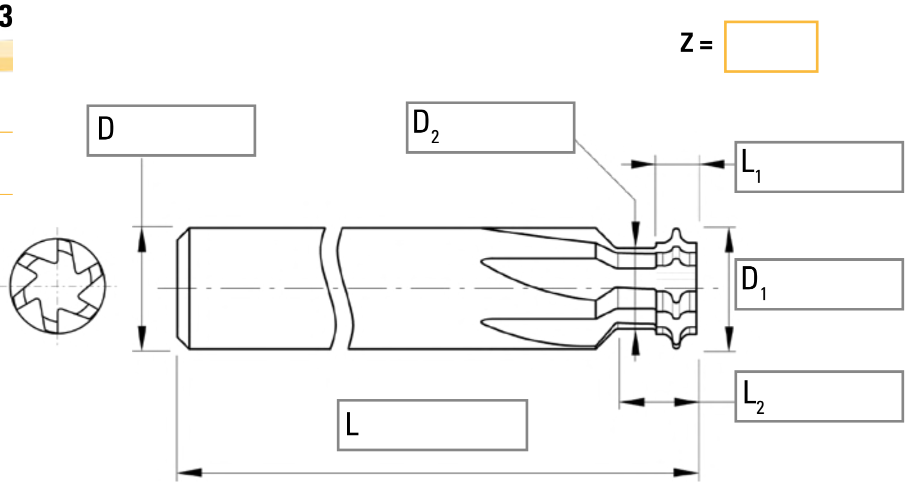
Quantity



DIXI 1673

Coating

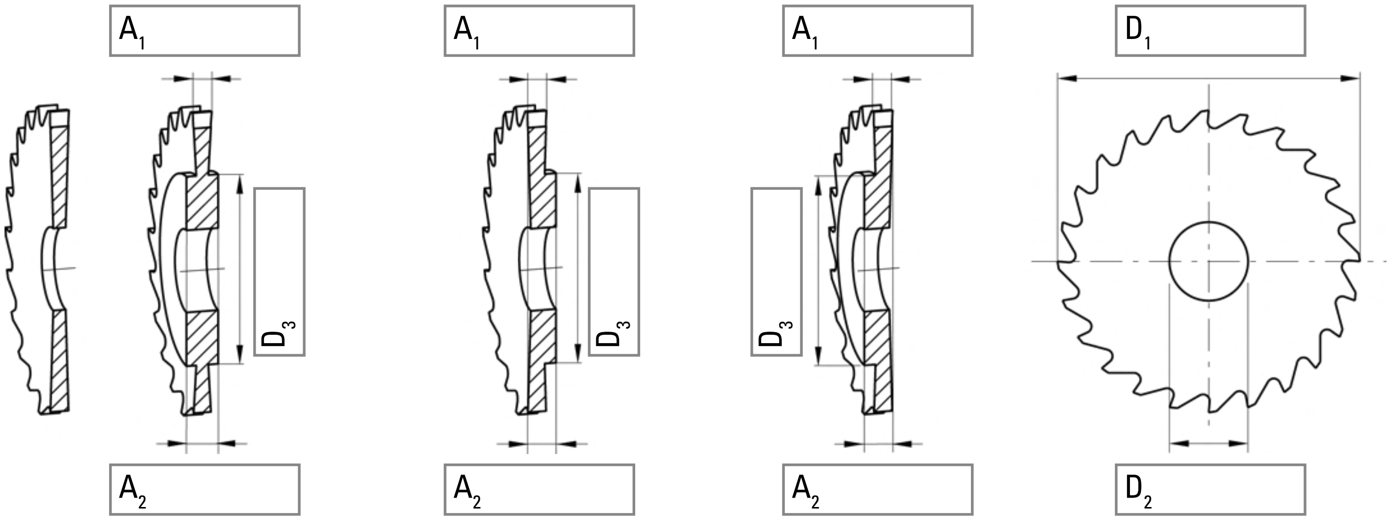
Quantity



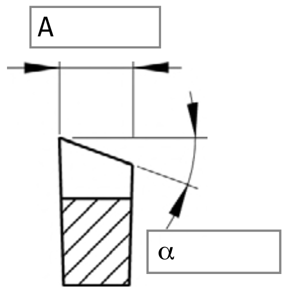
Notice

Quantity

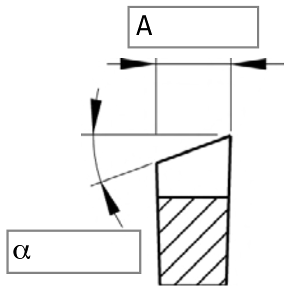
Material to be machined



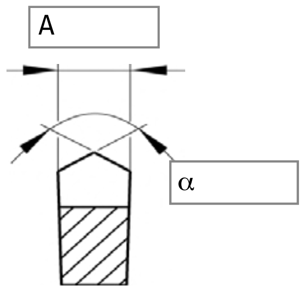
1640 L



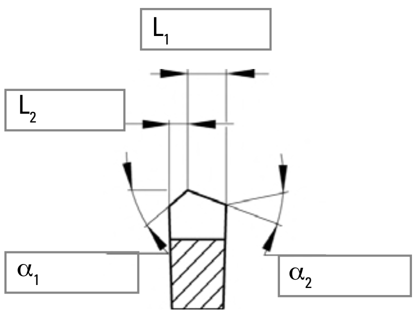
1640 R



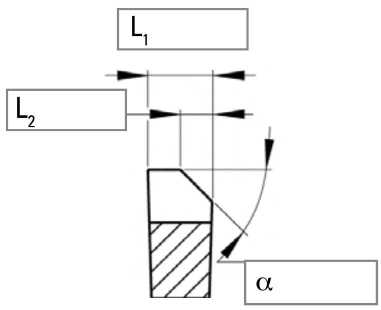
1643



1650



1650



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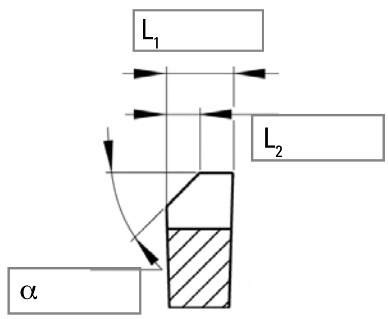

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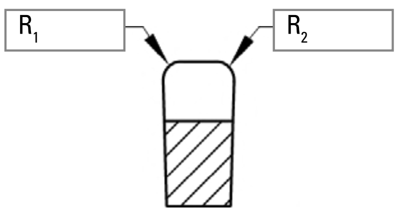

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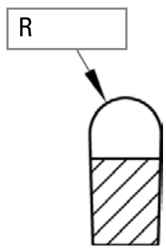

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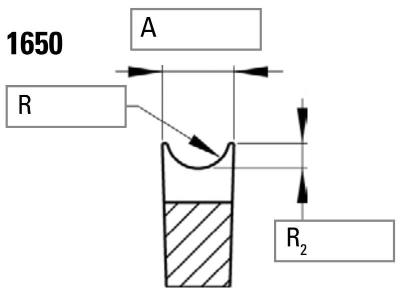
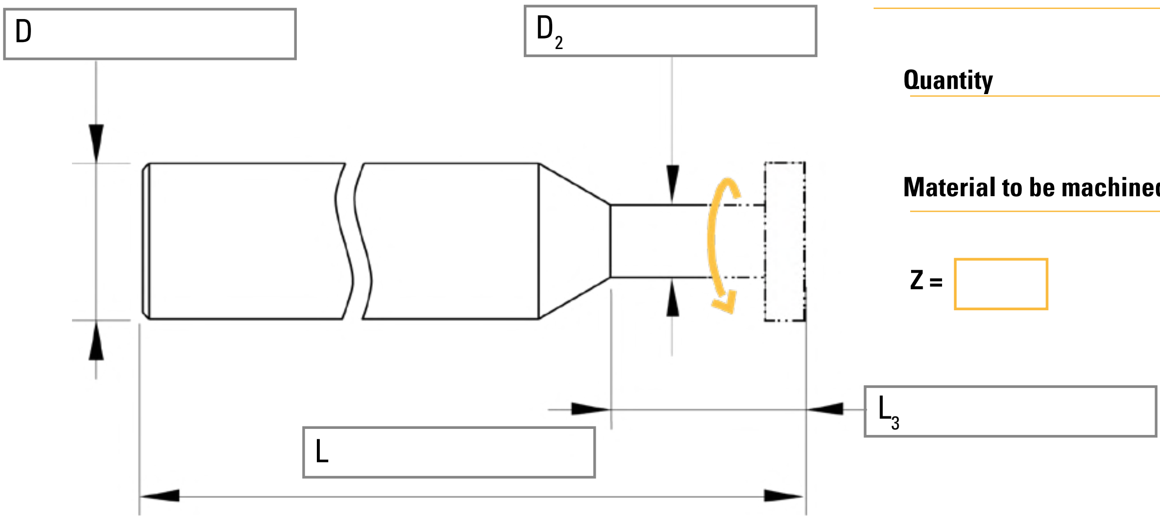


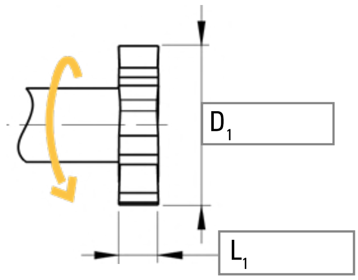
T-SLOT CUTTERS

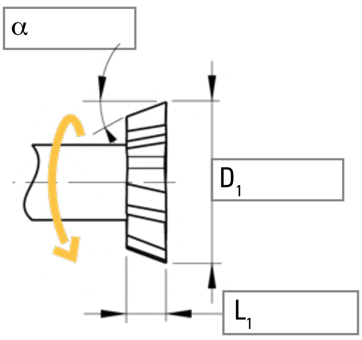


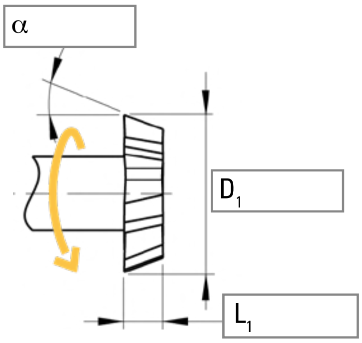
Quantity

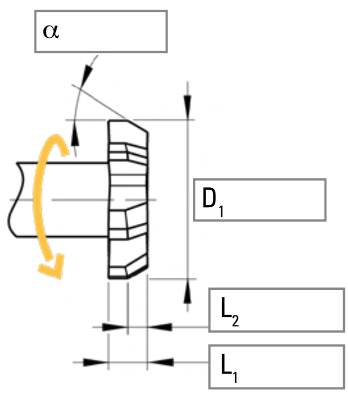
Material to be machined

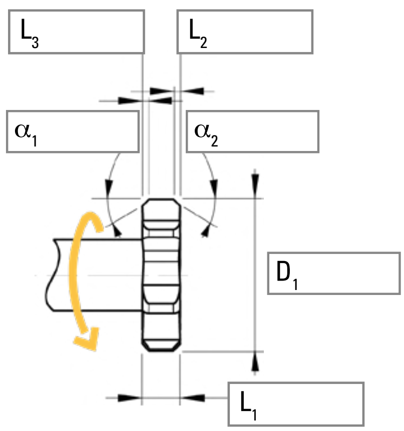
Z =

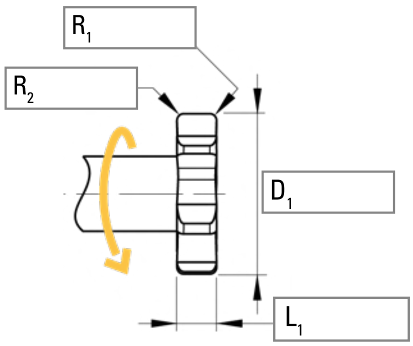


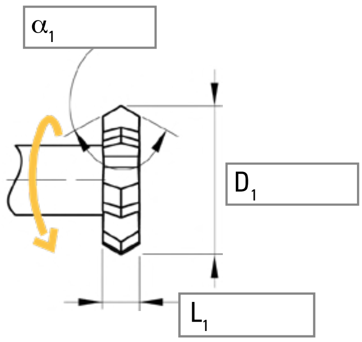


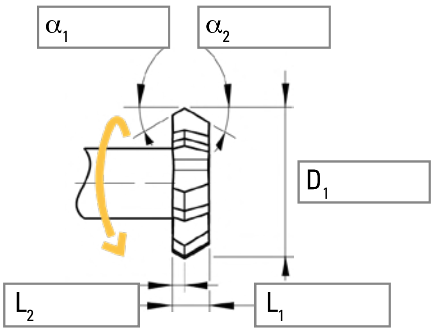


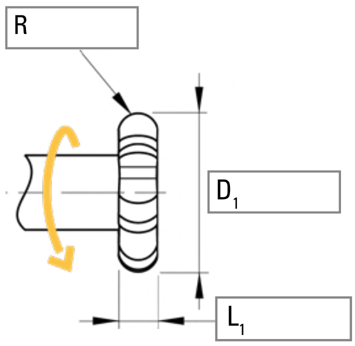












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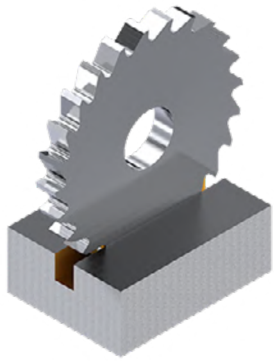
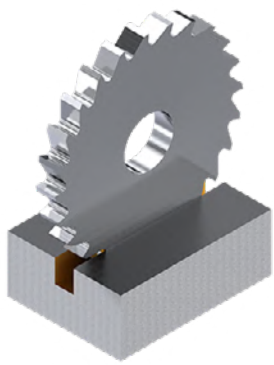
DIXI 1531 - 1533 - 1534

		VDI 3323	CARBIDE Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	**120**
P	Low alloyed steel < 800 N/mm²	6 - 9	**105**
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**75**
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**100**
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**75**
K	Grey cast iron < 250 HB	15 - 16	**110**
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**95**
N	Wrought aluminium alloy < 12% Si	21 - 22	**350**
N	Cast aluminium alloy >12% Si	23 - 25	**325**
N	Copper alloy good machinability with Pb	26	**325**
N	Copper alloy with difficult machinability	27 - 28	**225**
N	Plastic, wood	29 - 30	**165**
N	Gold, silver	-	**225**
S	Refractory alloy, Fe, Ni, Co base	31- 35	**30**
S	Titanium, titanium alloy	36 - 37	**60**



DIXI 1539

		VDI 3323	CARBIDE Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	**120**
P	Low alloyed steel < 800 N/mm²	6 - 9	**105**
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**75**
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**100**
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**75**
K	Grey cast iron < 250 HB	15 - 16	**110**
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**95**
N	Copper alloy good machinability with Pb	26	**325**
N	Copper alloy with difficult machinability	27 - 28	**225**
N	Gold, silver	-	**225**
S	Refractory alloy, Fe, Ni, Co base	31- 35	**30**
S	Titanium, titanium alloy	36 - 37	**60**



$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 15.00 - 30.00	Ø D_1 30.00 - 50.00	Ø D_1 50.00 - 80.00	Ø D_1 80.00 - 125.00	Ø D_1 125.00 - 160.00
0.0015 - 0.0034	0.003 - 0.005	0.004 - 0.007	0.006 - 0.010	0.008 - 0.011
0.0014 - 0.0030	0.002 - 0.005	0.004 - 0.006	0.005 - 0.009	0.007 - 0.010
0.0012 - 0.0026	0.002 - 0.004	0.003 - 0.006	0.004 - 0.008	0.006 - 0.009
0.0012 - 0.0026	0.002 - 0.004	0.003 - 0.006	0.004 - 0.008	0.006 - 0.009
0.0011 - 0.0024	0.002 - 0.004	0.003 - 0.005	0.004 - 0.007	0.005 - 0.008
0.0018 - 0.0040	0.003 - 0.006	0.005 - 0.009	0.007 - 0.012	0.009 - 0.013
0.0015 - 0.0034	0.003 - 0.005	0.004 - 0.007	0.006 - 0.010	0.008 - 0.011
0.0023 - 0.0050	0.004 - 0.008	0.006 - 0.011	0.008 - 0.015	0.011 - 0.017
0.0020 - 0.0042	0.004 - 0.007	0.005 - 0.009	0.007 - 0.013	0.010 - 0.015
0.0023 - 0.0050	0.004 - 0.008	0.006 - 0.011	0.008 - 0.015	0.011 - 0.017
0.0018 - 0.0040	0.003 - 0.006	0.005 - 0.009	0.007 - 0.012	0.009 - 0.013
0.0023 - 0.0050	0.004 - 0.008	0.006 - 0.011	0.008 - 0.015	0.011 - 0.017
0.0020 - 0.0042	0.004 - 0.007	0.005 - 0.009	0.007 - 0.013	0.010 - 0.015
0.0008 - 0.0016	0.001 - 0.003	0.002 - 0.004	0.003 - 0.005	0.004 - 0.006
0.0015 - 0.0034	0.003 - 0.005	0.004 - 0.007	0.006 - 0.010	0.008 - 0.011

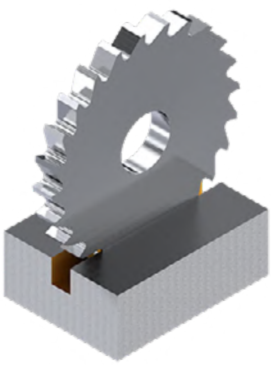
Feed per tooth fz [mm]

Ø D_1 15.00 - 30.00	Ø D_1 30.00 - 40.00	Ø D_1 40.00 - 50.00
0.0008 - 0.0016	0.0014 - 0.0020	0.0018 - 0.0025
0.0007 - 0.0014	0.0013 - 0.0018	0.0016 - 0.0020
0.0006 - 0.0012	0.0012 - 0.0016	0.0014 - 0.0020
0.0006 - 0.0012	0.0012 - 0.0016	0.0014 - 0.0020
0.0005 - 0.0010	0.0010 - 0.0014	0.0012 - 0.0015
0.0009 - 0.0018	0.0017 - 0.0024	0.0022 - 0.0030
0.0008 - 0.0016	0.0014 - 0.0020	0.0018 - 0.0025
0.0011 - 0.0024	0.0022 - 0.0030	0.0028 - 0.0035
0.0009 - 0.0018	0.0017 - 0.0024	0.0022 - 0.0030
0.0010 - 0.0020	0.0019 - 0.0026	0.0024 - 0.0030
0.0004 - 0.0008	0.0007 - 0.0010	0.0009 - 0.0012
0.0008 - 0.0016	0.0014 - 0.0020	0.0018 - 0.0025

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

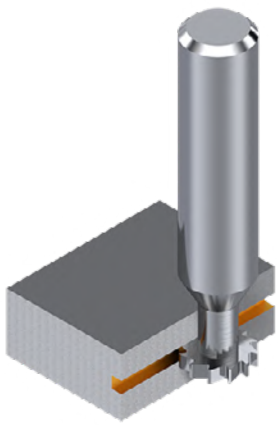
DIXI 1537 - 1640

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	150	175
P	Low alloyed steel < 800 N/mm²	6 - 9	125	145
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	100	125
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	140	165
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	100	125
K	Grey cast iron < 250 HB	15 - 16	280	300
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	180	200
N	Wrought aluminium alloy < 12% Si	21 - 22	300	325
N	Cast aluminium alloy >12% Si	23 - 25	250	275
N	Copper alloy good machinability with Pb	26	300	325
N	Copper alloy with difficult machinability	27 - 28	220	240
N	Plastic, wood	29 - 30	150	175
N	Gold, silver	-	220	240
S	Refractory alloy, Fe, Ni, Co base	31- 35	40	65
S	Titanium, titanium alloy	36 - 37	90	115



DIXI 1525 - 1527 - 1528

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	85	95
P	Low alloyed steel < 800 N/mm²	6 - 9		80
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		55
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		75
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		55
K	Grey cast iron < 250 HB	15 - 16	85	95
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	65	70
N	Wrought aluminium alloy < 12% Si	21 - 22	130	
N	Cast aluminium alloy >12% Si	23 - 25	150	
N	Copper alloy good machinability with Pb	26	150	
N	Copper alloy with difficult machinability	27 - 28	120	
N	Plastic, wood	29 - 30	250	
N	Gold, silver	-	150	
S	Refractory alloy, Fe, Ni, Co base	31- 35		55
S	Titanium, titanium alloy	36 - 37	40	45



$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 50.00 - 63.00	Ø D_1 63.00 - 80.00	Ø D_1 80.00 - 100.00
0.0045 - 0.0070	0.005 - 0.008	0.005 - 0.008
0.0041 - 0.0062	0.004 - 0.007	0.004 - 0.007
0.0036 - 0.0056	0.004 - 0.006	0.004 - 0.006
0.0036 - 0.0056	0.004 - 0.006	0.004 - 0.006
0.0032 - 0.0048	0.003 - 0.005	0.003 - 0.006
0.0054 - 0.0084	0.006 - 0.009	0.006 - 0.010
0.0045 - 0.0070	0.005 - 0.008	0.005 - 0.008
0.0068 - 0.0104	0.007 - 0.011	0.007 - 0.012
0.0059 - 0.0090	0.006 - 0.010	0.006 - 0.010
0.0068 - 0.0104	0.007 - 0.011	0.007 - 0.012
0.0054 - 0.0084	0.006 - 0.009	0.006 - 0.010
0.0068 - 0.0104	0.007 - 0.011	0.007 - 0.012
0.0059 - 0.0090	0.006 - 0.010	0.006 - 0.010
0.0023 - 0.0034	0.002 - 0.004	0.002 - 0.004
0.0045 - 0.0070	0.005 - 0.008	0.005 - 0.008

Feed per tooth fz [mm]

Ø D_1 2.00 - 5.00	Ø D_1 5.00 - 8.00	Ø D_1 8.00 - 12.00	Ø D_1 12.00 - 15.00	Ø D_1 15.00 - 20.00	Ø D_1 20.00 - 25.00	Ø D_1 25.00 - 30.00
0.0018 - 0.0046	0.004 - 0.007	0.007 - 0.011	0.010 - 0.013	0.013 - 0.017	0.016 - 0.021	0.020 - 0.025
0.0016 - 0.0042	0.004 - 0.007	0.006 - 0.010	0.009 - 0.012	0.011 - 0.015	0.015 - 0.019	0.018 - 0.022
0.0014 - 0.0036	0.004 - 0.006	0.006 - 0.009	0.008 - 0.011	0.010 - 0.014	0.013 - 0.017	0.016 - 0.020
0.0014 - 0.0036	0.004 - 0.006	0.006 - 0.009	0.008 - 0.011	0.010 - 0.014	0.013 - 0.017	0.016 - 0.020
0.0013 - 0.0032	0.003 - 0.005	0.005 - 0.007	0.007 - 0.009	0.009 - 0.012	0.012 - 0.015	0.014 - 0.017
0.0022 - 0.0056	0.005 - 0.009	0.008 - 0.013	0.012 - 0.016	0.015 - 0.021	0.020 - 0.025	0.024 - 0.030
0.0018 - 0.0046	0.004 - 0.007	0.007 - 0.011	0.010 - 0.013	0.013 - 0.017	0.016 - 0.021	0.020 - 0.025
0.0027 - 0.0070	0.007 - 0.011	0.010 - 0.016	0.015 - 0.020	0.019 - 0.026	0.025 - 0.032	0.030 - 0.037
0.0023 - 0.0060	0.006 - 0.009	0.009 - 0.014	0.013 - 0.017	0.016 - 0.022	0.021 - 0.027	0.026 - 0.032
0.0027 - 0.0070	0.007 - 0.011	0.010 - 0.016	0.015 - 0.020	0.019 - 0.026	0.025 - 0.032	0.030 - 0.037
0.0022 - 0.0056	0.005 - 0.009	0.008 - 0.013	0.012 - 0.016	0.015 - 0.021	0.020 - 0.025	0.024 - 0.030
0.0027 - 0.0070	0.007 - 0.011	0.010 - 0.016	0.015 - 0.020	0.019 - 0.026	0.025 - 0.032	0.030 - 0.037
0.0023 - 0.0060	0.006 - 0.009	0.009 - 0.014	0.013 - 0.017	0.016 - 0.022	0.021 - 0.027	0.026 - 0.032
0.0009 - 0.0024	0.002 - 0.004	0.003 - 0.005	0.005 - 0.007	0.006 - 0.009	0.008 - 0.011	0.010 - 0.012
0.0018 - 0.0046	0.004 - 0.007	0.007 - 0.011	0.010 - 0.013	0.013 - 0.017	0.016 - 0.021	0.020 - 0.025

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !


DIXI
polytool
S34.50 x 0.50 GO
NIHS 60-40
N° 4
M3.00x0.50 6H NO GO
976722 - D2Ø2.7787
S1.40x0.30 6H NO GO
Acier / Stahl

THREADING

✓ = item from stock

* for non-ferrous material

MICRO CUTTING TAPS

Tool	Z	Page		CARBIDE	TiAlN	C-TOP	CUTINOX	DRYCUT*	DI-TOP
DIXI 1712 S 0.30 - S 1.40 M 1.50 - M 2.00 	3	360	NIHS 06, ISO 60°	✓					
DIXI 1712 L S 0.60 - S 1.00 	3	361	NIHS 06	✓					
DIXI 1713 S 0.40 - S 1.40 	3	362	NIHS 06	✓					
DIXI 1708 S 0.30 - S 1.40 	3	363	NIHS 06	✓					✓
DIXI 1710 S 0.30 - S 1.40 	3	364	NIHS 06	✓					

MICRO THREAD FORMERS

Tool	Z	Page		CARBIDE	TiAlN	C-TOP	CUTINOX	DRYCUT*	DI-TOP
DIXI 1715 S 0.40 - S 1.40 M 1.00 - M 2.20 	3	365	NIHS 06, ISO 60°						✓
DIXI 1716 S 0.40 - S 1.40 M 1.00 - M 1.40 	3	366	NIHS 06, ISO 60°						✓

WHIRLING TOOLS

Tool	Z	Page		CARBIDE	TiAlN	C-TOP	CUTINOX	DRYCUT*	DI-TOP
DIXI 1739 S 0.30 - S 1.40 Partial profile 	1	367	NIHS 06	✓					
DIXI 1738 S 0.50 - S 1.40 M 1.00 - M 3.00 Partial profile 	3	368	NIHS 06, ISO 60°	✓			✓		
DIXI 1737 S 0.50 - S 1.40 M 1.00 - M 3.00 	3	369	NIHS 06, ISO 60°	✓		✓		✓*	
DIXI 1730-xD M 0.80 - M 10.00 	3-6	370	ISO 60°	✓	✓				
DIXI 1735-xD UNF N°1 - UNC 1/2" 	3-6	372	UN 60°	✓	✓				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

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○ good ◎ excellent

✓ = item from stock

DRILLING THREAD WHIRLERS		Z	Page		☐ CARBIDE	CUTINOX	DAC	DI-TOP
DIXI 1740 S 0.80 - S 0.90 M 1.00 - M 10.00		1 - 3	374	NIHS 06, ISO 60°	✓	✓		
DIXI 1742-TC M 5.00 - M 12.00		2	375	ISO 60°			✓	
DIXI 1744-TC M 5.00 - M 12.00		4	376	ISO 60°		✓		

SELF LOCKING THREAD TOOLS		Z	Page		CARBIDE	CUTINOX	DAC	DI-TOP
DIXI 1712-AF/BT S 0.70 - S 0.90 M 1.00 - M 1.40		3	377	DIXI NORM	✓			
DIXI 1716-AF/BT S 0.70 - S 0.90 M 1.00 - M 1.40		-	378	DIXI NORM				✓
DIXI 1738-AF/BT S 0.70 - S 0.90 M 1.00 - M 3.00		3	379	DIXI NORM	✓			
DIXI 1740-AF/BT S 0.80 - S 0.90 M 1.00 - M 3.00		1 - 2	380	DIXI NORM	✓			
DIXI 1718-AF/BT S 0.70 - S 0.90 M 1.00 - M 3.00		-	381	DIXI NORM	✓			
DIXI 1719-AF/BT S 0.70 - S 0.90 M 1.00 - M 3.00		-	381	DIXI NORM	✓			
DIXI 0418-AF S 0.70 - S 0.90 M 1.00 - M 3.00		-	382	DIXI NORM	✓			
DIXI 0419-AF S 0.70 - S 0.90 M 1.00 - M 3.00		-	382	DIXI NORM	✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

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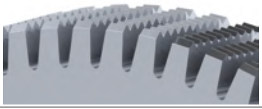
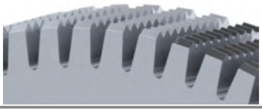
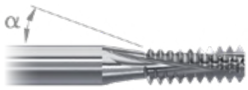
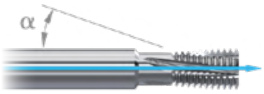
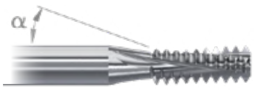
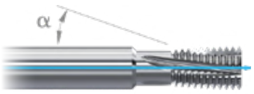
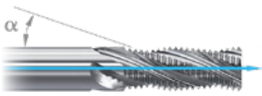
○ good ◎ excellent

✓ = item from stock

HOB CUTTERS		Z	Page		☐ CARBIDE	TiAlN	CUTINOX	
DIXI 1660 S 0.40 - S 1.40		94	383	NIHS 06	✓			
DIXI 1661 S 0.40 - S 1.40		94	384	NIHS 06	✓			

THREAD MILLS		Z	Page		CARBIDE	TiAlN	CUTINOX	
DIXI 7910 M 1.40 - M 18.00		2 - 4	385	ISO 60°	✓	✓		
DIXI 7908 M 3.00 - M 24.00		3 - 6	386	ISO 60°	✓	✓		
DIXI 7913-TC M 10.00 - M 30.00		4 - 5	387	ISO 60°	✓		✓	
DIXI 7920 UNC N°2 - UNC 3/4"		2 - 4	388	UN 60°	✓	✓		
DIXI 7918 UNF N°2 - UNC 3/4"		3 - 5	389	UN 60°	✓	✓		
DIXI 7914-TC 1/2"- 32 UN - 1"- 8 UNC		4 - 5	390	UN 60°	✓		✓	
DIXI 7923-TC UNJF N°10 - UNJF 1/2"		3 - 4	391	UNJ 60°	✓			
DIXI 7940 G1/16" - G1"		3 - 4	392	BSP 55°	✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

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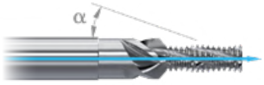
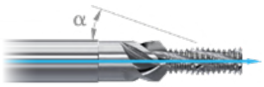
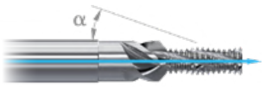
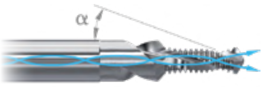
○ good ◎ excellent

✓ = item from stock

THREAD MILLS WITH COUNTERSINK		Z	Page		☐ CARBIDE	■ CUTINOX		
DIXI 7915-xD-TC M 4.00 - M 16.00		3 - 4	393	ISO 60°	✓	✓		
DIXI 7925-xD-TC UNC N°8 - UNC 5/8"		3 - 4	394	UN 60°	✓	✓		
DIXI 7935-xD-TC UNF N°10 - UNF 5/8"'		3 - 4	395	UN 60°	✓	✓		

DRILLING THREAD MILLS WITH COUNTERSINK								
DIXI 7985-HH M 4.00 - M 16.00		2	396	ISO 60°	✓	✓		

THREAD GAUGES								
DIXI 1718-S 4H **R** S 0.30 - S 1.40		-	397	NIHS 06	✓			
DIXI 1718-S 4H **L** S 0.50 - S 1.20		-	397	NIHS 06	✓			
DIXI 1718-S 3G S 0.30 - S 1.40		-	397	NIHS 06	✓			
DIXI 1719-S 4H/3G **R** S 0.30 - S 1.20		-	397	NIHS 06	✓			
DIXI 1719-S 4H/3G **L** S 0.50 - S 1.20		-	397	NIHS 06	✓			
DIXI 1718-M M 1.00 - M 3.00		-	398	ISO 1502	✓			
DIXI 1719-M M 1.00 - M 3.00		-	398	ISO 1502	✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

◎	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	
◎	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	
◎	○	○	○	◎	◎	◎	◎	◎	◎	○	◎	

				◎	◎	◎	◎	◎	◎			

○ good ◎ excellent

✓ = item from stock

CHECK PLUGS		Z	Page		☐ CARBIDE			
DIXI 1720 GO S 0.30 - S 1.40		-	399	NIHS 06	✓			
DIXI 1720 NO GO S 0.30 - S 1.40		-	399	NIHS 06	✓			

PLAIN GAUGES								
DIXI 0418 GO S 0.30 - S 1.40			400	NIHS 06	✓			
DIXI 0419 NO GO S 0.30 - S 1.40			400	NIHS 06	✓			

GAUGES SET								
		-	401	NIHS 06				

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

○ good ◎ excellent

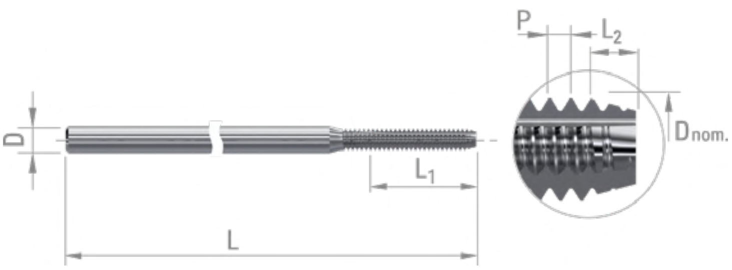
DIXI 1712

Z=3

NIHS 06 | ISO 60°

P.404/406

MICRO CUTTING TAPS



- Micro cutting taps developed for the machining of materials with good machinability.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○																					

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3G	NIHS-3G+	ISO2-6H
S 0.30	0.08	0.23	0.24	1.0	0.25	1.5	30	62326		
S 0.35	0.09	0.27	0.28	1.5	0.27	1.5	30	965642		
S 0.40	0.10	0.32	0.34	2.0	0.30	1.5	30	62327	62328	
S 0.50	0.125	0.40	0.42	2.5	0.38	1.5	30	62329	62330	
S 0.60	0.15	0.48	0.50	3.0	0.45	1.5	30	62331	62332	
S 0.70	0.175	0.56	0.58	3.0	0.52	1.5	30	62334	62335	
S 0.80	0.20	0.64	0.66	3.5	0.60	1.5	30	62337	62338	
S 0.90	0.225	0.72	0.74	4.0	0.67	1.5	30	62342	62343	
S 1.00	0.25	0.80	0.82	4.0	0.76	1.5	30	62345	62346	
S 1.20	0.25	1.00	1.02	5.0	0.76	1.5	30	62348		
S 1.40	0.30	1.15	1.17	5.0	0.85	1.5	30	62351		
M 1.50	0.30	1.26	1.28	6.0	0.85	2.0	38			62353
M 2.00	0.40	1.65	1.68	11.0	1.00	2.5	43			62354

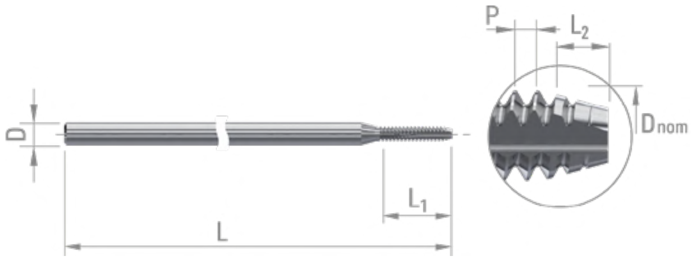
Cutting conditions **n = 500 - 2'500 [rpm]**

DIXI 1712 L

Z=3

P.404/406

MICRO CUTTING TAPS
LEFT HAND CUTTING



- Micro cutting taps, left-hand thread, developed for the machining of materials with very good machinability.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○																					

ISO	N										S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3G CARBIDE
S 0.60	0.15	0.49	0.51	4.0	0.45	1.5	30	969369
S 0.70	0.175	0.57	0.59	4.0	0.52	1.5	30	969370
S 0.80	0.20	0.65	0.67	4.0	0.60	1.5	30	969371
S 0.90	0.225	0.73	0.75	4.0	0.67	1.5	30	969372
S 1.00	0.25	0.81	0.83	4.0	0.75	1.5	30	969373

Cutting conditions **n = 500 - 2'500 [rpm]**

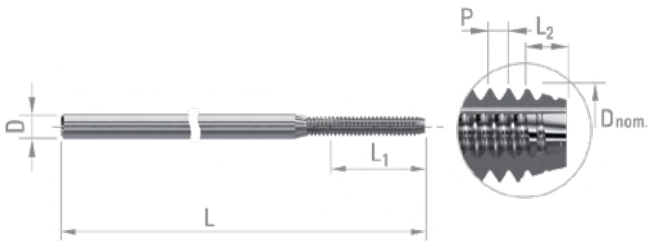
DIXI 1713

Z=3

HIGH PERFORMANCE MICRO CUTTING TAPS

P.404/406

NIHS 06



- Micro cutting taps developed for the machining of materials with good machinability.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	○	○																			

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎			○										

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3G CARBIDE
S 0.40	0.10	0.33	0.34	2.5	0.30	2	32	969795
S 0.50	0.125	0.41	0.43	3.5	0.38	2	32	969474
S 0.60	0.15	0.49	0.51	4.0	0.45	2	32	969497
S 0.70	0.175	0.57	0.59	4.0	0.52	2	32	969498
S 0.80	0.20	0.65	0.67	4.0	0.60	2	32	969499
S 0.90	0.225	0.73	0.75	4.0	0.67	2	32	969500
S 1.00	0.25	0.81	0.83	4.0	0.76	2	32	969501
S 1.20	0.25	1.01	1.03	5.0	0.76	2	32	969502
S 1.40	0.30	1.16	1.18	5.0	0.85	2	32	969503

Cutting conditions **n = 500 - 2'500 [rpm]**

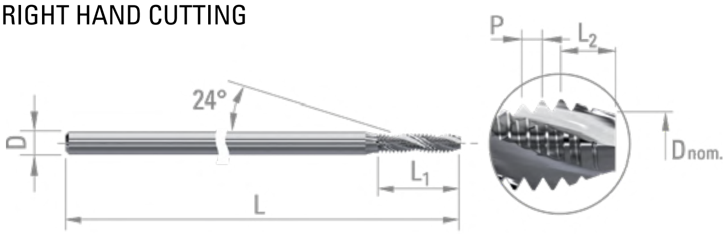
DIXI 1708

Z=3

NIHS 06

P.404/406

MICRO CUTTING TAPS
RIGHT HAND HELIX
RIGHT HAND CUTTING



- Micro cutting taps, right-hand helix, developed for the tapping of blind holes.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).
- DI-TOP coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○																			

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎													

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3G CARBIDE	NIHS-3G D-TOP
S 0.30	0.08	0.23	0.24	1.00	0.25	1.50	30	986881	303483
S 0.35	0.09	0.27	0.28	1.50	0.27	1.50	30	986882	303484
S 0.40	0.10	0.32	0.34	2.50	0.30	1.50	30	986883	303485
S 0.50	0.125	0.40	0.42	3.50	0.38	1.50	30	984405	303486
S 0.60	0.15	0.48	0.50	4.00	0.45	1.50	30	983633	303487
S 0.70	0.175	0.56	0.58	4.00	0.52	1.50	30	986884	303488
S 0.80	0.20	0.64	0.66	4.00	0.60	1.50	30	986885	303489
S 0.90	0.225	0.72	0.74	4.00	0.67	1.50	30	986886	303490
S 1.00	0.25	0.80	0.82	4.00	0.76	1.50	30	986887	303491
S 1.20	0.25	1.00	1.02	5.00	0.76	1.50	30	986888	303492
S 1.40	0.30	1.15	1.17	5.00	0.85	1.50	30	986889	303493

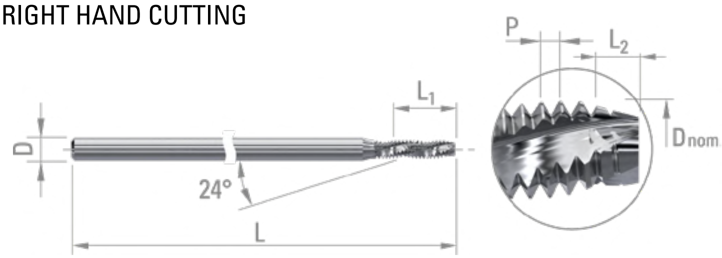
Cutting conditions **n = 500 - 2'500 [rpm]**

DIXI 1710

Z=3

P.404/406

MICRO CUTTING TAPS
LEFT HAND HELIX
RIGHT HAND CUTTING



- Micro cutting taps, with left-hand helix and right hand cutting developed for the tapping of through holes.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○																			

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3G CARBIDE
S 0.30	0.08	0.23	0.24	1.00	0.25	1.50	30	986890
S 0.35	0.09	0.27	0.28	1.50	0.27	1.50	30	986891
S 0.40	0.10	0.32	0.34	2.50	0.30	1.50	30	986892
S 0.50	0.125	0.40	0.42	3.50	0.38	1.50	30	986893
S 0.60	0.15	0.48	0.50	4.00	0.45	1.50	30	986894
S 0.70	0.175	0.56	0.58	4.00	0.52	1.50	30	986895
S 0.80	0.20	0.64	0.66	4.00	0.60	1.50	30	986896
S 0.90	0.225	0.72	0.74	4.00	0.67	1.50	30	986897
S 1.00	0.25	0.80	0.82	4.00	0.76	1.50	30	986898
S 1.20	0.25	1.00	1.02	5.00	0.76	1.50	30	986899
S 1.40	0.30	1.15	1.17	5.00	0.85	1.50	30	986900

Cutting conditions **n = 500 - 2'500 [rpm]**

DIXI 1715 DI TOP

Z=3

NIHS 06 | ISO 60°

P.404/406

MICRO THREAD FORMERS

- Micro thread formers developed for the deformation tapping of steels with good machinability.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14) and ISO 965 (DIN 13).
- DI-TOP coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○														

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	○	○	○	○												

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3GX DI-TOP
S 0.40	0.10	0.36 - 0.37	0.37 - 0.38	2.00	0.30	1.50	30	974654
S 0.50	0.125	0.45 - 0.46	0.46 - 0.47	2.00	0.37	1.50	30	972407
S 0.60	0.15	0.54 - 0.55	0.55 - 0.56	2.40	0.45	1.50	30	970899
S 0.70	0.175	0.62 - 0.63	0.63 - 0.64	2.80	0.52	1.50	30	970900
S 0.80	0.20	0.70 - 0.71	0.71 - 0.72	3.20	0.60	1.50	30	970901
S 0.90	0.225	0.81 - 0.82	0.82 - 0.83	3.60	0.67	1.50	30	970902
S 1.00	0.25	0.89 - 0.90	0.90 - 0.91	4.00	0.75	1.50	30	305793
S 1.20	0.20	1.11 - 1.12	1.12 - 1.13	4.80	0.60	1.50	30	305794
S 1.20	0.25	1.08 - 1.09	1.09 - 1.10	4.80	0.75	1.50	30	305795
S 1.40	0.20	1.31 - 1.32	1.32 - 1.33	5.60	0.60	1.50	30	305796
S 1.40	0.30	1.27 - 1.28	1.28 - 1.29	5.60	0.90	1.50	30	305797

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	4HX DI-TOP	5HX DI-TOP	6HX DI-TOP
M 1.00	0.25	0.89 - 0.90	0.90 - 0.91	4.00	0.75	1.50	30		970903	
M 1.20	0.20	1.11 - 1.12	1.12 - 1.13	4.80	0.60	1.50	30	978772		
M 1.20	0.25	1.09 - 1.10	1.10 - 1.11	4.80	0.75	1.50	30		970904	
M 1.40	0.20	1.31 - 1.32	1.32 - 1.33	5.60	0.60	1.50	30	973645		
M 1.40	0.30	1.27 - 1.28	1.28 - 1.29	5.60	0.90	1.50	30		970905	
M 1.50	0.30	1.37 - 1.38	1.38 - 1.39	6.00	0.90	1.50	38			971650
M 1.60	0.35	1.45 - 1.46	1.46 - 1.47	6.00	1.05	1.50	38			970906
M 1.80	0.20	1.71 - 1.72	1.72 - 1.73	7.00	0.60	1.50	38	975090		
M 2.00	0.20	1.91 - 1.92	1.92 - 1.93	8.00	0.60	1.50	43	976259		
M 2.00	0.40	1.83 - 1.84	1.83 - 1.84	8.00	1.20	1.50	43			970907
M 2.20	0.25	2.09 - 2.10	2.10 - 2.11	8.00	0.75	1.50	43		974959	

Cutting conditions **n = 500 - 2'500 [rpm]**

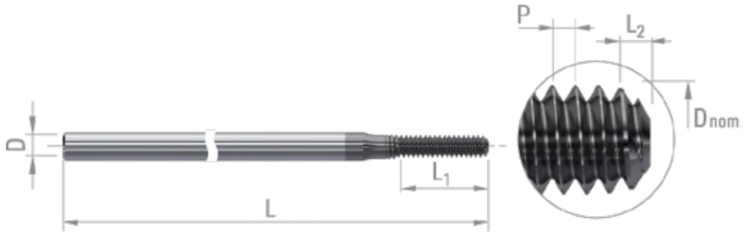
DIXI 1716 DI-TOP

Z=3

MICRO THREAD FORMERS

NIHS 06 | ISO 60°

P.404/406



- Micro thread formers developed for the deformation tapping of copper alloys.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14) and ISO 965 (DIN 13).
- DI-TOP coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○	○	○	○																		

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	NIHS-3GX DI-TOP
S 0.40	0.10	0.36 - 0.37	0.37 - 0.38	1.60	0.20	1.50	30	992498
S 0.50	0.125	0.45 - 0.46	0.46 - 0.47	2.00	0.25	1.50	30	992509
S 0.60	0.15	0.54 - 0.55	0.55 - 0.56	2.40	0.30	1.50	30	992514
S 0.70	0.175	0.62 - 0.63	0.63 - 0.64	2.80	0.35	1.50	30	992515
S 0.80	0.20	0.70 - 0.71	0.71 - 0.72	3.20	0.40	1.50	30	992516
S 0.90	0.225	0.81 - 0.82	0.82 - 0.83	3.60	0.45	1.50	30	992517
S 1.00	0.25	0.89 - 0.90	0.90 - 0.91	4.00	0.50	1.50	30	305799
S 1.20	0.20	1.11 - 1.12	1.12 - 1.13	4.80	0.40	1.50	30	305800
S 1.20	0.25	1.08 - 1.09	1.09 - 1.10	4.80	0.50	1.50	30	305801
S 1.40	0.20	1.31 - 1.32	1.32 - 1.33	5.60	0.40	1.50	30	305802
S 1.40	0.30	1.27 - 1.28	1.28 - 1.29	5.60	0.60	1.50	30	305804

D nom.	Pitch P	Drill Ø brass (5H minor Ø)	Drill Ø steel (6H minor Ø)	L_1	L_2	D_{h5}	L	4HX DI-TOP	5HX DI-TOP
M 1.00	0.25	0.89 - 0.90	0.90 - 0.91	4.00	0.50	1.50	30		992518
M 1.20	0.20	1.11 - 1.12	1.12 - 1.13	4.80	0.40	1.50	30	992519	
M 1.20	0.25	1.09 - 1.10	1.10 - 1.11	4.80	0.50	1.50	30		992520
M 1.40	0.20	1.31 - 1.32	1.32 - 1.33	5.60	0.40	1.50	30	992521	
M 1.40	0.30	1.27 - 1.28	1.28 - 1.29	5.60	0.60	1.50	30		992522

Cutting conditions **n = 500 - 2'500 [rpm]**

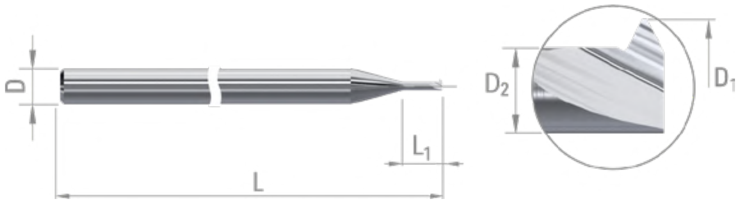
DIXI 1739

Z=1

WHIRLING TOOLS
PARTIAL PROFILE

NIHS 06

P.412 P.406/410



- Whirling tools, partial profile, developed for the milling of micro threads.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎		○	○				○	○				

D nom.	Pitch P	Drill Ø	D_1	L_1	D_2	D_{h5}	L	CARBIDE
S 0.30	0.08	0.23	0.21	0.70	0.12	3	38	961147
S 0.35	0.09	0.27	0.25	0.90	0.15	3	38	984299
S 0.40	0.10	0.32	0.29	0.90	0.18	3	38	961149
S 0.50	0.125	0.40	0.37	1.20	0.23	3	38	961163
S 0.60	0.15	0.48	0.44	1.50	0.27	3	38	961164
S 0.70	0.175	0.56	0.52	1.80	0.32	3	38	961165
S 0.80	0.20	0.64	0.59	2.00	0.36	3	38	961166
S 0.90	0.225	0.72	0.67	2.20	0.41	3	38	961167
S 1.00	0.25	0.80	0.74	2.40	0.46	3	38	961168
S 1.20	0.25	1.00	0.94	3.00	0.66	3	38	961169
S 1.40	0.30	1.15	1.08	3.30	0.74	3	38	961170

DIXI 1738

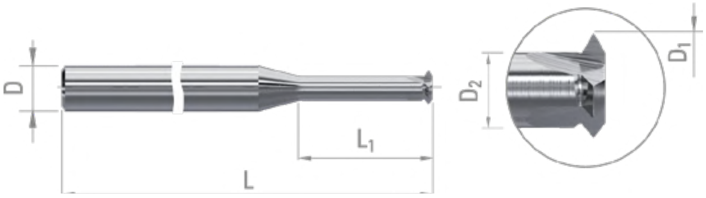
Z=3

P.412 P.404/406

NIHS 06

ISO 60°

WHIRLING TOOLS PARTIAL PROFILE



- Whirling tools, partial profile, developed for the milling of micro threads.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14) and ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

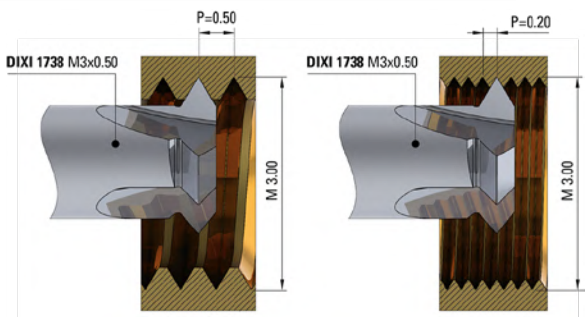
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

D nom.		Pitch P	Drill Ø ISO	Drill Ø NIHS	D_1	L_1	D_2	D_{h5}	L	CARBIDE	CUTINOX
	S 0.50	0.125		0.40	0.37	0.85	0.23	3	38	306969	318544
	S 0.60	0.150		0.48	0.44	1.25	0.27	3	38	318623	318545
	S 0.70	0.175		0.56	0.52	1.80	0.31	3	38	984319	985156
	S 0.80	0.20		0.64	0.59	2.30	0.35	3	38	965997	966008
	S 0.90	0.225		0.72	0.67	2.50	0.38	3	38	965996	966007
M 1.00	S 1.00	0.25	0.75	0.80	0.71	2.80	0.37	3	38	964485	966006
M 1.20	S 1.20	0.25	0.95	1.00	0.91	3.40	0.57	3	38	965664	965943
M 1.40	S 1.40	0.30	1.10	1.15	1.05	4.00	0.64	3	38	965988	965998
M 1.40		0.20	1.22		1.15	4.00	0.77	3	38	965989	965999
M 1.60		0.35	1.30		1.19	4.50	0.65	3	38	965990	966000
M 1.80		0.35 (0.20)	1.50 1.60		1.39	5.10	0.71	3	38	965991	966001
M 2.00		0.40 (0.20)	1.65 1.80		1.53	5.60	0.78	3	38	965992	966002
M 2.20		0.45 (0.25)	1.80 1.95		1.67	6.20	0.88	3	38	965993	966003
M 2.50		0.45 (0.35) (0.25) (0.20)	2.10 2.15 2.25 2.30		1.97	7.00	1.17	3	38	965994	966004
M 3.00		0.50 (0.35) (0.25) (0.20)	2.50 2.65 2.75 2.80		2.40	8.40	1.60	3	38	965995	966005

One tool to machine several pitches (e.g. from 0.20 to 0.50)



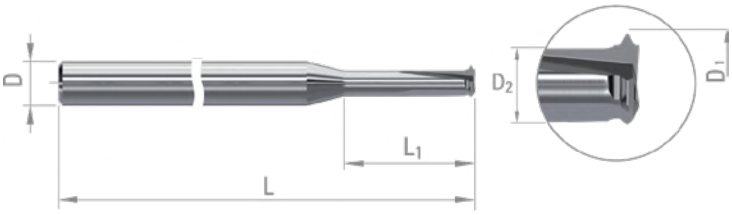
DIXI 1737

Z=3

NIHS 06 | ISO 60°

P.412 P.406/410

WHIRLING TOOLS
FULL PROFILE



- Whirling tools, full profile, developed for the milling of micro threads. No burrs thanks to the full profile.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14) and ISO 965 (DIN 13).
- The extra smooth C-TOP coating improves tool life, even at high temperatures, in difficult to machine materials.
- DRYCUT coating improves tool life in non-ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	◎	◎	◎	◎	◎				

D nom.	Pitch P	Drill Ø	D_1	L_1	D_2	D_{h5}	L	CARBIDE	C-TOP	DRYCUT*
S 0.50	0.125	0.38 - 0.40	0.37	0.85	0.22	3	38	378072	378089	378351
S 0.60	0.15	0.46 - 0.49	0.44	1.25	0.26	3	38	378073	378090	378352
S 0.70	0.175	0.54 - 0.57	0.52	1.80	0.31	3	38	378074	378091	378353
S 0.80	0.20	0.61 - 0.64	0.59	2.30	0.35	3	38	378075	378092	378354
S 0.90	0.225	0.69 - 0.73	0.67	2.50	0.40	3	38	378076	378093	378355
S 1.00	0.25	0.76 - 0.80	0.74	2.80	0.44	3	38	378077	378094	378356
S 1.20	0.25	0.96 - 1.00	0.94	3.40	0.64	3	38	378078	378095	378357
S 1.40	0.30	1.12 - 1.16	1.08	4.00	0.72	3	38	378079	378096	378358
M 1.00	0.25	0.73 - 0.77	0.71	2.80	0.37	3	38	378080	378097	378359
M 1.20	0.25	0.93 - 0.97	0.91	3.40	0.57	3	38	378081	378098	378360
M 1.40	0.30	1.08 - 1.12	1.05	4.00	0.64	3	38	378082	378099	378361
M 1.60	0.35	1.23 - 1.28	1.19	4.50	0.72	3	38	378083	378100	378362
M 1.80	0.35	1.43 - 1.48	1.39	5.10	0.91	3	38	378084	378101	378363
M 2.00	0.40	1.57 - 1.62	1.53	5.60	0.99	3	38	378085	378102	378364
M 2.20	0.45	1.72 - 1.78	1.67	6.20	1.06	3	38	378086	378103	378365
M 2.50	0.45	2.02 - 2.08	1.97	7.00	1.36	3	38	378087	378104	378366
M 3.00	0.50	2.46 - 2.53	2.40	8.40	1.72	3	38	378088	378105	378367

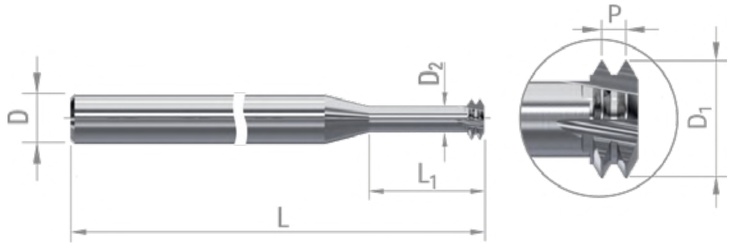
* for non-ferrous material

DIXI 1730-xD

Z=3

P.412 P.406/410

WHIRLING TOOLS
FULL PROFILE



- ISO whirling tools, full profile, 2xDnom. and 3xDnom. necked-down, developed to reduce cutting forces in comparison to thread mills. No burrs thanks to the full profile.
- Thread according to ISO 965 (DIN 13).
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

D nom.	Pitch P	D_1	D_2	D_{h5}	L	L_1	Z	**DIXI**	CARBIDE	TiAlN
M 0.80	0.20	0.57	0.25	3	38	1.85 2.60	3	1730-2D 1730-3D	958853 961148	960446 961176
M 0.90	0.225	0.64	0.29	3	38	2.10 2.90	3	1730-2D 1730-3D	953216 961150	960117 961177
M 1.00	0.25	0.71	0.32	3	38	2.30 3.20	3	1730-2D 1730-3D	953217 961151	960118 961178
M 1.20	0.25	0.91	0.51	3	38	2.80 3.85	3	1730-2D 1730-3D	953218 961152	960450 961179
M 1.40	0.30	1.05	0.58	3	38	3.20 4.50	3	1730-2D 1730-3D	953219 961153	960451 961180
M 1.60	0.35	1.19	0.64	3	38	3.70 5.10	3	1730-2D 1730-3D	953220 961154	960453 961181
M 1.80	0.20	1.55	1.23	3	38	4.10 5.80	3	1730-2D 1730-3D	961128 961155	961130 961182
M 1.80	0.35	1.39	0.84	3	38	4.10 5.80	3	1730-2D 1730-3D	953221 961156	960454 961183
M 2.00	0.40	1.53	1.10	3	38	4.60 6.40	3	1730-2D 1730-3D	953222 961157	960455 961184
M 2.20	0.20	1.94	1.63	3	38	5.10 7.10	3	1730-2D 1730-3D	961129 961158	961132 961185
M 2.20	0.45	1.67	0.96	3	38	5.10 7.10	3	1730-2D 1730-3D	953223 961159	960456 961186
M 2.50	0.25	2.18	1.79	3	38	5.80 8.00	3	1730-2D 1730-3D	960062 961160	960459 961187
M 2.50	0.35	2.07	1.52	3	38	5.80 8.00	3	1730-2D 1730-3D	960063 961161	960460 961188
M 2.50	0.45	1.97	1.26	3	38	5.80 8.00	3	1730-2D 1730-3D	953225 961162	960461 961189
M 3.00	0.50	2.40	1.62	4	42	7.00 9.60	3	1730-2D 1730-3D	955698 961171	960462 961190

DIXI 1730-xD

Z=3-6

P.412 P.406/410

ISO 60°

D nom.	Pitch P	D_1	D_2	D_{h5}	L	L_1	Z	**DIXI**	CARBIDE	TiAlN
M 4.00	0.70	3.17	2.07	4	42	9.30 12.80	3	1730-2D 1730-3D	955699 961172	960463 961191
M 4.50	0.75	3.61	2.42	6	57	10.40 14.40	4	1730-2D 1730-3D	413655 413658	413656 413659
M 5.00	0.80	4.05	2.78	6	57	11.50 16.00	4	1730-2D 1730-3D	957925 961173	960464 961192
M 6.00	1.00	4.81	3.23	6	57	13.80 19.20	4	1730-2D 1730-3D	957982 961174	960465 961193
M 8.00	1.25	6.51	4.53	8	75	18.40 25.60	6	1730-2D 1730-3D	958039 961175	960466 961194
M 10.00	1.50	7.90	5.53	8	75	23.00 32.00	6	1730-2D 1730-3D	958040 960883	960467 961195

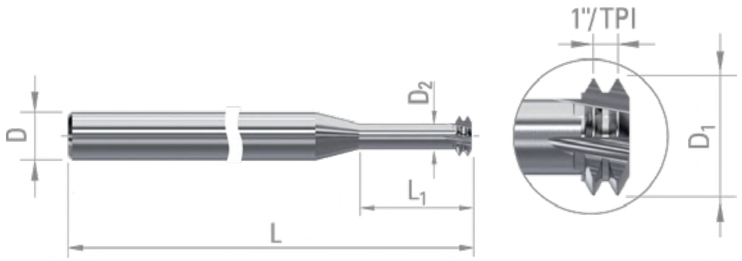
DIXI 1735-xD

Z=3-6

P.412 P.406/410

UN 60°

WHIRLING TOOLS
FULL PROFILE



- UN whirling tools, full profile, 2xDnom. and 3xDnom. necked-down, developed to reduce cutting forces in comparison to thread mills. No burrs thanks to the full profile.
- Thread according to ISO 5864 (ASME B1.1).
- TiAIN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N											S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

UNC	UNF	UNEF	UN	TPI	D_1	D_2	D_{h5}	L	L_1	Z	**DIXI**	CARBIDE	TiAIN
	N°1			72	1.44	0.88	3	38	4.30 6.00	3	1735-2D 1735-3D	966664 966653	966833 966852
N°1	N°2			64	1.39	0.77	3	38	4.30 6.00	3	1735-2D 1735-3D	966663 966652	966834 966851
N°2	N°3			56	1.65	0.94	3	38	5.00 7.00	3	1735-2D 1735-3D	966662 966651	966835 966850
N°3	N°4			48	1.90	1.06	3	38	5.80 8.10	3	1735-2D 1735-3D	966661 966650	966836 966849
	N°5			44	2.49	1.58	3	38	7.30 10.20	3	1735-2D 1735-3D	966660 966649	966837 966848
N°4				40	2.11	1.11	4	42	6.60 9.10	3	1735-2D 1735-3D	966659 966648	966838 966847
N°5	N°6			40	2.43	1.43	4	42	7.30 10.20	3	1735-2D 1735-3D	966658 966647	966839 966846
	N°8			36	3.33	2.21	4	42	9.60 13.40	3	1735-2D 1735-3D	966657 966646	966841 966845
N°6				32	2.59	1.33	4	42	8.10 11.30	3	1735-2D 1735-3D	966656 966645	966840 966844
N°8	N°10	N°12		32	3.24	1.98	4	55	9.60 13.40	3	1735-2D 1735-3D	960205 961020	960628 961062
	N°12	7/16"	5/16"	28	4.41	2.97	6	63	12.60 17.60	4	1735-2D 1735-3D	966655 966644	966842 966643
	1/4"	7/16"	5/16"	28	5.26	3.82	6	63	14.60 20.30	4	1735-2D 1735-3D	966654 966641	966843 966642
N°10				24	3.60	1.93	4	55	11.10 15.50	3	1735-2D 1735-3D	960395 961052	960629 961063
1/4"			5/16"	20	4.87	2.86	6	57	14.60 20.30	4	1735-2D 1735-3D	960397 961054	960631 961085

Z=3-6

P.412 P.406/410

UN 60°

UNC	UNF	UNEF	UN	TPI	D_1	D_2	D_{h5}	L	L_1	Z	**DIXI**	CARBIDE	TiAlN
5/16''	9/16''			18	6.28	4.04	8	63	18.20 25.40	6	1735-2D 1735-3D	960398 961055	960635 961086
3/8''			7/16''	16	7.65	5.13	8	63	21.90 30.50	6	1735-2D 1735-3D	960399 961056	960636 961087
7/16''	7/8''			14	8.96	6.08	10	75	25.60 35.50	6	1735-2D 1735-3D	960400 961057	960637 961088
1/2''				13	10.37	7.27	12	75	29.20 40.60	6	1735-2D 1735-3D	960402 961058	960638 961060

DIXI 1740

Z=1-3

DRILLING THREAD WHIRLERS

NIHS 06 | ISO 60°

P.414 P.406/410

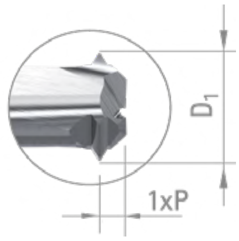
- Drilling thread whirlers developed for threading without pre-drilling.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14) and ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

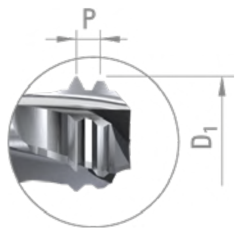
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	CUTINOX
S 0.80	0.20	0.60	2.40	3	38	1	977703	977716
S 0.90	0.225	0.66	2.70	3	38	1	977704	977717
M 1.00	0.20	0.80	3.00	3	38	1	985121	985134
M 1.00	0.25	0.73	3.00	3	38	1	977656	977698
M 1.20	0.20	1.00	3.60	3	38	1	985136	985143
M 1.20	0.25	0.92	3.60	3	38	1	977705	977718
M 1.40	0.20	1.20	4.20	3	38	1	985144	985145
M 1.40	0.30	1.05	4.20	3	38	1	977706	977719
M 1.60	0.35	1.21	4.80	3	38	1	977707	977720
M 2.00	0.40	1.55	6.00	3	38	2	977708	977721
M 2.50	0.45	2.00	7.50	3	38	2	977709	977722
M 3.00	0.50	2.44	9.00	6	57	2	977710	977723
M 4.00	0.70	3.20	12.0	6	57	2	977711	977724
M 5.00	0.80	4.00	15.0	6	57	2	977712	977725



D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	CUTINOX
M 6.00	1.00	4.85	18.0	6	57	3	977713	977726
M 8.00	1.25	6.50	24.0	8	75	3	977714	977727
M10.00	1.50	7.90	30.0	8	75	3	977715	977728



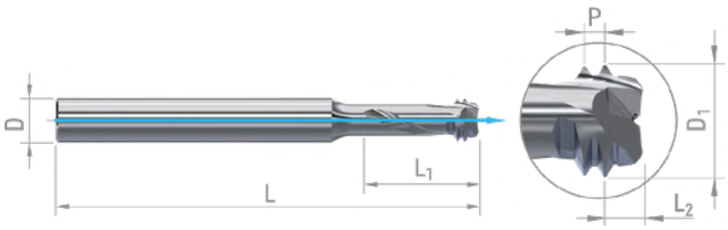
DIXI 1742-TC DAC

Z=2

P.414 P.406/410

ISO 60°

DRILLING THREAD WHIRLERS
WITH THROUGH COOLANT



- ISO drilling thread whirlers with through coolant developed for threading without pre-drilling of non-ferrous materials.
- Thread according to ISO 965 (DIN 13).
- DAC coating improves tool life in non-ferrous materials and prevents the formation of built-up edges.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎									

D nom.	Pitch P	D_1	L_1	L_2	D_{h5}	L	DAC
M 5.00	0.80	4.00	12.5	1.50	8	60	303475
M 6.00	1.00	4.80	15.0	1.85	8	60	303476
M 8.00	1.25	6.40	20.0	2.30	8	75	303477
M 10.00	1.50	7.80	25.0	2.75	8	75	303478
M 12.00	1.75	9.50	30.0	3.10	10	100	308709

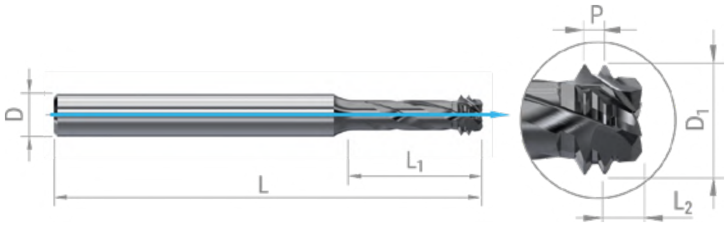
DIXI 1744-TC CUTINOX

Z=4

DRILLING THREAD WHIRLERS
WITH THROUGH COOLANT

P.416 P.406/410

ISO 60°



- ISO drilling thread whirlers with through coolant developed for threading without pre-drilling of ferrous materials.
- Thread according to ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations													◎	◎	◎	◎	◎				

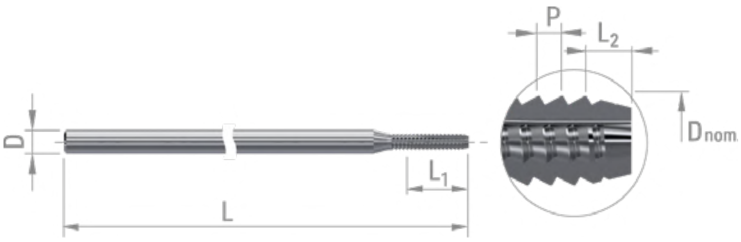
D nom.	Pitch P	D_1	L_1	L_2	D_{h5}	L	CUTINOX
M 5.00	0.80	4.00	12.50	1.50	8	60	303479
M 6.00	1.00	4.80	15.00	1.85	8	60	303480
M 8.00	1.25	6.40	20.00	2.30	8	75	303481
M 10.00	1.50	7.80	25.00	2.75	8	75	303482
M 12.00	1.75	9.50	30.00	3.10	10	100	308710

DIXI 1712-AF/BT

Z=3

P.405

MICRO CUTTING TAPS
SELF LOCKING PROFILE



- Micro-cutting taps with self locking profile developed for the machining of materials with very good machinability.
- Thread according to DIXI internal standard.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	○	○																					

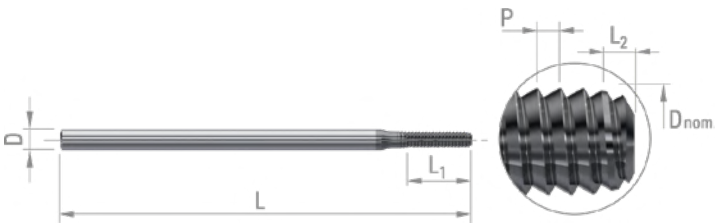
ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	○	○	○	○	○	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø	L_1	L_2	D_{h5}	L	AF/BT 4H CARBIDE
S 0.70	0.175	0.59	3.00	0.35	1.50	30	995574
S 0.80	0.20	0.68	3.50	0.40	1.50	30	995676
S 0.90	0.225	0.76	4.00	0.45	1.50	30	995677
M 1.00	0.25	0.84	4.00	0.50	1.50	30	995678
M 1.20	0.25	1.04	5.00	0.50	1.50	30	995679
M 1.40	0.30	1.21	5.00	0.60	1.50	30	995680

Cutting conditions **n = 500 - 2'500 [rpm]**

DIXI 1716-AF/BT DI-TOP

THREAD FORMERS
SELF LOCKING PROFILE



P.405

DIXI NORM

- Thread formers with self locking profile developed for the deformation tapping of materials with good machinability.
- Thread according to DIXI internal standard.
- DI-TOP coating improves tool life in ferrous and non-ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○														

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎												

D nom.	Pitch P	Drill Ø	L_1	L_2	D_{h5}	L	AF/BT 4HX DI-TOP
S 0.70	0.175	0.65	2.80	0.35	1.50	30	995723
S 0.80	0.20	0.74	3.20	0.40	1.50	30	995745
S 0.90	0.225	0.83	3.60	0.45	1.50	30	995746
M 1.00	0.25	0.92	4.00	0.50	1.50	30	995747
M 1.20	0.25	1.12	4.80	0.50	1.50	30	995748
M 1.40	0.30	1.31	5.60	0.60	1.50	30	995749

Cutting conditions **n = 500 - 2'500 [rpm]**

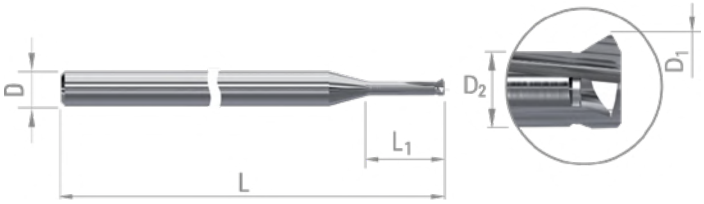
DIXI 1738-AF/BT

Z=3

P.412 P.405/410

DIXI NORM

WHIRLING TOOLS
SELF LOCKING PROFILE



- Whirling tools with self locking profile developed for the milling of micro threads.
- Thread according to DIXI internal standard.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○	○	○	○	◎	◎				

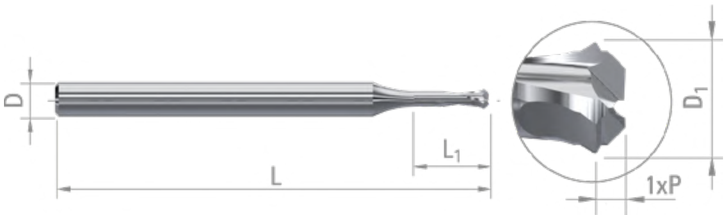
D nom.	Pitch P	Drill Ø	D_1	L_1	D_2	D_{h5}	L	CARBIDE
S 0.70	0.175	0.59	0.54	1.80	0.34	3	38	995725
S 0.80	0.20	0.68	0.62	2.30	0.39	3	38	995880
S 0.90	0.225	0.76	0.70	2.50	0.44	3	38	995881
M 1.00	0.25	0.84	0.80	2.80	0.51	3	38	995882
M 1.20	0.25	1.04	0.98	3.40	0.69	3	38	995883
M 1.40	0.30	1.21	1.12	4.00	0.77	3	38	995884
M 1.60	0.35	1.38	1.26	4.50	0.86	3	38	995885
M 2.00	0.40	1.75	1.60	5.60	1.14	3	38	995886
M 2.20	0.45	1.91	1.70	6.20	1.18	3	38	995887
M 3.00	0.50	2.68	2.40	8.40	1.82	3	38	995888

DIXI 1740-AF/BT

Z=1-2

P.414 P.405/410

DRILLING THREAD WHIRLERS
SELF LOCKING PROFILE



- Drilling thread whirlers with self locking profile developed for threading without pre-drilling.
- Thread according to DIXI internal standard.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE
S 0.80	0.20	0.60	2.40	3	38	1	300295
S 0.90	0.225	0.66	2.70	3	38	1	300435
M 1.00	0.25	0.73	3.00	3	38	1	300436
M 1.20	0.25	0.92	3.60	3	38	1	300437
M 1.40	0.30	1.05	4.20	3	38	1	300438
M 1.60	0.35	1.21	4.80	3	38	1	300439
M 2.00	0.40	1.55	6.00	3	38	2	300440
M 2.20	0.45	1.70	6.60	3	38	2	300441
M 2.50	0.45	2.00	7.50	3	38	2	300444
M 3.00	0.50	2.44	9.00	6	57	2	300445

"GO" - "NO GO" THREAD GAUGES
SELF LOCKING PROFILE

DIXI NORM

P.405

- Solid carbide thread gauges dedicated to the pitch diameter inspection of self-locking threads according to DIXI internal standard.

D nom.	Pitch P	L_1	1718-AF/BT 4H GO	1719-AF/BT 4H/3G NO GO
S 0.70	0.175	3.00	995572	995573
S 0.80	0.20	3.50	995615	995664
S 0.90	0.225	4.00	995616	995665
M 1.00	0.25	5.00	995617	995666
M 1.20	0.25	5.00	995619	995667
M 1.40	0.30	5.00	995620	995668
M 1.60	0.35	6.00	995621	995669
M 1.80	0.35	6.00	995622	995670
M 2.00	0.40	6.00	995623	995671
M 2.20	0.45	8.00	995624	995672
M 2.50	0.45	8.00	995631	995674
M 3.00	0.50	8.00	995626	995675

DIXI 0418-AF - 0419-AF

"GO" - "NO GO" PLAIN GAUGES
FOR AF THREAD MINOR DIAMETER

DIXI NORM

P.405

- Solid carbide plain gauges dedicated to the inspection of the minor diameter of self-locking threads according to DIXI internal standard.

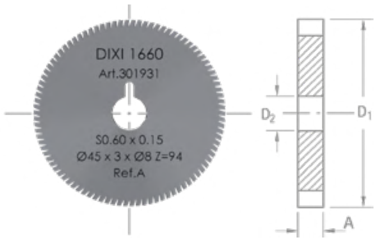
D nom.	Pitch P	L_1	Tol.	0418-AF/BT 4H GO	Tol.	0419-AF/BT 4H/3G NO GO
S 0.70	0.175	5	4H	414480	4H/3G	414492
S 0.80	0.20	5	4H	414481	4H/3G	414493
S 0.90	0.225	5	4H	414482	4H/3G	414494
M 1.00	0.25	5	4H	414483	4H/3G	414495
M 1.20	0.25	5	4H	414484	4H/3G	414496
M 1.40	0.30	5	4H	414485	4H/3G	414497
M 1.60	0.35	5	4H	414486	4H/3G	414498
M 1.80	0.35	6	4H	414487	4H/3G	414499
M 2.00	0.40	6	4H	414488	4H/3G	414500
M 2.20	0.45	6	4H	414489	4H/3G	414501
M 2.50	0.45	8	4H	414490	4H/3G	414502
M 3.00	0.50	8	4H	414491	4H/3G	414503

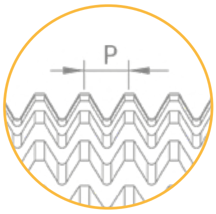
DIXI 1660

Z=94

NIHS 06

HOB CUTTERS
FOR NIHS SCREWS





- Hob cutters developed for the external thread milling on sliding head turning machines.
- Allow short cycle times and excellent thread quality. Cutting geometry for flat root.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

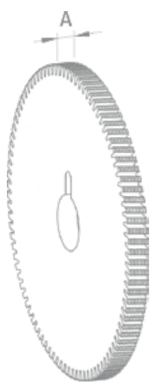
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○						

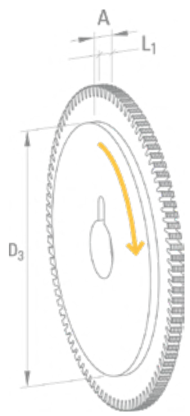
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎							◎	◎				

D nom.	Pitch P	$D_{1 \pm 0.03}$	$D_{2\ h5}$	D_3	Z	A	L_1	Ref.	CARBIDE
S 0.40	0.100	45	8	35	94	3	1.00 1.00	B C	301926 301927
S 0.50	0.125	45	8	35	94	3	1.10 1.10	B C	301928 301929
S 0.60	0.150	45	8	35	94	3	1.35 1.35 3.00	B C A	301930 301305 301931
S 0.70	0.175	45	8	35	94	3	1.60 1.60 3.00	B C A	301932 301943 301945
S 0.80	0.200	45	8	35	94	3	1.80 1.80 3.00	B C A	301946 301947 301948
S 0.90	0.225	45	8	35	94	3	2.00 2.00 3.00	B C A	301949 301950 301951
S 1.00	0.250	45	8	35	94	3	3.00	A	301952
S 1.40	0.300	45	8	35	94	3	3.00	A	301953

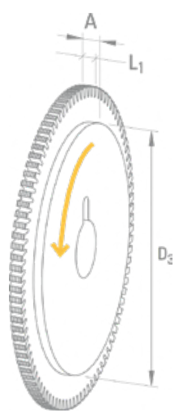
Ref. A



Ref. B

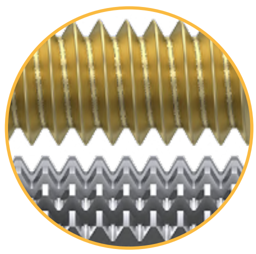


Ref. C



Ø 28 and Ø 40 on request

Flat root

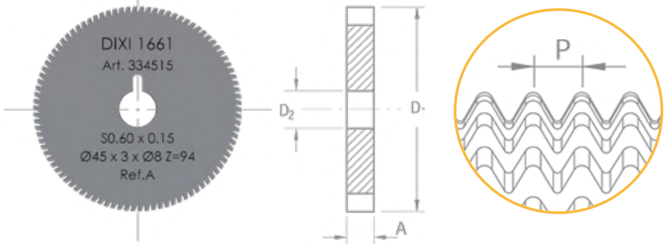


DIXI 1661

Z=94

NIHS 06

HOB CUTTERS
FOR NIHS SCREWS



- Hob cutters developed for the external thread milling on sliding head turning machines. Allow short cycle times and excellent thread quality.
- Cutting geometry for radiused root.
- Thread according to NIHS 06-10 (ISO 1501 / DIN 14).

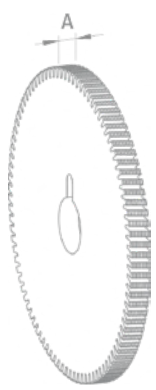
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○						

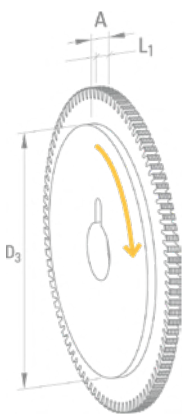
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎							◎	◎				

D nom.	Pitch P	$D_{1 \pm 0.03}$	$D_{2\ h5}$	D_3	Z	A	L_1	Ref.	CARBIDE
S 0.40	0.100	45	8	35	94	3	1.00	B	334510
							1.00	C	327631
S 0.50	0.125	45	8	35	94	3	1.10	B	334511
							1.10	C	334512
S 0.60	0.150	45	8	35	94	3	1.35	B	334513
							1.35	C	334514
							3.00	A	334515
S 0.70	0.175	45	8	35	94	3	1.60	B	334516
							1.60	C	334517
							3.00	A	334518
S 0.80	0.200	45	8	35	94	3	1.80	B	334519
							1.80	C	334520
							3.00	A	334521
S 0.90	0.225	45	8	35	94	3	2.00	B	334522
							2.00	C	334523
							3.00	A	334524
S 1.00	0.250	45	8	35	94	3	3.00	A	334525
S 1.40	0.300	45	8	35	94	3	3.00	A	334526

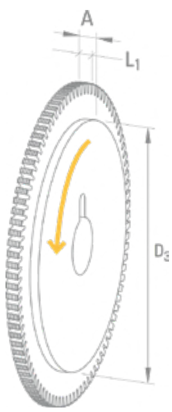
Ref. A



Ref. B

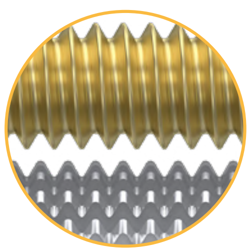


Ref. C



Ø 28 and Ø 40 on request

Radius
at root



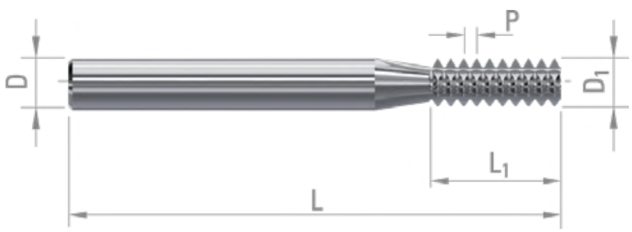
DIXI 7910

Z=2-4

STRAIGHT FLUTE THREAD MILLS

ISO 60°

P.416 P.406/410



- ISO Straight flute thread mills developed for general machining. No burrs thanks to the full profile.
- Thread according to ISO 965 (DIN 13).
- TiAIN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎				○	○				

D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAIN
M 1.40	0.30	0.90	2.10	3	38	2	41565	56990
M 1.60	0.35	1.00	2.45	3	38	2	41566	56991
M 2.00	0.40	1.30	3.20	3	38	2	41568	56993
M 2.30	0.40	1.50	3.20	3	38	2	41569	56994
M 2.50	0.35	1.30	2.80	3	38	2	41567	56992
M 2.50	0.45	1.50	3.60	3	38	2	41570	56995
M 3.00	0.50	2.10	4.50	3	38	3	41571	56996
M 4.00	0.50	2.60	5.50	3	38	3	41572	56997
M 4.00	0.70	2.60	6.30	3	38	3	41573	56998
M 4.50	0.75	3.00	6.75	4	42	3	41574	56999
M 5.00	0.80	3.60	8.00	4	42	3	41576	57001
M 6.00	1.00	4.00	9.00	6	57	3	42578	55510
M 8.00	0.75	5.90	15.00	6	57	3	42577	57000
M 8.00	1.25	5.00	12.50	6	57	3	42579	57003
M 10.00	1.50	5.90	15.00	6	57	3	42580	57004
M 12.00	1.00	7.90	20.00	8	63	4	42554	57002
M 12.00	1.75	7.90	19.25	8	63	4	42590	57007
M 14.00	1.50	9.90	24.00	10	72	4	42561	57005
M 14.00	2.00	9.90	24.00	10	72	4	42591	57008
M 18.00	1.50	11.90	30.00	12	83	4	42589	57006

DIXI 7910 E = exterior

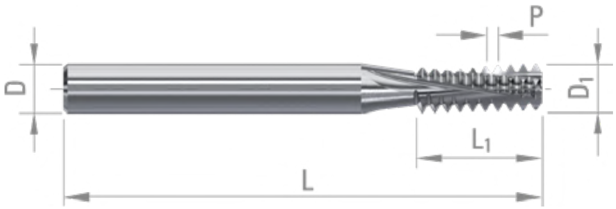
D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAIN
M 3.00	0.50	5.90	15.00	6	57	3	42597	57013
M 4.50	0.75	7.90	19.50	8	63	4	42598	57014
M 6.00	1.00	9.90	24.00	10	72	4	41471	57015

DIXI 7908

Z=3-6

P.418 P.406/411 ISO 60°

HELICAL THREAD MILLS



- ISO thread mills developed for general machining. No burrs thanks to the full profile.
- Thread according to ISO 965 (DIN 13).
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎				○	○				

D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAlN
M 3.00	0.50	2.10	4.50	3	38	3	67420	952938
M 4.00	0.50	2.60	5.50	3	38	3	951594	952939
M 4.00	0.70	2.60	6.30	3	38	3	67452	952940
M 4.50	0.75	3.00	6.75	4	42	3	67453	952941
M 5.00	0.80	3.60	8.00	4	42	3	67454	952942
M 6.00	1.00	4.00	9.00	6	57	3	67455	952013
M 8.00	0.75	5.90	15.00	6	57	5	67461	952944
M 8.00	1.25	5.00	12.50	6	57	3	67274	952014
M 10.00	1.50	5.90	15.00	6	57	5	67456	952015
M 12.00	0.50	9.90	10.00	10	50	5	957036	957037
M 12.00	1.75	7.90	19.25	8	63	5	67457	952016
M 14.00	1.50	9.90	24.00	10	72	5	67463	952948
M 14.00	2.00	9.90	24.00	10	72	5	67459	952949
M 18.00	1.50	11.90	30.00	12	83	5	67464	952951
M 18.00	2.00	11.90	30.00	12	83	5	67465	952956
M 18.00	2.50	11.90	30.00	12	83	5	67458	952851
M 24.00	3.00	15.90	36.00	16	92	6	67460	952953

DIXI 7908 E = Exterior

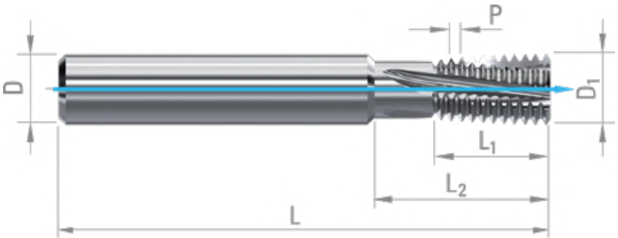
D nom.	Pitch P	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAlN
M 3.00	0.50	5.90	15.00	6	57	5	67466	952943
M 6.00	1.00	9.90	24.00	10	72	5		952947
M 10.00	1.50	11.90	30.00	12	83	5	67469	952950
M 14.00	2.00	11.90	30.00	12	83	5	67470	952952

DIXI 7913-TC

Z=4-5

P.418 P.406/411

ISO THREAD MILLS, FINE PITCH WITH THROUGH COOLANT



- ISO necked-down thread mills with through coolant developed for fine pitch and deep threading. Through coolant improves chip removal.
- Thread according to ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎				◯	◯				

Pitch P	D nom.	D_1	L_1	L_2	D_{h5}	L	Z	CARBIDE	CUTINOX
0.50	M 10	7.95	16	-	8	64	4	303435	303455
	M 14	11.95	20	31	12	80	4	303436	303456
0.75	M 10	7.95	16	-	8	64	4	303437	303457
	M 12	9.95	16	25	10	70	4	303438	303458
	M 14	11.95	20	31	12	80	4	303439	303459
1.00	M 12	9.95	16	25	10	70	4	303440	303460
	M 16	11.95	20	31	12	80	4	303441	303461
	M 20	15.95	25	40	16	90	5	303442	303462
	M 24	19.95	33	50	20	105	5	303443	303463
1.25	M 14	9.95	16	25	10	70	4	303444	303464
	M 16	11.95	20	31	12	80	4	303445	303465
1.50	M 14	9.95	16	25	10	70	4	303446	303466
	M 16	11.95	20	31	12	80	4	303447	303467
	M 22	15.95	25	40	16	90	5	303448	303468
	M 26	19.95	33	50	20	105	5	303449	303469
2.00	M 16	11.95	20	31	12	80	4	303450	303470
	M 22	15.95	25	40	16	90	5	303451	303471
	M 27	19.95	33	50	20	105	5	303452	303472
2.50	M 22	15.95	25	40	16	90	5	303453	303473
	M 30	19.95	33	50	20	105	5	303454	303474

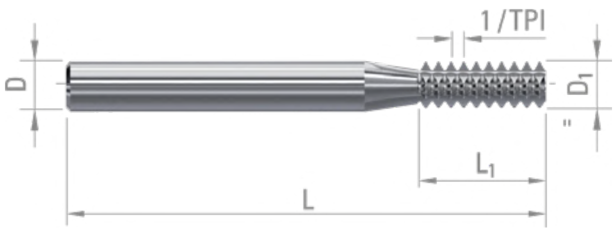
DIXI 7920

Z=2-4

STRAIGHT FLUTE THREAD MILLS

P.416 P.406/410

UN 60°



- UN straight flute thread mills developed for general machining. No burrs thanks to the full profile.
- Thread according to ISO 5864 (ASME B1.1).
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎				○	○				

UNC	UNF	UNEF	UN	TPI	D_1	L_1	D_{h5}	L_1	Z	CARBIDE	TiAlN
N°2	N°3			56	1.50	3.17	3	38	2	41581	953797
N°5	N°6			40	2.10	4.44	3	38	3	41582	953798
	N°8			36	3.00	6.35	4	42	3	39811	953799
N°8	N°10	N°12		32	3.00	6.35	4	42	3	41583	65997
		5/16"	7/16"	32	5.90	14.28	6	57	3	39813	953806
	N°12		5/16"	28	3.60	8.16	4	42	3	41584	64133
		7/16"	9/16"	28	7.90	19.95	8	63	4	39815	953812
N°12	5/16"			24	4.00	8.46	6	57	3	41585	953802
5/16"				18	5.00	12.70	6	57	3	41587	953803
3/8"			7/16"	16	5.90	14.28	6	57	3	42600	953804
			5/8"	16	11.90	28.57	12	83	4	42601	63605
1/2"				13	7.90	19.53	8	63	4	39824	953807
3/4"				10	11.90	27.94	12	83	4	39828	953820

DIXI 7920 E = Exterior

D nom.	TPI	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAlN
UNF N°12	28	7.90	19.95	8	63	4	39851	953810
UNC 1/4"	20	9.90	22.86	10	72	4	39852	953818
UNC 5/16"	18	9.90	23.98	10	72	4	39853	953816

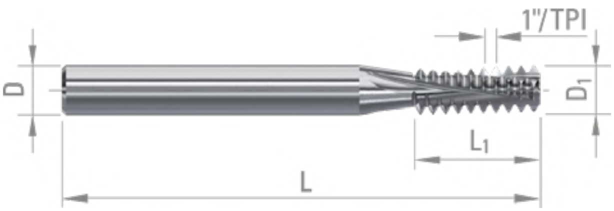
DIXI 7918

Z=3-5

HELICAL THREAD MILLS

P.418 P.406/410

UN 60°



- UN thread mills developed for general machining. No burrs thanks to the full profile.
- Thread according to ISO 5864 (ASME B1.1).
- TiAIN coating improves tool life in ferrous materials.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎				◯	◯				

UNC	UNF	UNEF	UN	TPI	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAIN
	N°2			64	1.50	3.17	3	38	3	951595	952964
N°2	N°3			56	1.50	3.17	3	38	3	67489	952963
	N°5			44	2.10	4.62	3	38	3	951482	952966
N°5	N°6			40	2.10	4.44	3	38	3	67491	952965
N°8	N°10	N°12	5/16"	32	3.00	6.35	4	42	3	67493	952967
		5/16"	7/16"	32	5.90	14.28	6	57	5	67497	952975
	N°12			28	3.60	8.16	4	42	3	67494	952969
		7/16"	9/16"	28	7.90	19.95	8	63	5	67498	952979
N°12	5/16"	5/8"		24	4.00	8.46	6	57	3	67495	952971
1/4"			5/16"	20	4.00	10.16	6	57	3	67496	952970
	1/2"	3/4"	9/16"	20	9.90	22.86	10	72	5	67499	952985
5/16"				18	5.00	12.70	6	57	3	67500	952972
	9/16"			18	9.90	23.98	10	72	5	67501	952983
3/8"			7/16"	16	5.90	14.28	6	57	5	67502	952973
			5/8"	16	11.90	28.57	12	83	5	67503	952990
1/2"				13	7.90	19.53	8	63	5	67505	952976
9/16"				12	9.90	23.28	10	72	5	67512	952981
	1"		1-1/16"	12	11.90	29.63	12	83	5	67506	952988
5/8"				11	9.90	23.09	10	72	5	951597	952980
3/4"				10	11.90	27.94	12	83	5	951667	952986

DIXI 7918 E = Exterior

D nom.	TPI	D_1	L_1	D_{h5}	L	Z	CARBIDE	TiAIN
UNC N°6	32	5.90	14.28	6	57	5	67507	952974
UNF N°12	28	7.90	19.95	8	63	5	67508	952978
UNC 1/4"	20	9.90	22.86	10	72	5	67509	952984
UNC 5/16"	18	9.90	23.98	10	72	5	67510	952982
UNC 3/8"	16	11.90	28.57	12	83	5	67511	952989

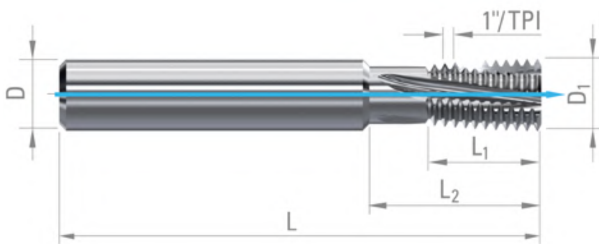
DIXI 7914-TC

Z=4-5

HELICAL THREAD MILLS
WITH THROUGH COOLANT

UN 60°

P.418 P.406/411



- UN necked-down thread mills with through coolant developed for fine pitch and deep threading. Through coolant improves chip removal.
- Thread according to ISO 5864 (ASME B1.1).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎				○	○				

TPI	D nom.	D_1	L_1	L_2	D_{h5}	L	Z	CARBIDE	CUTINOX
32	1/2''	9.95	16	25	10	70	4	392460	392479
24	1/2''	9.95	16	25	10	70	4	392461	392480
	5/8''	11.95	20	31	12	80	4	392462	392481
	13/16''	15.95	25	40	16	90	5	392463	392482
20	11/16''	11.95	20	31	12	80	4	392464	392483
	13/16''	15.95	25	40	16	90	5	392465	392484
	1''	19.95	33	50	20	105	5	392466	392485
18	5/8''	11.95	20	31	12	80	4	392467	392486
	7/8''	15.95	25	40	16	90	5	392468	392487
	1''	19.95	33	50	20	105	5	392469	392488
16	5/8''	11.95	20	31	12	80	4	392470	392489
	7/8''	15.95	25	40	16	90	5	392471	392490
	1''	19.95	33	50	20	105	5	392472	392491
14	7/8''	15.95	25	40	16	90	5	392473	392492
12	7/8''	15.95	25	40	16	90	5	392474	392493
	1''	19.95	33	50	20	105	5	392475	392494
10	3/4''	11.95	20	31	12	80	4	392476	392495
	7/8''	15.95	25	40	16	90	5	392477	392496
8	1''	19.95	33	50	20	105	5	392478	392497

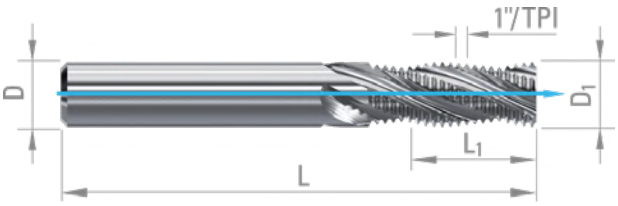
DIXI 7923-TC

Z=3-4

HELICAL THREAD MILLS
WITH THROUGH COOLANT

UNJ 60°

P.418 P.406/410



- UNJF thread mills developed for general machining. No burrs thanks to the full profile. Through coolant allows a better chip removal.
- Thread according to ISO 3161 (ASME B1.15).

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎				○	○				

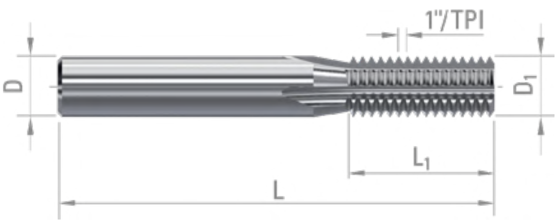
UNJF	TPI	D_1	L_1	D_{h5}	L	Z	CARBIDE
N°10	32	3.90	11.50	6	54	3	303381
1/4''	28	5.20	14.00	6	54	3	303382
5/16''	24	5.95	17.40	6	54	3	303383
3/8''	24	7.95	20.60	8	64	4	303384
7/16''	20	7.95	24.70	8	64	4	303385
1/2''	20	9.95	27.30	10	74	4	303386

DIXI 7940

Z=3-4

STRAIGHT FLUTE THREAD MILLS

f Vc Ap P.416 | P.406/410 | BSP 55°



- BSP straight flute thread mills developed for general machining. No burrs thanks to the full profile.
- Thread according to ISO 228.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎				○	○				

BSP	TPI	D_1	L_1	D_{h5}	L	Z	CARBIDE
G1/16" – G1/8"	28	5.90	14.51	6	57	3	42603
G1/4" – G3/8"	19	7.90	18.71	8	63	4	42604
G1/2" – G5/8"– G3/4"– G7/8"	14	11.90	29.02	12	83	4	42605
G1"	11	15.90	34.63	16	92	4	42606

For internal and external threads

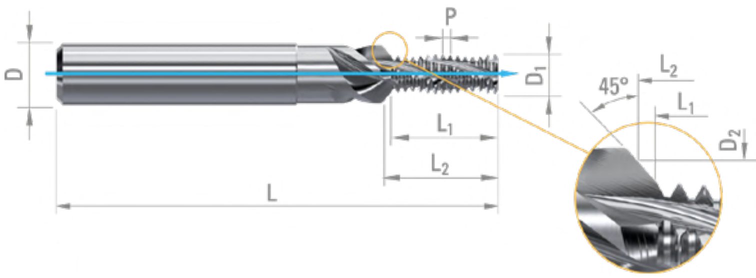
DIXI 7915-xD-TC

Z=3-4

THREAD MILLS WITH COUNTERSINK AND THROUGH COOLANT

ISO 60°

P.418 P.406/411



- ISO thread mills with countersink developed for general machining. No burrs thanks to the full profile. Through coolant allows a better chip removal.
- Thread according to ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom.	Pitch P	D_1	D_2	D_{h5}	L	Z	L_1	L_2	DIXI	CARBIDE	CUTINOX
M 4.00	0.70	3.10	4.20	6	48	3	7.35	7.9	7915-1.5D	392515	392532
							8.75	9.3	7915-2D	303387	303394
							10.85	11.4	7915-2.5D	392524	392541
M 5.00	0.80	3.90	5.30	6	54	3	9.15	9.9	7915-1.5D	392516	392533
							10.75	11.5	7915-2D	303388	303395
							13.15	13.9	7915-2.5D	392525	392542
M 6.00	1.00	4.70	6.30	8	62	3	10.50	11.30	7915-1.5D	392517	392534
							13.50	14.3	7915-2D	303389	303396
							16.50	17.3	7915-2.5D	392526	392543
M 8.00	1.25	6.40	8.40	10	74	3	13.10	14.1	7915-1.5D	392518	392535
							18.10	19.1	7915-2D	303390	303397
							21.85	22.8	7915-2.5D	392527	392544
M 10.00	1.50	8.10	10.50	12	80	4	17.20	18.4	7915-1.5D	392519	392536
							21.70	22.9	7915-2D	303391	303398
							26.20	27.4	7915-2.5D	392528	392545
M 12.00	1.75	9.95	12.60	14	90	4	20.05	21.5	7915-1.5D	392520	392537
							25.30	26.7	7915-2D	303392	303399
							32.30	33.7	7915-2.5D	392529	392546
M 14.00	2.00	11.50	14.70	16	102	4	24.95	26.5	7915-1.5D	392521	392538
							30.95	32.5	7915-2D	392523	392540
							36.95	38.5	7915-2.5D	392530	392547
M 16.00	2.00	13.40	16.80	18	102	4	26.95	28.6	7915-1.5D	392522	392539
							34.95	36.6	7915-2D	303393	303400
							42.95	44.6	7915-2.5D	392531	392548

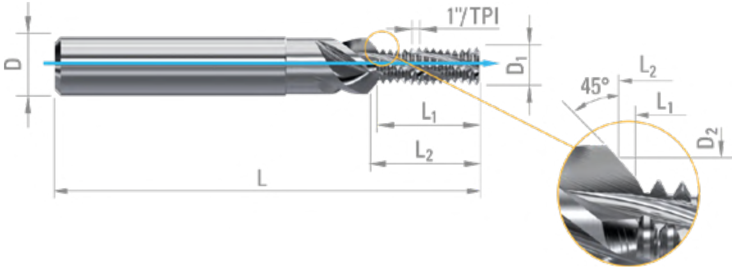
DIXI 7925-xD-TC

Z=3-4

P.418 P.406/411

UN 60°

THREAD MILLS WITH COUNTERSINK AND THROUGH COOLANT



- UNC thread mills with countersink developed for general machining. No burrs thanks to the full profile. Through coolant allows a better chip removal.
- Thread according to ISO 5864 (ASME B1.1).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

UNC	TPI	D_1	D_2	D_{h5}	L	Z	L_1	L_2	DIXI	CARBIDE	CUTINOX
N°8	32	3.10	4.40	6	48	3	7.50 9.10	8.10 9.70	7925-1.5D 7925-2D	394340 303401	394359 303411
N°10	24	3.60	5.10	6	54	3	10.00 11.00 13.20	10.80 11.90 14.00	7925-1.5D 7925-2D 7925-2.5D	394341 303402 394350	394360 303412 394369
N°12	24	4.10	5.80	6	54	3	10.00 12.10 14.25	10.90 13.00 15.10	7925-1.5D 7925-2D 7925-2.5D	394342 303403 394351	394361 303413 394370
1/4''	20	4.80	6.70	8	62	3	12.00 14.50 17.10	13.00 15.60 18.10	7925-1.5D 7925-2D 7925-2.5D	394343 303404 394352	394362 303414 394371
5/16''	18	5.95	8.30	10	74	3	14.75 17.60 20.40	15.90 18.70 21.50	7925-1.5D 7925-2D 7925-2.5D	394344 303405 394353	394363 303415 394372
3/8''	16	7.50	10.00	12	80	4	16.60 21.40 24.55	17.90 22.60 25.80	7925-1.5D 7925-2D 7925-2.5D	394345 303406 394354	394364 303416 394373
7/16''	14	8.80	11.70	12	80	4	19.00 24.40 28.05	20.40 25.90 29.50	7925-1.5D 7925-2D 7925-2.5D	394346 303407 394355	394365 303417 394374
1/2''	13	10.30	13.30	14	90	4	22.40 28.20 32.20	23.90 29.80 33.70	7925-1.5D 7925-2D 7925-2.5D	394347 303408 394356	394366 303418 394375
9/16''	12	10.80	15.00	16	102	4	24.25 30.60 37.00	26.00 32.30 38.70	7925-1.5D 7925-2D 7925-2.5D	394348 303409 394357	394367 303419 394376
5/8''	11	11.90	16.70	18	102	4	26.50 35.70 40.35	28.30 37.60 42.20	7925-1.5D 7925-2D 7925-2.5D	394349 303410 394358	394368 303420 394377

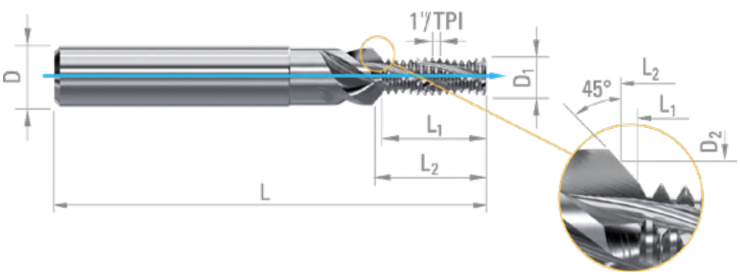
DIXI 7935-xD-TC

Z=3-4

P.418 P.406/411

UN 60°

THREAD MILLS WITH COUNTERSINK AND THROUGH COOLANT



- UNF thread mills with countersink developed for general machining. No burrs thanks to the full profile. Through coolant allows a better chip removal.
- Thread according to ISO 5864 (ASME B1.1).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

UNF	TPI	D_1	D_2	D_{h5}	L	Z	L_1	L_2	**DIXI**	CARBIDE	CUTINOX
N°10	32	3.60	5.10	6	54	3	8.30	9.00	7935-1.5D	392576	392603
							10.70	11.30	7935-2D	392585	392612
							12.30	12.90	7935-2.5D	392594	392621
N°12	28	4.10	5.80	6	54	3	9.50	10.30	7935-1.5D	392577	392604
							12.20	13.00	7935-2D	392586	392613
							14.00	14.80	7935-2.5D	392595	392622
1/4″	28	4.80	6.70	8	62	3	11.30	12.10	7935-1.5D	392578	392605
							14.05	14.80	7935-2D	392587	392614
							16.75	17.60	7935-2.5D	392596	392623
5/16″	24	5.95	8.30	10	74	3	13.20	14.10	7935-1.5D	392579	392606
							17.40	18.30	7935-2D	392588	392615
							20.60	21.50	7935-2.5D	392597	392624
3/8″	24	7.95	10.00	12	80	4	16.35	17.40	7935-1.5D	392580	392607
							20.60	21.60	7935-2D	392589	392616
							24.85	25.80	7935-2.5D	392598	392625
7/16″	20	9.40	11.70	12	80	4	18.35	19.60	7935-1.5D	392581	392608
							24.70	25.90	7935-2D	392590	392617
							28.55	29.70	7935-2.5D	392599	392626
1/2″	20	10.90	13.30	14	90	4	20.90	22.10	7935-1.5D	392582	392609
							27.25	28.50	7935-2D	392591	392618
							32.35	33.50	7935-2.5D	392600	392627
9/16″	18	10.80	15.00	16	102	4	23.25	24.60	7935-1.5D	392583	392610
							30.30	31.60	7935-2D	392592	392619
							35.95	37.50	7935-2.5D	392601	392628
5/8″	18	12.00	16.70	18	102	4	26.05	27.50	7935-1.5D	392584	392611
							33.10	34.50	7935-2D	392593	392620
							40.15	41.60	7935-2.5D	392602	392629

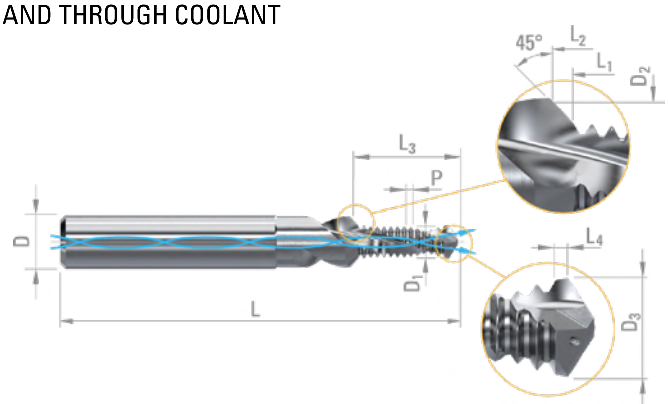
DIXI 7985-HH

Z=2

L_1=2xØnom.

P.418 P.406/411

DRILLING THREAD MILLS WITH COUNTERSINK AND THROUGH COOLANT



- ISO drilling thread mills with countersink developed for general machining. No burrs thanks to the full profile. Through coolant allows a better chip removal.
- Thread according to ISO 965 (DIN 13).
- CUTINOX coating improves tool life, even at high temperatures, in low machinability materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																		◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎									

D nom.	Pitch P	D_1	D_2	D_3	L_1	L_2	L_3	L_4	D_{h5}	L	CARBIDE	CUTINOX
M 4	0.70	3.20	4.20	3.30	8.90	8.90	9.50	0.70	6	48	303421	303428
M 5	0.80	4.00	5.30	4.20	11.10	11.00	11.80	0.80	6	54	303422	303429
M 6	1.00	4.75	6.30	5.00	13.85	13.70	14.60	1.00	8	62	303423	303430
M 8	1.25	6.35	8.40	6.75	18.60	18.40	19.60	1.30	10	74	303424	303431
M 10	1.50	7.95	10.50	8.50	22.40	22.20	23.70	1.50	12	80	303425	303432
M 12	1.75	9.95	12.60	10.25	26.00	25.50	27.40	1.50	14	90	303426	303433
M 16	2.00	13.20	16.80	14.00	35.90	35.10	37.60	1.50	18	102	303427	303434

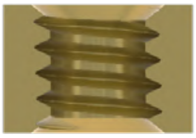
"GO" - "NO GO" THREAD GAUGES
NIHS 06-12

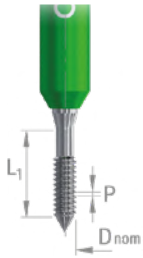
NIHS 06

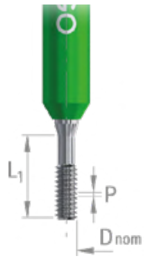
P.402

- Solid carbide thread gauges dedicated to the pitch diameter inspection of 3G and 4H left hand threads according to NIHS 06-10 (ISO 1501 / DIN 14).
- Gauges tolerances according to NIHS 06-12.

Right-hand thread

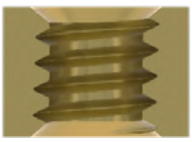


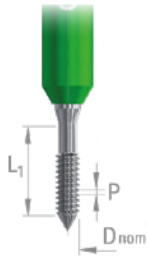




D nom.	Pitch P	L_1	Tol.	1718-S GO	1718-S GO (flat base)	Tol.	1719-S NO GO
S 0.30	0.08	1.00	4H 3G	965295 983114	978958 414460	4H/3G	965312
S 0.35	0.09	1.30	4H 3G	965296 983468	978959 414461	4H/3G	965313
S 0.40	0.10	2.00	4H 3G	965297 983115	978960 414462	4H/3G	965314
S 0.50	0.125	2.50	4H 3G	965298 983116	978961 414463	4H/3G	965315
S 0.60	0.15	3.00	4H 3G	965299 983117	978962 414464	4H/3G	965316
S 0.70	0.175	3.00	4H 3G	965300 983236	978963 414465	4H/3G	965317
S 0.80	0.20	3.50	4H 3G	965301 983118	978964 414466	4H/3G	965318
S 0.90	0.225	4.00	4H 3G	965302 983119	978965 414467	4H/3G	965319
S 1.00	0.25	4.00	4H 3G	965303 983120	978966 414468	4H/3G	965320
S 1.20	0.25	5.00	4H 3G	965304 983121	978967 414469	4H/3G	965321
S 1.40	0.30	5.00	4H 3G	965305 983122	978968 414470	4H/3G	965322

Left-hand thread





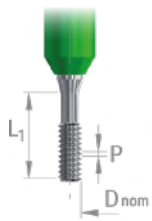
D nom.	Pitch P	L_1	Tol.	1718-S L GO	Tol.	1719-S L NO GO
S 0.50	0.125	2.50	4H	968369	4H/3G	968370
S 0.60	0.15	3.00	4H	968345	4H/3G	968346
S 0.70	0.175	3.00	4H	968344	4H/3G	968347
S 0.80	0.20	3.50	4H	968343	4H/3G	968348
S 0.90	0.225	4.00	4H	968925	4H/3G	968926
S 1.00	0.25	4.00	4H	969395	4H/3G	969396
S 1.20	0.25	5.00	4H	982638	4H/3G	982639

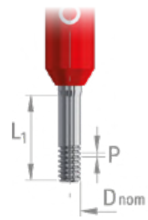
“GO” - “NO GO” THREAD GAUGES

ISO 1502

P.402

- Solid carbide thread gauges dedicated to the pitch diameter inspection of threads according to ISO 965 (DIN 13).
- Gauges tolerances according to ISO 1502.

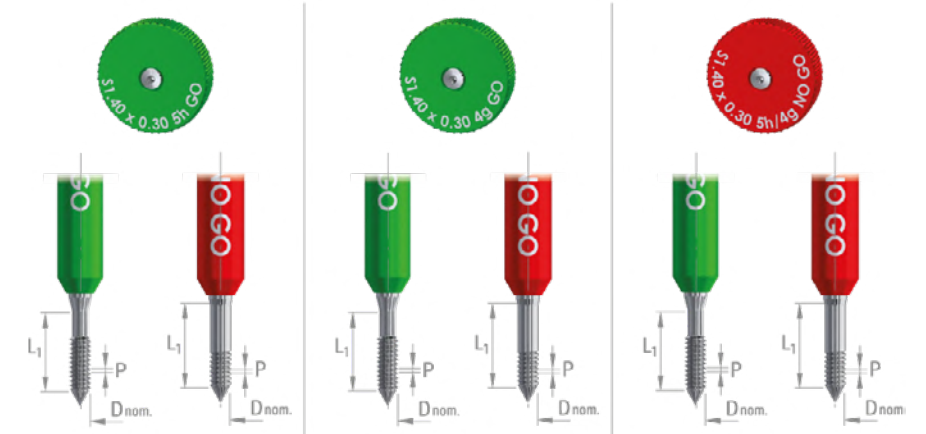




D nom.	Pitch P	L_1	Tol.	1718-M GO	1719-M NO GO
M 1.00	0.25	5	5H	976633	976635
M 1.20	0.20 0.25	5 5	4H 5H	305894 976634	305900 976636
M 1.40	0.20 0.30	5 6	4H 5H	305895 976693	305901 976710
M 1.50	0.30	6	6H	976694	976711
M 1.60	0.20 0.35	5 6	4H 6H	305896 975716	305902 975717
M 1.80	0.20 0.35	5 6	4H 6H	305897 976024	305903 976026
M 2.00	0.20 0.40	5 6	4H 6H	305898 976699	305904 976716
M 2.20	0.20 0.25 0.45	5 5 8	4H 5H 6H	305899 976701 976702	305905 976718 976719
M 2.50	0.35 0.45	6 8	6H 6H	303652 976704	303653 976721
M 3.00	0.50	8	6H	976705	976722

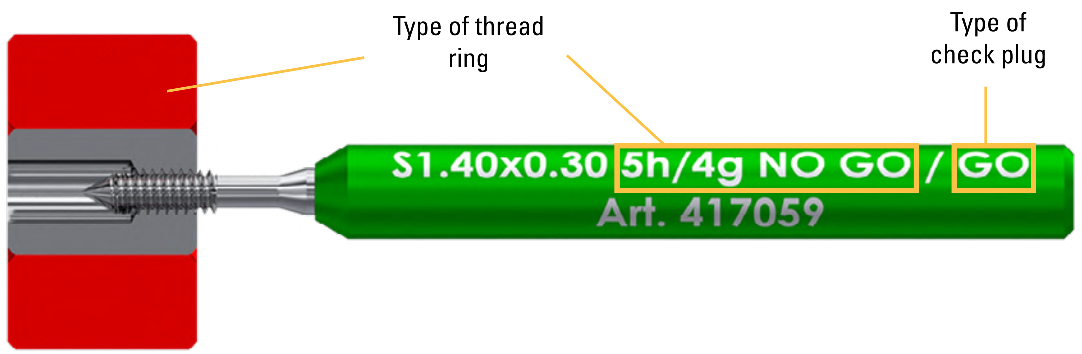
NIHS 06

- Solid carbide check plugs dedicated to the inspection of thread rings for external threads according to NIHS 06-10 (ISO 1501 / DIN 14).
- Check plugs tolerances according to NIHS 06-12.



			Ring 5h GO		Ring 4g GO		Ring 5h/4g NO GO	
D nom.	Pitch P	L_1	GO	NO GO	GO	NO GO	GO	NO GO
S 0.30	0.08	1.00	417005	417016	417027	417038	417049	417060
S 0.35	0.09	1.30	417006	417017	417028	417039	417050	417061
S 0.40	0.10	2.00	417007	417018	417029	417040	417051	417062
S 0.50	0.125	2.50	417008	417019	417030	417041	417052	417063
S 0.60	0.15	3.00	417009	417020	417031	417042	417053	417064
S 0.70	0.175	3.00	417010	417021	417032	417043	417054	417065
S 0.80	0.20	3.50	417011	417022	417033	417044	417055	417066
S 0.90	0.225	4.00	417012	417023	417034	417045	417056	417067
S 1.00	0.25	4.00	417013	417024	417035	417046	417057	417068
S 1.20	0.25	5.00	417014	417025	417036	417047	417058	417069
S 1.40	0.30	5.00	417015	417026	417037	417048	417059	417070

CHECK PLUGS DESCRIPTION



Source: NIHS 06-12

DIXI 0418 - 0419

"GO" - "NO GO" PLAIN GAUGES
FOR NIHS THREAD MINOR DIAMETER

NIHS 06

P.402

- Solid carbide plain gauges dedicated to the inspection of the minor diameter of 5H and 6H threads according to NIHS 06-10 (ISO 1501 / DIN 14).

- Gauge tolerances according to NIHS 06-12.

D nom.	Pitch P	L_1	Tol.	0418 GO	Tol.	0419 NO GO
S 0.30	0.08	2.00	5H	308301	5H	308307
S 0.35	0.09	2.00	5H	308300	5H	308306
S 0.40	0.10	3.50	5H/6H	308299	5H 6H	308305 308310
S 0.50	0.125	3.50	5H/6H	308298	5H 6H	308304 308309
S 0.60	0.15	3.50	5H 6H	308297 411747	5H 6H	308302 308308
S 0.70	0.175	5.00	5H 6H	306719 411748	5H 6H	306818 306824
S 0.80	0.20	5.00	5H 6H	306813 411749	5H 6H	306819 306825
S 0.90	0.225	5.00	5H/6H	306814	5H 6H	306820 306826
S 1.00	0.25	5.00	5H/6H	306815	5H 6H	306821 306827
S 1.20	0.25	5.00	5H/6H	306816	5H 6H	306822 306828
S 1.40	0.30	5.00	5H/6H	306817	5H 6H	306823 306829

DIXI 1718 SET

SET OF NIHS THREAD GAUGES

P.402

NIHS 06

Content	Art.
DIXI 1718-S 4H GO (S0.30-S1.40) **DIXI 1719-S 4H/3G NO GO** (S0.30-S1.40)	305989
Empty box (NIHS 4H)	307437

Content	Art.
DIXI 1718-S 3G GO (S0.30-S1.40) **DIXI 1719-S 4H/3G NO GO** (S0.30-S1.40)	305990
Empty box (NIHS 3G)	307438

Content	Art.
DIXI 1718-S 4H GO (S0.30-S1.40) **DIXI 1718-S 3G GO** (S0.30-S1.40) **DIXI 1719-S 4H/3G NO GO** (S0.30-S1.40)	305991
Empty box (NIHS 4H & 3G)	307439

SET OF THREAD AND PLAIN GAUGES
FOR THE FULL CHECKING OF NIHS THREADS

NIHS 06

Content	Art.
DIXI 1718-S 4H GO (S0.30-S1.40) **DIXI 1718-S 3G GO** (S0.30-S1.40) **DIXI 1719-S 4H/3G NO GO** (S0.30-S1.40) **DIXI 0418-5H/6H GO** (S0.30-S1.40) **DIXI 0419-5H NO GO** (S0.30-S1.40) **DIXI 0419-6H NO GO** (S0.40-S1.40)	308313
Empty box	312619

GAUGING INTERNAL THREADS
(SOURCE: ISO 1502)

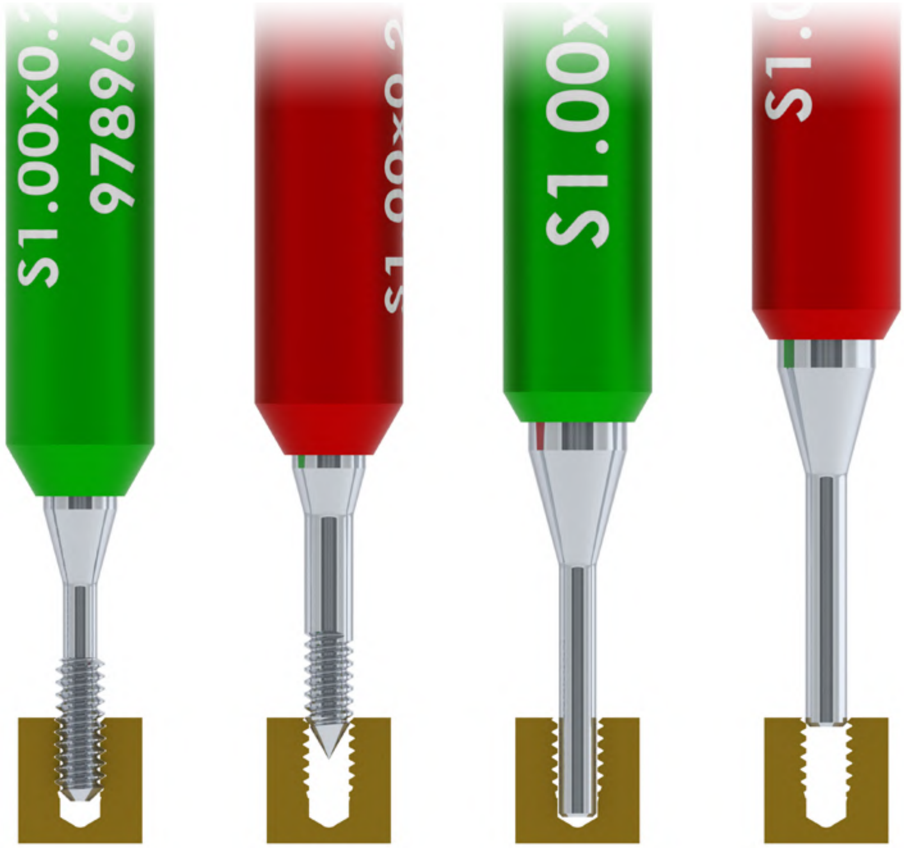


Figure 1 DIXI 1718 | **Figure 2** DIXI 1719 | **Figure 3** DIXI 0418 | **Figure 4** DIXI 0419

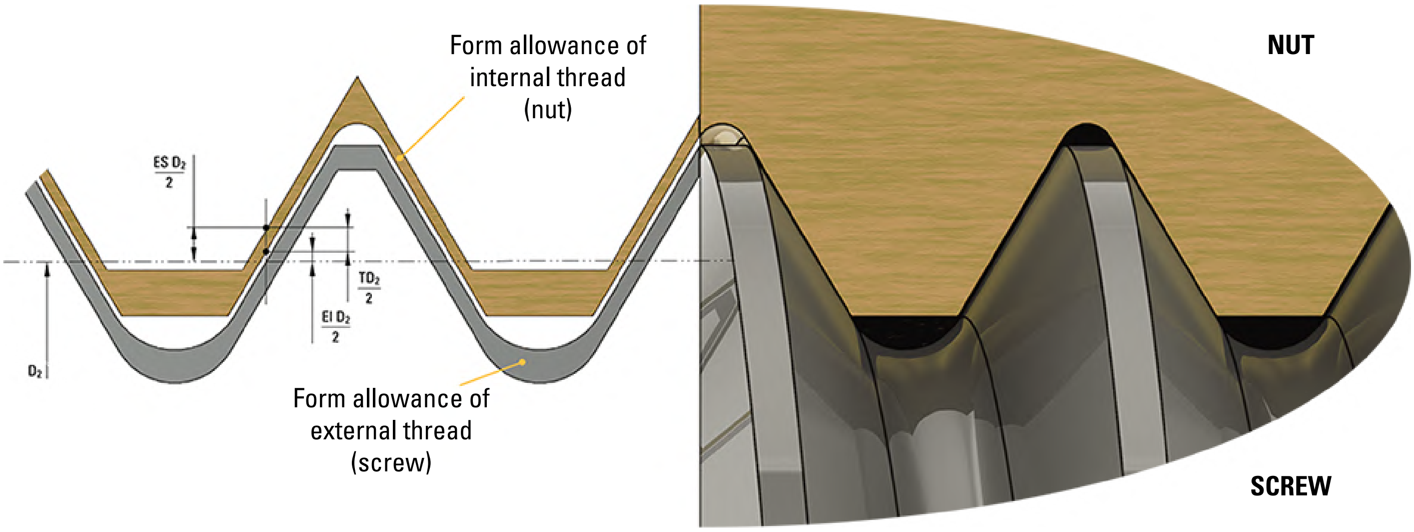
Gauging internal threads must be done with both thread and plain gauges. Each of these gauges has its own function, way of use and result analysis.

Figure 1: GO thread gauge (DIXI 1718)
A GO thread gauge cheks the minimum limit of the pitch diameter, taking into account pitch errors, errors in flank angles and deviations of form, which produce an apparent reduction of the pitch diameter of the workpiece. In addition, it checks the minimum limit of the major diameter and also whether the length of straight flank is sufficient; i.e. that the rounding at the root of the profile does not encroach too far upon the flank of the thread. The GO thread gauge, when screwed by hand without using excessive force, shall enter the whole length of the workpiece thread. If entry is not possible, the workpiece thread does not comply with the specification. Wear of the GO thread gauge shall be monitored by remeasurement of the gauge at intervals of time according to the intensity of use. Note: This gauge does not check the min or diameter of the workpiece thread.

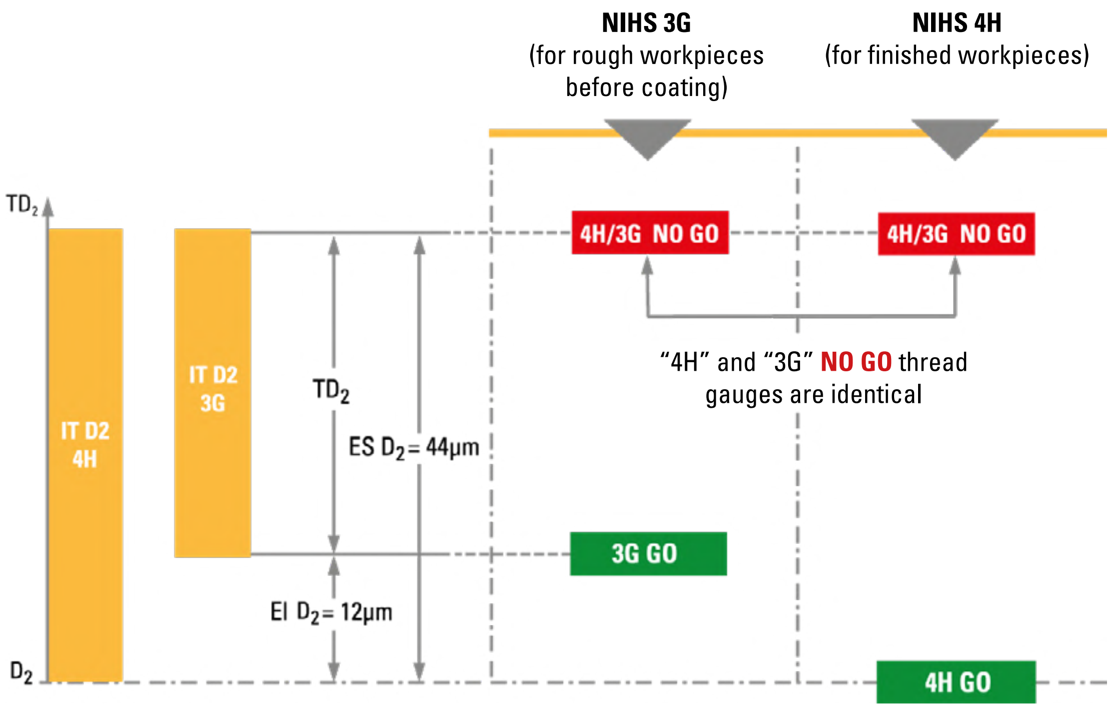
Figure 2: NO GO thread gauge (DIXI 1719)
A NO GO thread gauge checks whether the actual pitch diameter exceeds the specified maximum size. The NO GO thread gauge, when screwed by hand without using excessive force, may enter into both ends of the threaded part, but by not more than two turns of thread. If it can be screwed in by more than two turns of thread, the workpiece thread does not comply with the specification. The NO GO thread gauge shall not pass completely through a workpiece with a length of thread of three threads or less. It is recommended that the NO GO screw plug gauge be checked regularly for wear. Note: This gauge does not check the minor diameter of the workpiece thread.

Figure 3: GO plain gauge (DIXI 0418)
A GO plain gauge checks the minimum limit of the minor diameter of the workpiece thread. The GO plain gauge, when introduced by hand without using excessive force, shall pass through the workpiece thread.

Figure 4: NO GO plain gauge (DIXI 0419)
A NO GO plain gauge checks whether the actual minor diameter exceeds the specified maximum size. The NO GO plain gauge may enter into both ends of the workpiece thread but only in a zone which has a distance of not more than one pitch length from the start of the thread.

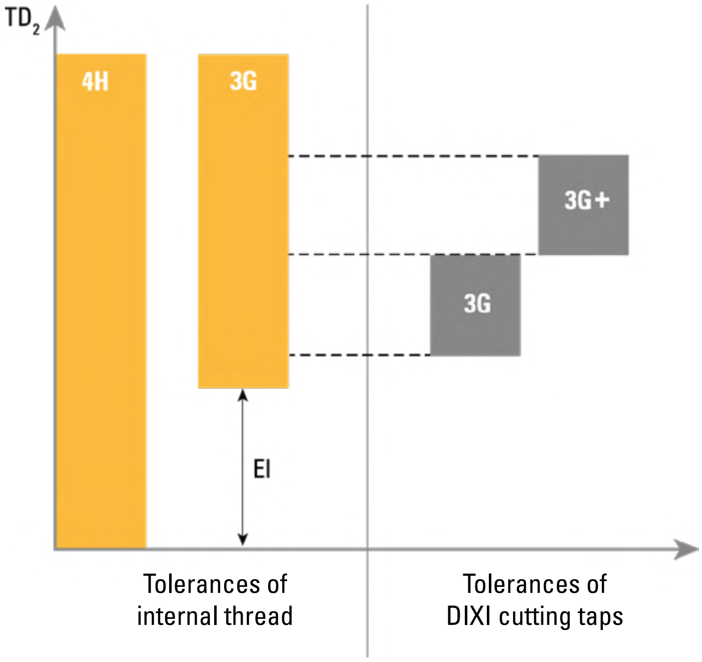


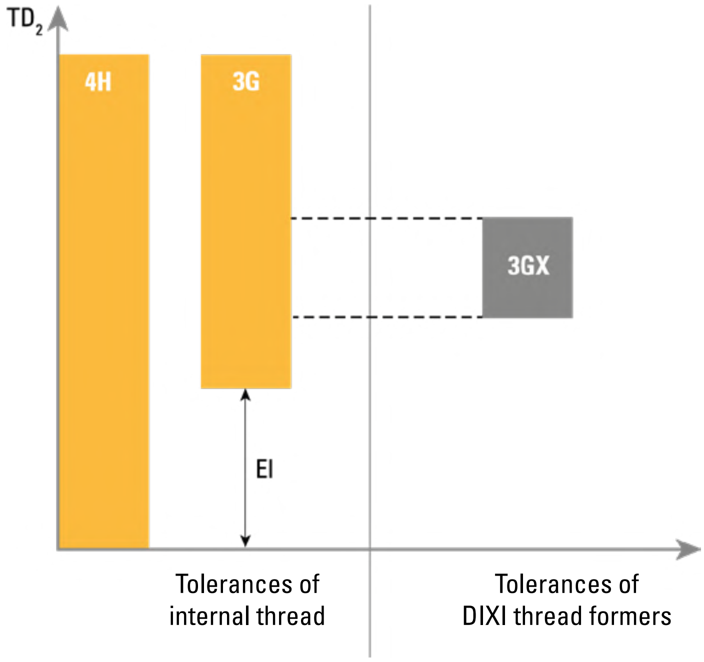
D_2	Pitch diameter.
EI D_2 deviation	Lower deviation of pitch diameter (D_2)
Ecart ES D_2 deviation	Upper deviation of pitch diameter (D_2).
TD_2 allowance	Pitch diameter (D_2) allowance. TD_2 = ES D_2 - EI D_2
4H **GO** gauges	They are used for inspection of S threads of finished parts (with or without galvanic coating or heat treatment) in 4H tolerance according to NIHS 06-10. NIHS 4H **GO** gauges replace the former NIHS NT **GO** gauges.
3G **GO** gauges	They are used for checking S threads of raw parts (before galvanic coating or heat treatment) in 3G tolerance according to NIHS 06-10. NIHS 3G **GO** gauges replace the former NIHS RT **GO** gauges.
NO GO gauges	They are used for the checking of raw parts (at the production stage) or finished parts (with or without galvanic coating or heat treatment). **NO GO** gauges are identical in both 3G and 4H tolerances according to NIHS 06-10. NIHS 4H/3G **NO GO** gauges replace the former NIHS NT/RT **NO GO** gauges.



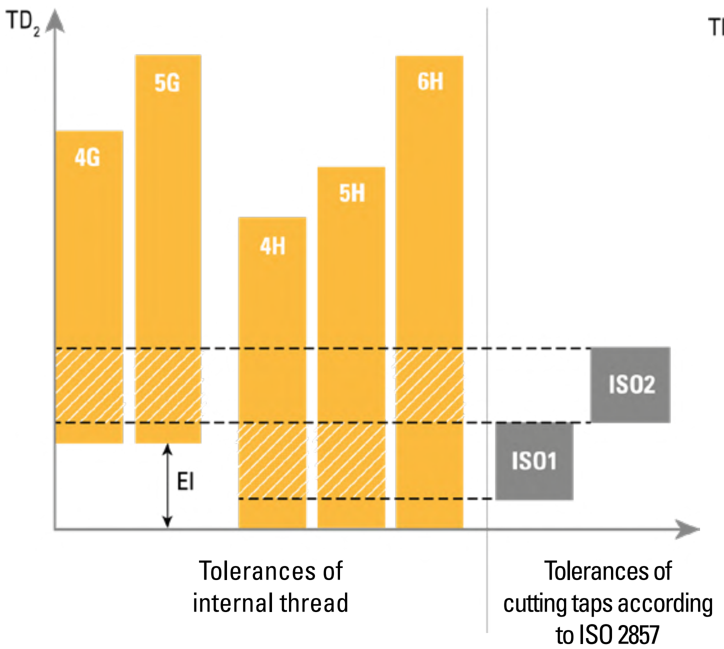
GO and NO GO thread gauges tolerances - Example for a 0.25 mm pitch

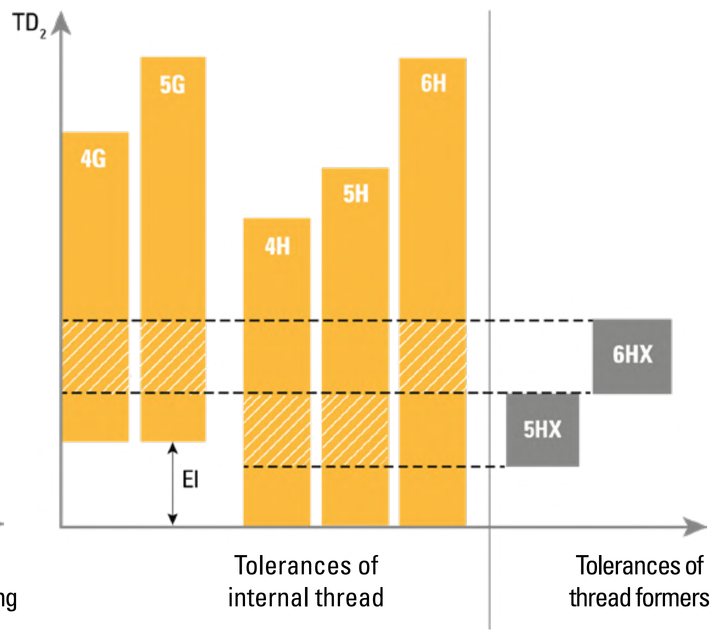
TOLERANCE ZONES OF PITCH DIAMETERS
ON "S" MINIATURE THREADS (ISO 1501 / NIHS 06-10 / DIN 14)



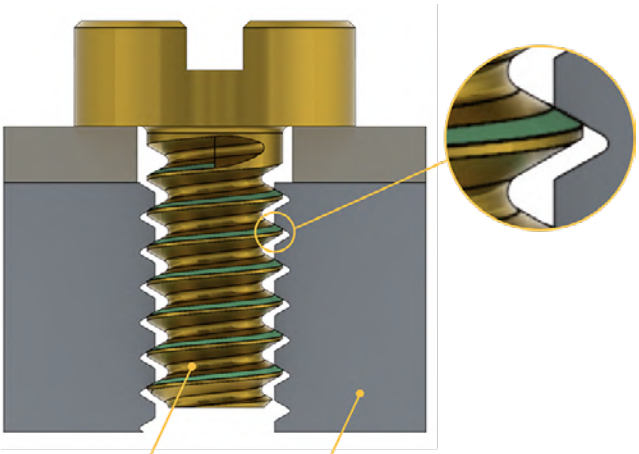


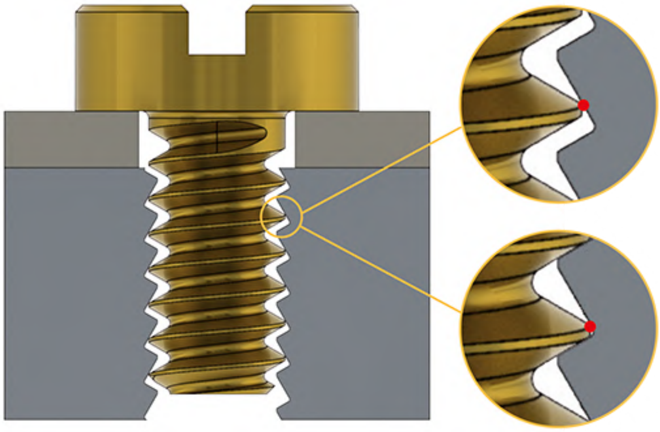
TOLERANCE ZONES OF PITCH DIAMETERS
ON METRIC INTERNAL THREADS (ISO 965 / DIN 13)





AF THREAD - TECHNICAL ADVANTAGES





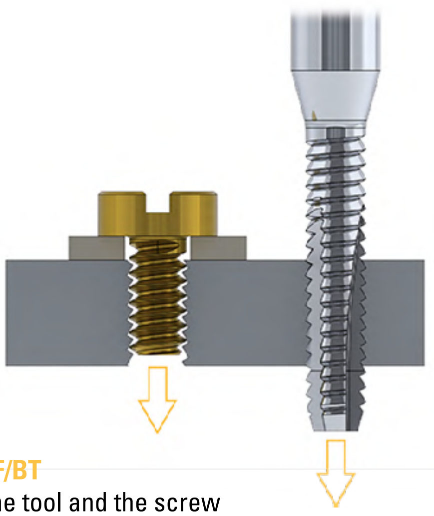
On a S1.00x0.25 assembly, there can be up to 0.05mm free space between the screw crest diameter and the nut root diameter. That clearance allows a freedom of movement that could cause vibration loosening. This phenomenon is accentuated by the narrow theoretical contact surface between the flanks of both screw and nut. In some cases, adhesives can be used to avoid vibration loosening. This solution is inappropriate for assemblies on which visual aspects are key (watch industry).

Whatever the screw size (minimum or maximum material profile), the contact line is guaranteed to be the same. Thus the manufacturing tolerances do not influence the assembly quality.

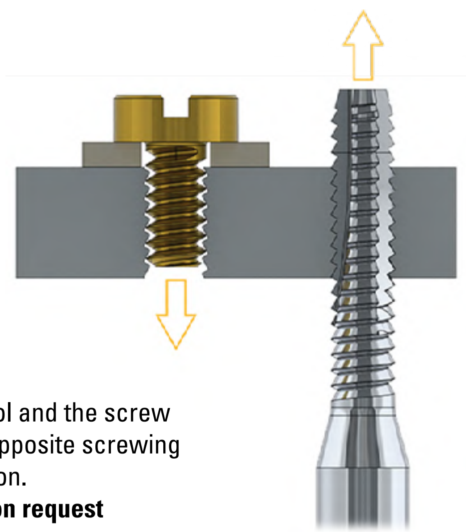
Thanks to AF thread profile, no need to use adhesive anymore.

PROFILE DIRECTION - MACHINING DIRECTION

Unlike 60° thread, AF thread is made of an asymmetric profile. Depending on the tool machining direction, the cutting profile is reversed.



AF/BT
The tool and the screw have the same screwing direction.
Tools from stock



AF/TT
The tool and the screw have opposite screwing direction.
Tools on request

NIHS 06-10 (ISO 1501 / DIN 14)

Nominal Ø	Pitch	5H minor Ø Minor Ø min.	5H minor Ø Minor Ø max.	5H minor Ø Drill Ø	6H minor Ø Minor Ø min.	6H minor Ø Minor Ø max.	6H minor Ø Drill Ø
S 0.30	0.08	0.223	0.240	**0.23**	-	-	-
S 0.35	0.09	0.264	0.286	**0.275**	-	-	-
S 0.40	0.10	0.304	0.330	**0.32**	0.304	0.342	**0.34**
S 0.45	0.10	0.354	0.380	**0.37**	0.354	0.392	**0.39**
S 0.50	0.125	0.380	0.415	**0.40**	0.380	0.435	**0.42**
S 0.55	0.125	0.430	0.465	**0.45**	0.430	0.485	**0.47**
S 0.60	0.15	0.456	0.502	**0.48**	0.456	0.522	**0.50**
S 0.70	0.175	0.532	0.585	**0.56**	0.532	0.605	**0.58**
S 0.80	0.20	0.608	0.665	**0.64**	0.608	0.685	**0.66**
S 0.90	0.225	0.684	0.745	**0.72**	0.684	0.765	**0.74**
S 1.00	0.25	0.760	0.825	**0.80**	0.760	0.845	**0.82**
S 1.10	0.25	0.860	0.925	**0.90**	0.860	0.945	**0.92**
S 1.20	0.25	0.960	1.025	**1.00**	0.960	1.045	**1.02**
S 1.30	0.30	1.012	1.085	**1.05**	1.012	1.105	**1.07**
S 1.40	0.30	1.112	1.185	**1.15**	1.112	1.205	**1.17**

UNF (ANSI B1.1 / ISO 5864)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
N°1	72	2B	1.474	1.612	**1.50**
N°2	64	2B	1.756	1.912	**1.80**
N°3	56	2B	2.025	2.198	**2.10**
N°4	48	2B	2.271	2.458	**2.35**
N°5	44	2B	2.551	2.740	**2.60**
N°6	40	2B	2.820	3.022	**2.90**
N°8	36	2B	3.404	3.606	**3.50**
N°10	32	2B	3.963	4.165	**4.05**
N°12	28	2B	4.496	4.724	**4.60**
1/4"	28	2B	5.360	5.588	**5.50**
5/16"	24	2B	6.782	7.035	**6.90**
3/8"	24	2B	8.382	8.636	**8.50**
7/16"	20	2B	9.729	10.033	**9.80**
1/2"	20	2B	11.329	11.607	**11.40**
9/16"	18	2B	12.751	13.081	**12.90**
5/8"	18	2B	14.351	14.681	**14.50**
3/4"	16	2B	17.323	17.678	**17.50**
7/8"	14	2B	20.270	20.675	**20.40**

UN (ANSI B1.1 / ISO 5864)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
5/16"	28	2B	6.955	7.169	**7.10**
5/16'	20	2B	6.563	6.855	**6.70**
3/8"	28	2B	8.543	8.756	**8.60**
3/8"	20	2B	8.150	8.442	**8.30**
7/16"	32	2B	10.253	10.441	**10.30**
7/16"	16	2B	9.394	9.752	**9.60**
1/2"	32	2B	11.841	12.029	**11.90**
1/2"	16	2B	10.981	11.340	**11.20**
9/16"	32	2B	13.428	13.616	**13.50**
9/16"	28	2B	13.305	13.519	**13.40**
9/16"	20	2B	12.913	13.205	**13.10**
9/16"	16	2B	12.569	12.927	**12.70**
5/8"	32	2B	15.016	15.204	**15.10**
5/8"	28	2B	14.893	15.106	**15.00**
5/8"	20	2B	14.500	14.792	**14.60**
5/8"	16	2B	14.156	14.515	**14.30**
5/8"	12	2B	13.584	14.043	**13.80**
11/16"	32	2B	16.603	16.791	**16.70**
11/16"	28	2B	16.480	16.694	**16.60**
11/16"	20	2B	16.088	16.380	**16.20**
11/16"	16	2B	15.744	16.102	**15.90**
11/16"	12	2B	15.171	15.631	**15.40**
3/4"	32	2B	18.191	18.379	**18.30**
3/4"	28	2B	18.068	18.281	**18.20**
3/4"	12	2B	16.759	17.218	**17.00**
13/16"	32	2B	19.778	19.966	**19.90**
13/16"	28	2B	19.655	19.869	**19.80**
13/16"	16	2B	18.919	19.277	**19.10**
13/16"	12	2B	18.346	18.806	**18.60**
7/8"	32	2B	21.366	21.554	**21.50**
7/8"	28	2B	21.243	21.456	**21.30**
7/8"	16	2B	20.506	20.865	**20.70**
7/8"	12	2B	19.934	20.393	**20.20**
15/16"	32	2B	22.953	23.141	**23.00**
15/16"	28	2B	22.830	23.044	**22.90**
15/16"	16	2B	22.094	22.452	**22.30**
15/16"	12	2B	21.521	21.981	**21.80**
1''	32	2B	24.541	24.729	**24.60**
1''	28	2B	24.418	24.631	**24.50**
1''	16	2B	23.681	24.040	**23.90**
1 1/16"	28	2B	26.005	26.219	**26.10**
1 1/16"	20	2B	25.613	25.905	**25.80**
1 1/16"	18	2B	25.460	25.783	**25.60**
1 1/16"	16	2B	25.269	25.627	**25.40**
1 1/16"	12	2B	24.696	25.156	**24.90**

DRILLING Ø BEFORE TAPPING OR INTERNAL WHIRLING OPERATION

ISO 965 (DIN 13)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
M 0.8	0.20	-	0.608	0.685	**0.65**
M 0.9	0.225	-	0.684	0.765	**0.70**
M 1.0	0.25	5H	0.729	0.785	**0.75**
M 1.1	0.25	5H	0.829	0.885	**0.85**
M 1.2	0.25	5H	0.929	0.985	**0.95**
M 1.4	0.30	6H	1.075	1.142	**1.10**
M 1.6	0.35	6H	1.221	1.321	**1.25**
M 1.7	0.35	6H	1.321	1.421	**1.35**
M 1.8	0.35	6H	1.421	1.521	**1.45**
M 2.0	0.40	6H	1.567	1.679	**1.60**
M 2.2	0.45	6H	1.713	1.838	**1.75**
M 2.5	0.45	6H	2.031	2.138	**2.05**
M 3.0	0.50	6H	2.459	2.599	**2.50**
M 3.5	0.60	6H	2.850	3.010	**2.90**
M 4.0	0.70	6H	3.242	3.422	**3.30**
M 4.5	0.75	6H	3.688	3.878	**3.70**
M.5.0	0.80	6H	4.134	4.334	**4.20**
M 6.0	1.00	6H	4.917	5.153	**5.00**
M 7.0	1.00	6H	5.917	6.153	**6.00**
M 8.0	1.25	6H	6.647	6.912	**6.80**
M 9.0	1.25	6H	7.647	7.912	**7.80**
M 10.0	1.50	6H	8.376	8.676	**8.50**
M 11.0	1.50	6H	9.376	9.676	**9.50**
M 12.0	1.75	6H	10.106	10.441	**10.20**
M 14.0	2.00	6H	11.835	12.210	**12.00**
M 16.0	2.00	6H	13.835	14.210	**14.00**
M 18.0	2.50	6H	15.294	15.744	**15.50**
M 20.0	2.50	6H	17.294	17.744	**17.50**
M 22.0	2.50	6H	19.294	19.744	**19.50**
M 24.0	3.00	6H	20.752	21.252	**21.00**
M 27.0	3.00	6H	23.752	24.252	**24.00**

UNC (ANSI B1.1 / ISO 5864)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
N°1	64	2B	1.425	1.582	**1.50**
N°2	56	2B	1.695	1.871	**1.80**
N°3	48	2B	1.941	2.146	**2.00**
N°4	40	2B	2.157	2.385	**2.25**
N°5	40	2B	2.487	2.697	**2.60**
N°6	32	2B	2.645	2.895	**2.75**
N°8	32	2B	3.302	3.530	**3.50**
N°10	24	2B	3.683	3.962	**3.80**
N°12	24	2B	4.344	4.597	**4.50**
1/4″	20	2B	4.979	5.527	**5.10**
5/16″	18	2B	6.401	6.731	**6.50**
3/8″	16	2B	7.798	8.153	**7.90**
7/16″	14	2B	9.144	9.550	**9.30**
1/2″	13	2B	10.592	11.023	**10.70**
9/16″	12	2B	11.989	12.446	**12.30**
5/8″	11	2B	13.386	13.868	**13.50**
3/4″	10	2B	16.307	16.840	**16.50**

UNEF (ANSI B1.1 / ISO 5864)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
N°12	32	2B	4.623	4.826	**4.70**
1/4″	32	2B	5.487	5.689	**5.60**
5/16″	32	2B	7.087	7.264	**7.20**
3/8″	32	2B	8.662	8.864	**8.75**
7/16″	28	2B	10.135	10.337	**10.25**
1/2″	28	2B	11.710	11.938	**11.85**
9/16″	24	2B	13.132	13.385	**13.20**
5/8″	24	2B	14.732	14.986	**14.80**
11/16″	24	2B	16.307	16.560	**16.40**
3/4″	20	2B	17.679	17.957	**17.80**

BSP (ISO 228)

Nominal Ø	TPI	Minor Ø min.	Minor Ø max.	Drill Ø
G 1/16″	28	6.561	6.843	**6.75**
G 1/8″	28	8.566	8.848	**8.75**
G 1/4″	19	11.445	11.890	**11.60**
G 3/8″	19	14.950	15.395	**15.20**
G 1/2″	14	18.631	19.172	**18.90**
G 5/8″	14	20.587	21.128	**20.90**
G 3/4″	14	24.117	24.658	**24.40**
G 7/8″	14	27.877	28.418	**28.20**
G 1″	11	30.291	30.931	**30.70**

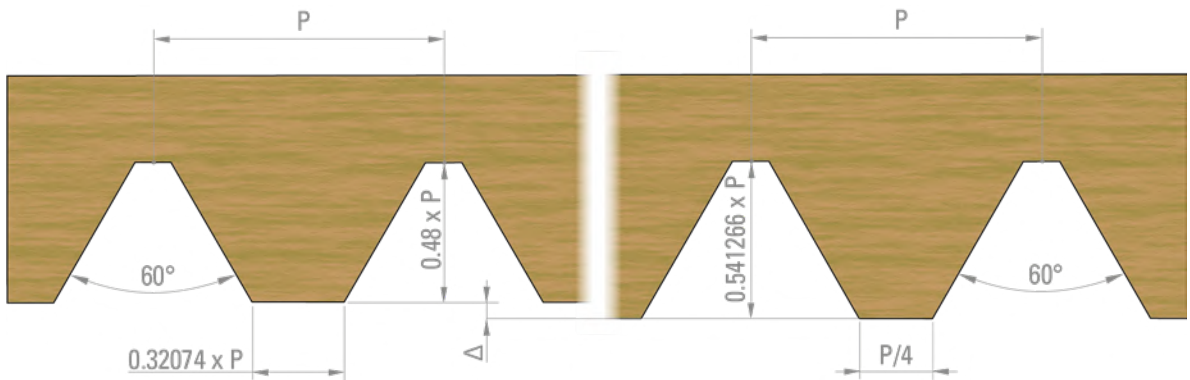
UNJF (ISO 3161)

Nominal Ø	TPI	Tolerance	Minor Ø min.	Minor Ø max.	Drill Ø
N°10	32	3B	4.054	4.225	**4.10**
1/4″	28	3B	5.466	5.662	**5.55**
5/16″	24	3B	6.906	7.109	**7.00**
3/8″	24	3B	8.494	8.679	**8.60**
7/16″	20	3B	9.876	10.084	**10.00**
1/2″	20	3B	11.463	11.661	**11.55**

COMBINATION OF NOMINAL DIAMETERS AND PITCHES ACCORDING ANSI B1.1 / ISO 5854 NORM

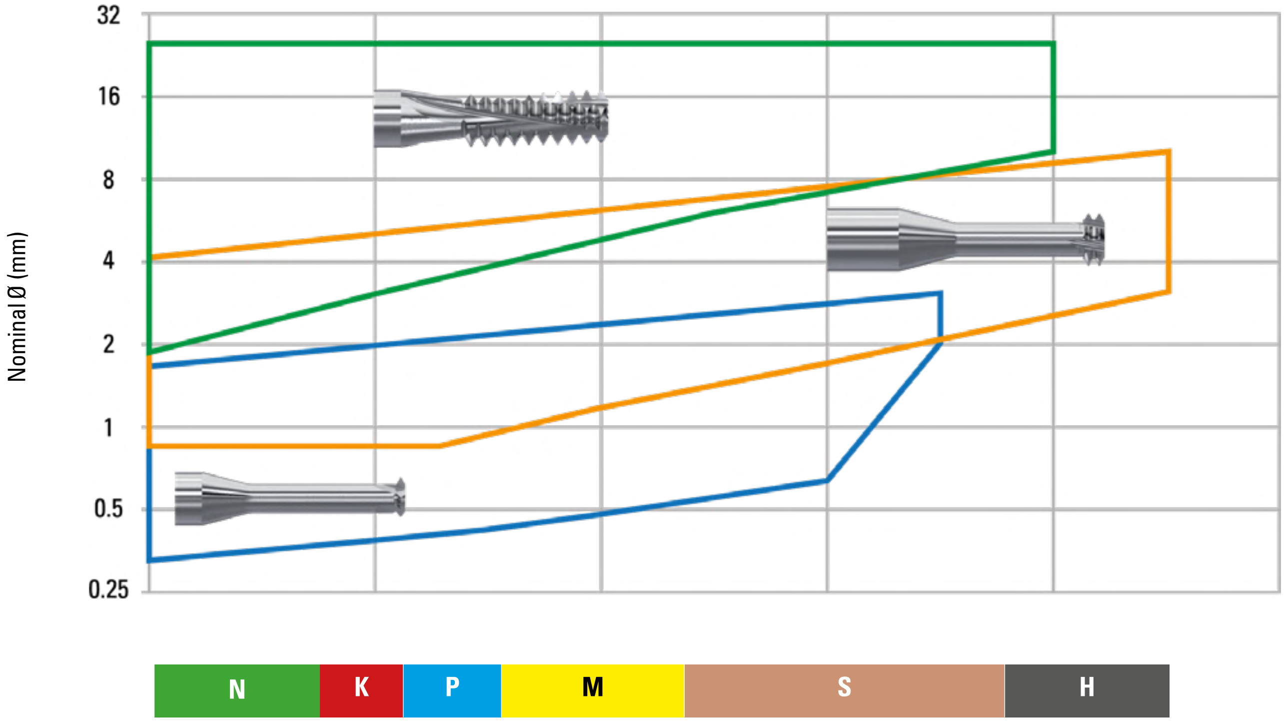
Ø nom.		**80**	**72**	**64**	**56**	**48**	**44**	**40**	**36**	**32**	**28**	**24**	**20**	**18**	**16**	**14**	**13**	**12**	**11**	**10**
inch	mm	0.318	0.353	0.397	0.454	0.529	0.577	0.635	0.706	0.794	0.907	1.058	1.270	1.411	1.588	1.814	1.954	2.117	2.309	2.54
N°0	1.524	UNF																		
N°1	1.854		UNF	UNC																
N°2	2.184			UNF	UNC															
N°3	2.515				UNF	UNC														
N°4	2.845					UNF		UNC												
N°5	3.175						UNF	UNC												
N°6	3.505							UNF		UNC										
N°8	4.166								UNF	UNC										
N°10	4.826									UNF		UNC								
N°12	5.486									UNEF	UNF	UNC								
1/4"	6.350									UNEF	UNF		UNC							
5/16"	7.938									UNEF	UN	UNF	UN	UNC						
3/8"	9.525									UNEF	UN	UNF	UN		UNC					
7/16"	11.113									UN	UNEF		UNF		UN	UNC				
1/2"	12.700									UN	UNEF		UNF		UN		UNC			
9/16"	14.288									UN	UN	UNEF	UN	UNF	UN			UNC		
5/8"	15.875									UN	UN	UNEF	UN	UNF	UN			UN	UNC	
11/16"	17.463									UN	UN	UNEF	UN		UN			UN		
3/4"	19.050									UN	UN		UNEF		UNF			UN		UNC
13/16"	20.638									UN	UN		UNEF		UN			UN		
7/8"	22.225									UN	UN		UNEF		UN	UNF		UN		
15/16"	23.813									UN	UN		UNEF		UN			UN		
1"	25.400									UN	UN		UNEF		UN			UNF		
1-1/16"	26.988										UN		UN	UNEF	UN			UN		

COMPARISON BETWEEN "S" AND "M" THREADS

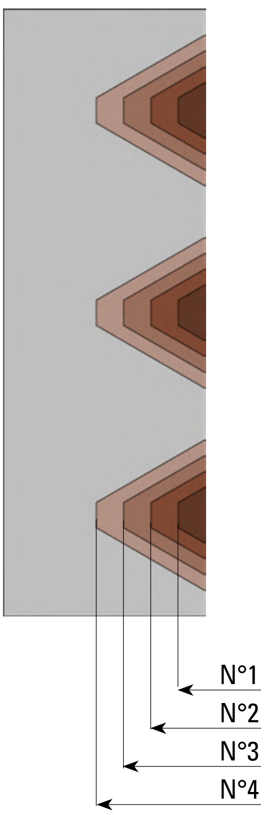


	Miniature thread				Metric thread ISO
Standard	ISO 1501	NIHS 06-10 (Switzerland)	ASME B1.10M (USA)	DIN 14 (Germany)	ISO 965
Thread symbol	"S"		"UNM"	"M"	"M"
Designation example	S 0.60 x 0.15		UNM 0.60 x 0.15	M 0.60 x 0.15	M 6.00 x 1.00
Nominal Ø range	0.30mm to 1.40mm			0.30mm to 0.90mm	1.00mm to 355mm
Pitch range	0.08mm to 0.30mm			0.08mm to 0.225mm	0.20mm to 8.00mm

FIELD OF APPLICATION MILLING MILLS
THREAD MILLING / WHIRLING TOOLS

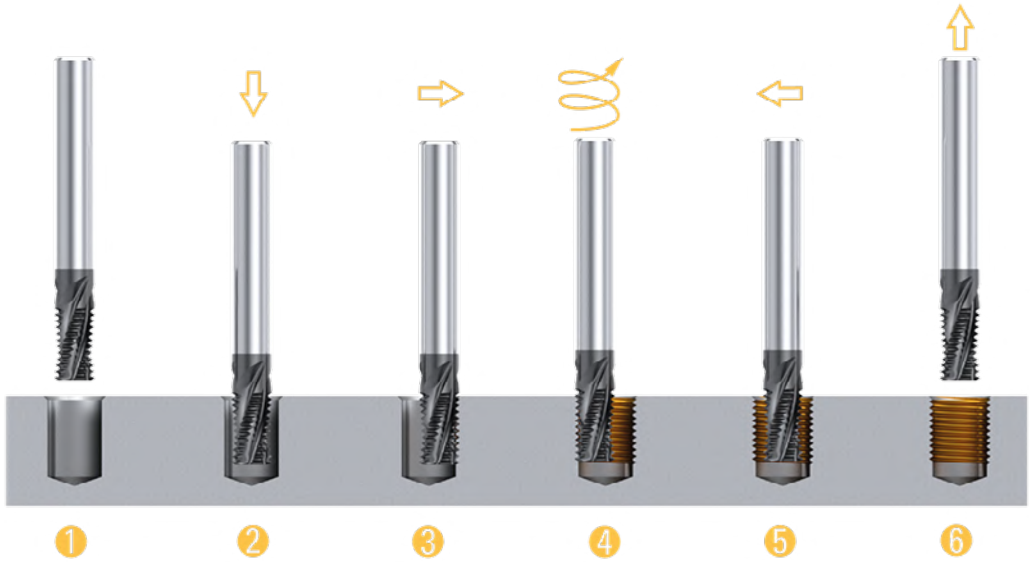


NUMBER OF RADIAL RUNS REQUIRED FOR THREAD MILLING CUTTER

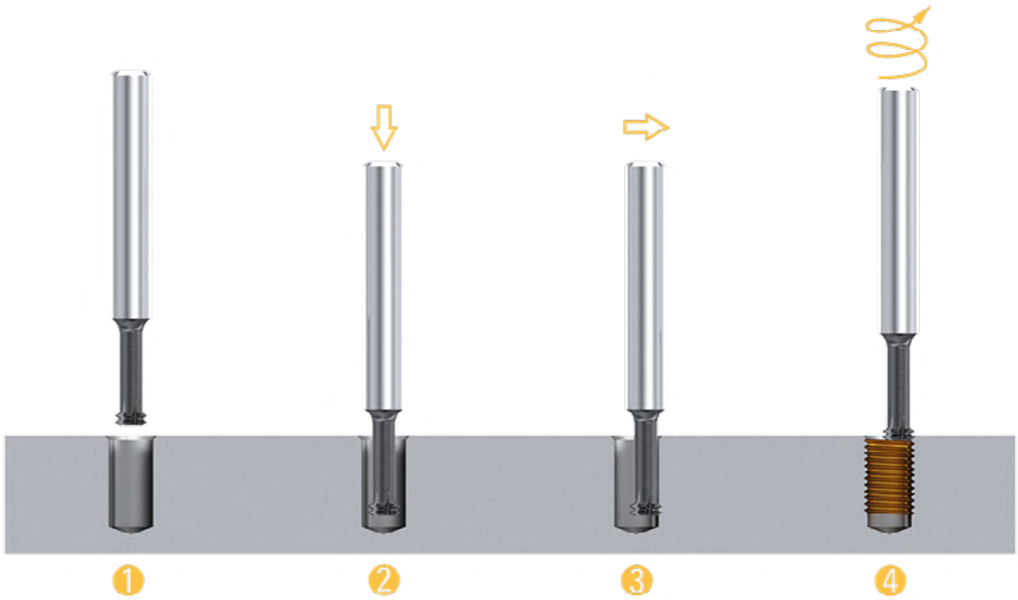


		VDI 3323	Nominal Ø <3mm	Nominal Ø <3 - 6mm	Nominal Ø <6mm
P	Unalloyed steel, leaded steel	1 - 5	-	2 - 3	1 - 2
P	Low alloyed steel < 800 N/mm²	6 - 9	-	3 - 5	1 - 2
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	-	3 - 5	1 - 2
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	-	3 - 5	2 - 3
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	-	3 - 5	3 - 5
K	Grey cast iron < 250 HB	15 - 16	1 - 2	1 - 2	1 - 2
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	-	2 - 3	1 - 2
N	Wrought aluminium alloy < 12% Si	21 - 22	1 - 2	1 - 2	1
N	Cast aluminium alloy >12% Si	23 - 25	1 - 2	1 - 2	1 - 2
N	Copper alloy good machinability with Pb	26	1 - 2	1 - 2	1
N	Copper alloy with difficult machinability	27 - 28	1 - 2	1 - 2	1
N	Plastic, wood	29 - 30	-	1	1 - 2
N	Gold, silver	-	1 - 2	1 - 2	1 - 2
S	Refractory alloy, Fe, Ni, Co base	31- 35	-	3 - 5	3 - 5
S	Titanium, titanium alloy	36 - 37	1 - 2	2 - 3	2 - 3
H	Hardened steel >45 HRC, hard cast iron	38 - 41	-	-	3 - 5

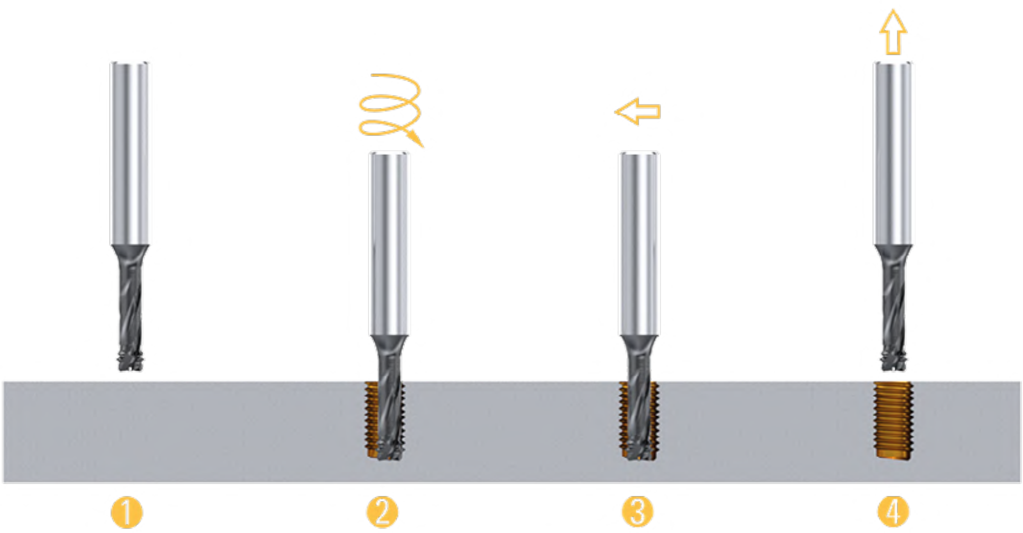
THREAD MILLING CUTTERS



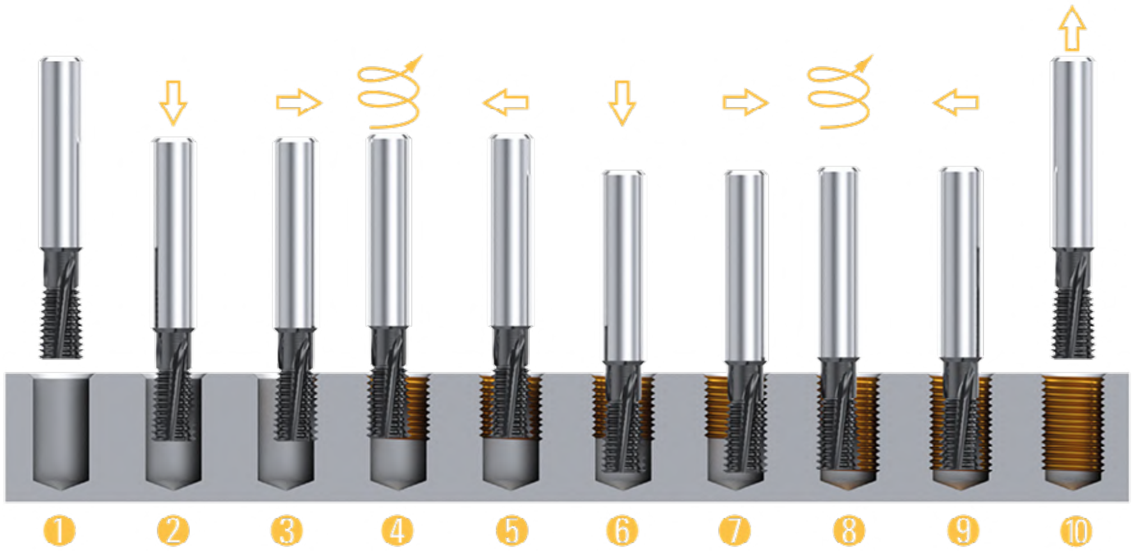
WHIRLING TOOLS



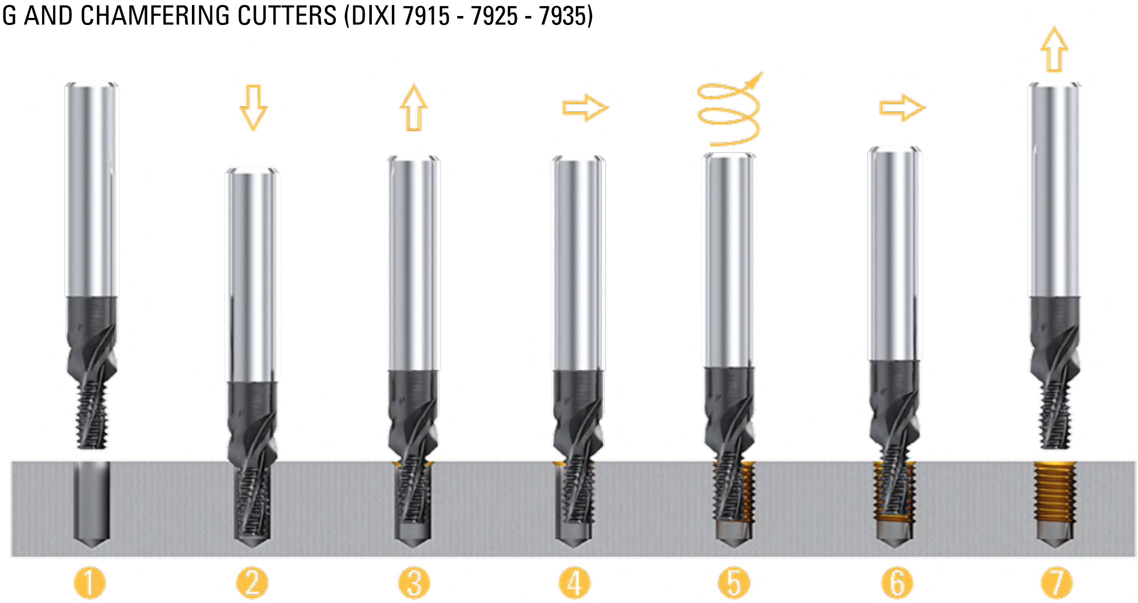
DRILLING THREAD WHIRLERS



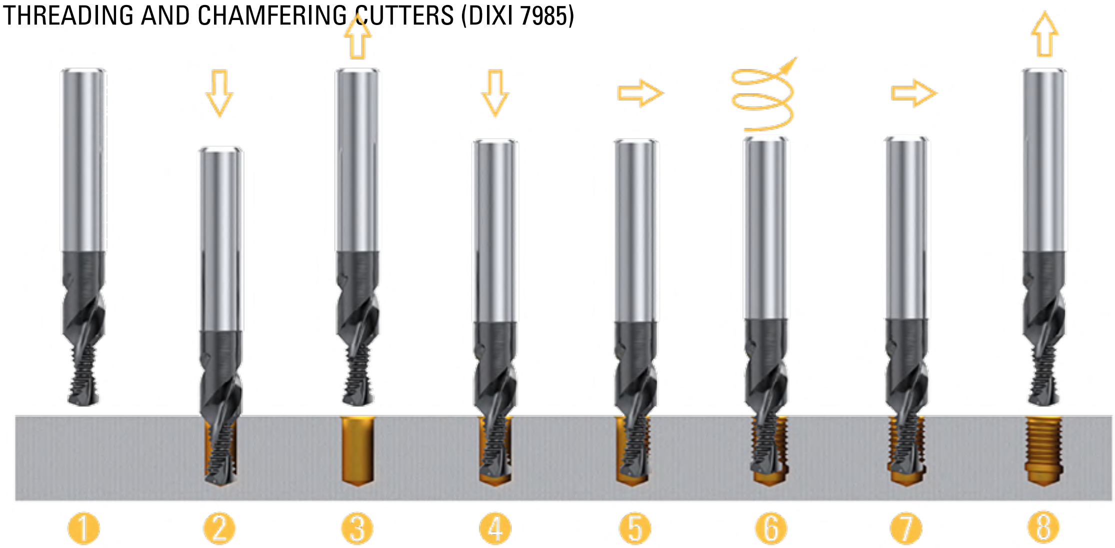
FINE THREAD MILLING CUTTERS (DIXI 7913 - 7914)



THREADING AND CHAMFERING CUTTERS (DIXI 7915 - 7925 - 7935)

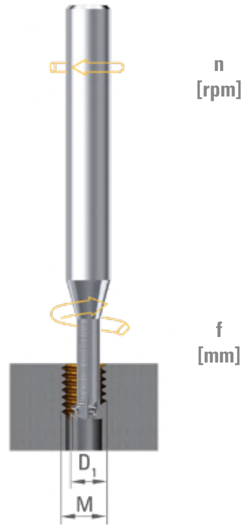


DRILLING, THREADING AND CHAMFERING CUTTERS (DIXI 7985)



DIXI 1730 - 1735 - 1738 - 1739

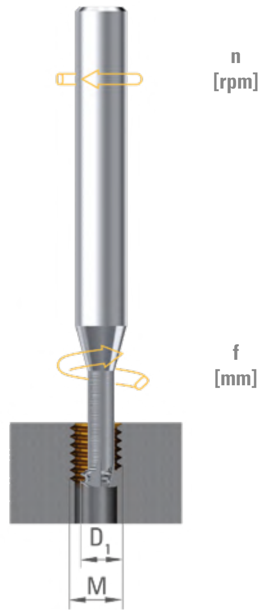
		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	70	115	135
P	Low alloyed steel < 800 N/mm²	6 - 9		105	115
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		90	100
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		85	95
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		80	80
K	Grey cast iron < 250 HB	15 - 16	135		180
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	70		105
N	Wrought aluminium alloy < 12% Si	21 - 22	150		
N	Cast aluminium alloy >12% Si	23 - 25	115		
N	Copper alloy good machinability with Pb	26	140		
N	Copper alloy with difficult machinability	27 - 28	110		
N	Plastic, wood	29 - 30	115		
N	Gold, silver	-	140		
S	Refractory alloy, Fe, Ni, Co base	31 - 35	35		45
S	Titanium, titanium alloy	36 - 37	75		70



$$\text{Vf center} = \frac{n \times fz \times z \times (M-D_1)}{M}$$

DIXI 1737

		VDI 3323	CARBIDE Vc [m/min]	C-TOP Vc [m/min]	DRYCUT Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	70	130	
P	Low alloyed steel < 800 N/mm²	6 - 9		115	
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		105	
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		85	
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		65	
K	Grey cast iron < 250 HB	15 - 16	90		
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	70		
N	Wrought aluminium alloy < 12% Si	21 - 22	150		185
N	Cast aluminium alloy >12% Si	23 - 25	115		150
N	Copper alloy good machinability with Pb	26	140		175
N	Copper alloy with difficult machinability	27 - 28	110		140
N	Plastic, wood	29 - 30	290		170
N	Gold, silver	-	115		95
S	Refractory alloy, Fe, Ni, Co base	31 - 35		40	
S	Titanium, titanium alloy	36 - 37	70	75	



$$\text{Vf center} = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

Feed per tooth fz [mm]

ø D_1 0.20 - 0.40	ø D_1 0.40 - 0.60	ø D_1 0.60 - 1.10	ø D_1 1.10 - 1.60	ø D_1 1.60 - 2.40	ø D_1 2.40 - 5.00	ø D_1 5.00 - 8.00
0.0018 - 0.0040	0.004 - 0.007	0.007 - 0.012	0.012 - 0.018	0.018 - 0.026	0.026 - 0.056	0.055 - 0.080
0.0016 - 0.0036	0.004 - 0.006	0.006 - 0.011	0.011 - 0.016	0.016 - 0.024	0.024 - 0.050	0.050 - 0.080
0.0014 - 0.0032	0.004 - 0.005	0.005 - 0.010	0.010 - 0.014	0.014 - 0.022	0.022 - 0.046	0.045 - 0.070
0.0014 - 0.0032	0.004 - 0.005	0.005 - 0.010	0.010 - 0.014	0.014 - 0.022	0.022 - 0.046	0.045 - 0.070
0.0013 - 0.0029	0.003 - 0.005	0.005 - 0.009	0.009 - 0.013	0.013 - 0.019	0.019 - 0.040	0.040 - 0.060
0.0022 - 0.0050	0.006 - 0.008	0.008 - 0.015	0.015 - 0.022	0.022 - 0.034	0.034 - 0.070	0.070 - 0.110
0.0016 - 0.0036	0.004 - 0.006	0.006 - 0.011	0.011 - 0.016	0.016 - 0.024	0.024 - 0.050	0.050 - 0.080
0.0027 - 0.0061	0.007 - 0.010	0.010 - 0.019	0.019 - 0.027	0.027 - 0.041	0.041 - 0.086	0.085 - 0.130
0.0022 - 0.0050	0.006 - 0.008	0.008 - 0.015	0.015 - 0.022	0.022 - 0.034	0.034 - 0.070	0.070 - 0.110
0.0027 - 0.0061	0.007 - 0.010	0.010 - 0.019	0.019 - 0.027	0.027 - 0.041	0.041 - 0.086	0.085 - 0.130
0.0022 - 0.0050	0.006 - 0.008	0.008 - 0.015	0.015 - 0.022	0.022 - 0.034	0.034 - 0.070	0.070 - 0.110
0.0032 - 0.0072	0.008 - 0.012	0.012 - 0.022	0.022 - 0.032	0.032 - 0.048	0.048 - 0.100	0.100 - 0.150
0.0024 - 0.0054	0.006 - 0.009	0.009 - 0.017	0.017 - 0.024	0.024 - 0.036	0.036 - 0.076	0.075 - 0.110
0.0008 - 0.0018	0.002 - 0.003	0.003 - 0.006	0.006 - 0.008	0.008 - 0.012	0.012 - 0.026	0.025 - 0.040
0.0019 - 0.0043	0.005 - 0.007	0.007 - 0.013	0.013 - 0.019	0.019 - 0.029	0.029 - 0.060	0.060 - 0.090

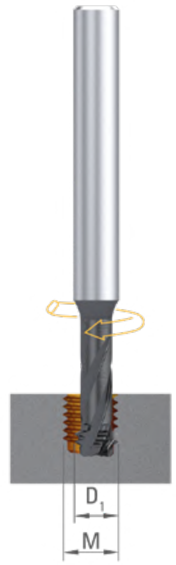
Feed per tooth fz [mm]

ø D_1 0.35 - 0.50	ø D_1 0.50 - 0.60	ø D_1 0.60 - 0.90	ø D_1 0.90 - 1.40	ø D_1 1.40 - 2.40
0.004 - 0.006	0.006 - 0.008	0.008 - 0.011	0.011 - 0.018	0.018 - 0.030
0.004 - 0.006	0.006 - 0.007	0.007 - 0.010	0.010 - 0.016	0.016 - 0.027
0.004 - 0.005	0.005 - 0.006	0.006 - 0.009	0.009 - 0.014	0.014 - 0.024
0.004 - 0.005	0.005 - 0.006	0.006 - 0.009	0.009 - 0.014	0.014 - 0.024
0.003 - 0.005	0.005 - 0.005	0.005 - 0.008	0.008 - 0.013	0.013 - 0.022
0.006 - 0.008	0.008 - 0.010	0.010 - 0.015	0.015 - 0.023	0.023 - 0.039
0.004 - 0.006	0.006 - 0.007	0.007 - 0.010	0.010 - 0.016	0.016 - 0.027
0.007 - 0.010	0.010 - 0.012	0.012 - 0.018	0.018 - 0.028	0.028 - 0.048
0.006 - 0.008	0.008 - 0.010	0.010 - 0.015	0.015 - 0.023	0.023 - 0.039
0.007 - 0.010	0.010 - 0.012	0.012 - 0.018	0.018 - 0.028	0.028 - 0.048
0.006 - 0.008	0.008 - 0.010	0.010 - 0.015	0.015 - 0.023	0.023 - 0.039
0.008 - 0.012	0.012 - 0.014	0.014 - 0.021	0.021 - 0.033	0.033 - 0.056
0.006 - 0.009	0.009 - 0.010	0.010 - 0.016	0.016 - 0.024	0.024 - 0.042
0.002 - 0.003	0.003 - 0.003	0.003 - 0.005	0.005 - 0.008	0.008 - 0.013
0.005 - 0.007	0.007 - 0.008	0.008 - 0.012	0.012 - 0.019	0.019 - 0.033

Values based on use of cutting oil and oil in emulsion.The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 1740

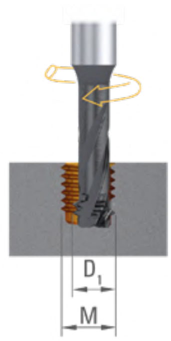
		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5		150
	Low alloyed steel < 800 N/mm²	6 - 9		130
	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		120
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		70
	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		50
K	Grey cast iron < 250 HB	15 - 16	150	150
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	120	110
N	Wrought aluminium alloy < 12% Si	21 - 22	200	
	Cast aluminium alloy >12% Si	23 - 25	180	
	Copper alloy good machinability with Pb	26	150	
	Copper alloy with difficult machinability	27 - 28	110	
	Plastic, wood	29 - 30	120	
	Gold, silver	-	140	
S	Refractory alloy, Fe, Ni, Co base	31 - 35	35	50
	Titanium, titanium alloy	36 - 37	55	



$$\text{Vf center} = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

DIXI 1742-TC

		VDI 3323	DAC Vc [m/min]
N	Wrought aluminium alloy < 12% Si	21 - 22	250
	Cast aluminium alloy >12% Si	23 - 25	200
	Copper alloy good machinability with Pb	26 - 28	200
	Copper alloy with difficult machinability	27-28	150
	Plastic, wood	29 - 30	250
	Gold, silver	-	200



$$\text{Vf center} = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

Feed per tooth fz [mm]

ø D_1 0.60 - 0.80	ø D_1 0.80 - 1.10	ø D_1 1.10 - 2.50	ø D_1 2.50 - 3.00	ø D_1 3.00 - 5.00	ø D_1 5.00 - 6.50	ø D_1 6.50 - 8.00
0.007 - 0.010	0.010 - 0.013	0.013 - 0.029	0.030 - 0.034	0.034 - 0.055	0.055 - 0.070	0.070 - 0.085
0.007 - 0.009	0.009 - 0.012	0.012 - 0.027	0.026 - 0.032	0.032 - 0.050	0.050 - 0.065	0.065 - 0.075
0.006 - 0.008	0.008 - 0.011	0.011 - 0.024	0.024 - 0.028	0.028 - 0.045	0.045 - 0.060	0.060 - 0.070
0.006 - 0.008	0.008 - 0.011	0.011 - 0.024	0.024 - 0.028	0.028 - 0.045	0.045 - 0.060	0.060 - 0.070
0.005 - 0.007	0.007 - 0.010	0.010 - 0.022	0.022 - 0.026	0.026 - 0.040	0.040 - 0.055	0.055 - 0.065
0.008 - 0.011	0.011 - 0.015	0.015 - 0.034	0.034 - 0.040	0.040 - 0.065	0.065 - 0.080	0.080 - 0.100
0.007 - 0.010	0.010 - 0.013	0.013 - 0.029	0.030 - 0.034	0.034 - 0.055	0.055 - 0.070	0.070 - 0.085
0.010 - 0.014	0.014 - 0.019	0.019 - 0.041	0.042 - 0.048	0.048 - 0.080	0.080 - 0.100	0.100 - 0.120
0.009 - 0.012	0.012 - 0.017	0.017 - 0.037	0.036 - 0.042	0.042 - 0.070	0.070 - 0.090	0.090 - 0.105
0.010 - 0.014	0.014 - 0.019	0.019 - 0.041	0.042 - 0.048	0.048 - 0.080	0.080 - 0.100	0.100 - 0.120
0.008 - 0.011	0.011 - 0.015	0.015 - 0.034	0.034 - 0.040	0.040 - 0.065	0.065 - 0.080	0.080 - 0.100
0.012 - 0.016	0.016 - 0.022	0.022 - 0.049	0.048 - 0.058	0.058 - 0.095	0.095 - 0.115	0.115 - 0.140
0.007 - 0.010	0.010 - 0.013	0.013 - 0.029	0.030 - 0.034	0.034 - 0.055	0.055 - 0.070	0.070 - 0.085
0.004 - 0.006	0.006 - 0.008	0.008 - 0.017	0.018 - 0.020	0.020 - 0.030	0.030 - 0.040	0.040 - 0.050
0.007 - 0.010	0.010 - 0.013	0.013 - 0.029	0.030 - 0.034	0.034 - 0.055	0.055 - 0.070	0.070 - 0.085

Values based on use of cutting oil and oil in emulsion.The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

Feed per tooth Vf [mm/min]

M5	M6	M8	M10	M12
1'200	1'275	1'360	1'360	1'120
800	1'000	1'100	1'100	990
1'200	1'275	1'360	1'360	1'120
800	1'000	1'100	1'100	990
1'200	1'275	1'360	1'360	1'120
800	1'000	1'100	1'100	990

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

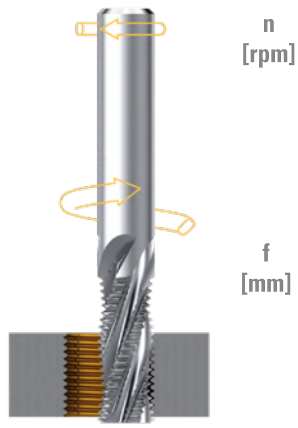
DIXI 1744

		VDI 3323	CUTINOX Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	170
P	Low alloyed steel < 800 N/mm²	6 - 9	140
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	130
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	70
M	Nickel-free stainless steel/DUPLEX > 700 N/mm²	14.3-14.4	50
K	Grey cast iron < 250 HB	15 - 16	170
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	120
S	Refractory alloy, Fe, Ni, Co base	31 - 35	50
S	Titanium, titanium alloy	36 - 37	

$$\text{Vf center} = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

DIXI 7910 - 7920 - 7940

		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	85	100
P	Low alloyed steel < 800 N/mm²	6 - 9		80
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		50
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2		80
M	Nickel-free stainless steel/DUPLEX > 700 N/mm²	14.3-14.4		50
K	Grey cast iron < 250 HB	15 - 16	85	100
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	55	80
N	Wrought aluminium alloy < 12% Si	21 - 22	220	285
N	Cast aluminium alloy > 12% Si	23 - 25	150	220
N	Copper alloy good machinability with Pb	26	150	210
N	Copper alloy with difficult machinability	27 - 28	130	180
N	Plastic, wood	29 - 30	250	320
N	Gold, silver	-	150	210
	Titanium, titanium alloy	36 - 37	40	50



$$\text{Vf center} = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

Feed per tooth **Vf [mm/min]**

ø D_1 3.00 - 5.00	ø D_1 5.00 - 6.50	ø D_1 6.50 - 8.00	ø D_1 8.00 - 10.00
0.034 - 0.055	0.055 - 0.070	0.070 - 0.085	0.086 - 0.096
0.032 - 0.050	0.050 - 0.065	0.065 - 0.075	0.079 - 0.088
0.028 - 0.045	0.045 - 0.060	0.060 - 0.070	0.072 - 0.080
0.028 - 0.045	0.045 - 0.060	0.060 - 0.070	0.072 - 0.080
0.026 - 0.040	0.040 - 0.055	0.055 - 0.065	0.065 - 0.072
0.040 - 0.065	0.065 - 0.080	0.080 - 0.100	0.100 - 0.112
0.034 - 0.055	0.055 - 0.070	0.070 - 0.085	0.086 - 0.096
0.020 - 0.030	0.030 - 0.040	0.040 - 0.050	0.050 - 0.056
0.034 - 0.055	0.055 - 0.070	0.070 - 0.085	0.086 - 0.096

Feed per tooth **fz [mm]**

ø D_1 0.90 - 2.00	ø D_1 2.00 - 3.00	ø D_1 3.00 - 4.00	ø D_1 4.00 - 6.00	ø D_1 6.00 - 10.00	ø D_1 10.00 - 16.00
0.005 - 0.012	0.012 - 0.018	0.018 - 0.024	0.024 - 0.035	0.035 - 0.060	0.060 - 0.100
0.005 - 0.011	0.011 - 0.0165	0.017 - 0.022	0.022 - 0.035	0.035 - 0.060	0.060 - 0.090
0.005 - 0.010	0.010 - 0.015	0.015 - 0.02	0.020 - 0.030	0.030 - 0.050	0.050 - 0.080
0.005 - 0.010	0.010 - 0.015	0.015 - 0.02	0.020 - 0.030	0.030 - 0.050	0.050 - 0.080
0.004 - 0.009	0.009 - 0.014	0.014 - 0.018	0.018 - 0.025	0.025 - 0.050	0.050 - 0.070
0.006 - 0.014	0.014 - 0.021	0.021 - 0.028	0.028 - 0.040	0.040 - 0.070	0.070 - 0.110
0.005 - 0.012	0.012 - 0.018	0.018 - 0.024	0.024 - 0.035	0.035 - 0.060	0.060 - 0.100
0.007 - 0.015	0.015 - 0.023	0.023 - 0.03	0.030 - 0.045	0.045 - 0.080	0.080 - 0.120
0.008 - 0.017	0.017 - 0.026	0.026 - 0.034	0.034 - 0.050	0.050 - 0.090	0.090 - 0.140
0.006 - 0.014	0.014 - 0.021	0.021 - 0.028	0.028 - 0.040	0.040 - 0.070	0.070 - 0.110
0.009 - 0.020	0.020 - 0.030	0.030 - 0.04	0.040 - 0.060	0.060 - 0.100	0.100 - 0.160
0.005 - 0.012	0.012 - 0.018	0.018 - 0.024	0.024 - 0.035	0.035 - 0.060	0.060 - 0.100
0.005 - 0.012	0.012 - 0.018	0.018 - 0.024	0.024 - 0.035	0.035 - 0.060	0.060 - 0.100
0.007 - 0.010	0.010 - 0.013	0.013 - 0.029	0.030 - 0.034	0.034 - 0.055	0.055 - 0.070

Values based on use of cutting oil and oil in emulsion.The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 7908 - 7913-TC - 7914-TC - 7915-TC 7918 - 7923-TC - 7925-TC - 7935-TC

		VDI 3323	CARBIDE Vc [m/min]	TiAlN Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	100	130
P	Low alloyed steel < 800 N/mm²	6 - 9		105
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13		65
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	60	105
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4		60
K	Grey cast iron < 250 HB	15 - 16	100	130
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	65	105
N	Wrought aluminium alloy < 12% Si	21 - 22	265	370
N	Cast aluminium alloy >12% Si	23 - 25	180	285
N	Copper alloy good machinability with Pb	26	180	275
N	Copper alloy with difficult machinability	27 - 28	155	235
N	Plastic, wood	29 - 30	300	415
N	Gold, silver	-	180	275
	Titanium, titanium alloy	36 - 37	45	65

$$Vf\ center = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

DIXI 7985-HH

		VDI 3323	CARBIDE Vc [m/min]	CUTINOX Vc [m/min]
K	Grey cast iron < 250 HB	15 - 16	110	150
N	Wrought aluminium alloy < 12% Si	21 - 22	250	300
N	Cast aluminium alloy >12% Si	23 - 25	180	210
N	Copper alloy good machinability with Pb	26	180	210
N	Copper alloy with difficult machinability	27 - 28	180	210
N	Plastic, wood	29 - 30	250	250
N	Gold, silver	-	180	180

$$Vf\ center = \frac{n \times fz \times Z \times (M-D_1)}{M}$$

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

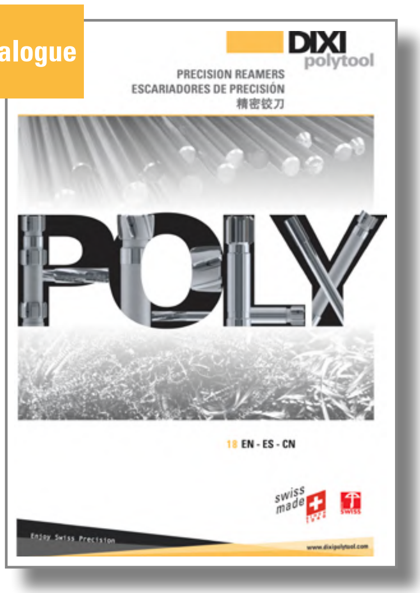
Feed per tooth fz [mm]

ø D_1 3.00 - 4.00	ø D_1 4.00 - 5.00	ø D_1 5.00 - 8.00	ø D_1 8.00 - 10.00	ø D_1 10.00 - 14.00	ø D_1 14.00 - 20.00
0.022 - 0.029	0.029 - 0.036	0.036 - 0.057	0.058 - 0.070	0.070 - 0.100	0.100 - 0.140
0.020 - 0.026	0.026 - 0.033	0.033 - 0.052	0.052 - 0.065	0.065 - 0.090	0.090 - 0.130
0.018 - 0.024	0.024 - 0.030	0.030 - 0.048	0.048 - 0.060	0.060 - 0.080	0.080 - 0.120
0.018 - 0.024	0.024 - 0.030	0.030 - 0.048	0.048 - 0.060	0.060 - 0.080	0.080 - 0.120
0.016 - 0.022	0.022 - 0.027	0.027 - 0.043	0.044 - 0.055	0.055 - 0.080	0.080 - 0.110
0.025 - 0.034	0.034 - 0.042	0.042 - 0.067	0.068 - 0.085	0.085 - 0.120	0.120 - 0.170
0.022 - 0.029	0.029 - 0.036	0.036 - 0.057	0.058 - 0.070	0.070 - 0.100	0.100 - 0.140
0.031 - 0.041	0.041 - 0.051	0.051 - 0.081	0.082 - 0.100	0.100 - 0.140	0.140 - 0.200
0.027 - 0.036	0.036 - 0.045	0.045 - 0.072	0.072 - 0.090	0.090 - 0.130	0.130 - 0.180
0.031 - 0.041	0.041 - 0.051	0.051 - 0.081	0.082 - 0.100	0.100 - 0.140	0.140 - 0.200
0.025 - 0.034	0.034 - 0.042	0.042 - 0.067	0.068 - 0.085	0.085 - 0.120	0.120 - 0.170
0.036 - 0.048	0.048 - 0.060	0.060 - 0.096	0.096 - 0.120	0.120 - 0.170	0.170 - 0.240
0.022 - 0.029	0.029 - 0.036	0.036 - 0.057	0.058 - 0.070	0.070 - 0.100	0.100 - 0.140
0.022 - 0.029	0.029 - 0.036	0.036 - 0.057	0.058 - 0.070	0.070 - 0.100	0.100 - 0.140

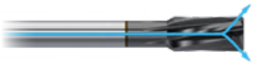
DRILLING feed per lap f [mm]			**THREADING** Feed per tooth fz [mm]		
ø D_1 3.00 - 4.00	ø D_1 5.00 - 7.00	ø D_1 8.00 - 14.00	ø D_1 3.00 - 4.00	ø D_1 5.00 - 7.00	ø D_1 8.00 - 14.00
0.042 - 0.056	0.070 - 0.100	0.100 - 0.160	0.030 - 0.040	0.050 - 0.070	0.080 - 0.140
0.074 - 0.098	0.125 - 0.170	0.180 - 0.280	0.045 - 0.060	0.075 - 0.105	0.120 - 0.210
0.053 - 0.070	0.090 - 0.120	0.140 - 0.200	0.030 - 0.040	0.050 - 0.070	0.080 - 0.140
0.063 - 0.084	0.105 - 0.150	0.160 - 0.240	0.053 - 0.070	0.087 - 0.122	0.140 - 0.245
0.042 - 0.056	0.070 - 0.100	0.100 - 0.160	0.038 - 0.050	0.062 - 0.087	0.100 - 0.175
0.084 - 0.112	0.140 - 0.200	0.200 - 0.320	0.060 - 0.080	0.100 - 0.140	0.160 - 0.280
0.042 - 0.056	0.070 - 0.100	0.100 - 0.160	0.030 - 0.040	0.050 - 0.070	0.080 - 0.140

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

For other types of reamers, see the POLYTOOL catalogue



✓ = item from stock

CARBIDE REAMERS	Z	Page		Hole tolerance	☐ CARBIDE	POLYCUT	TiAlN	☐ CERMET
POLY 4001 Ø0.40 - Ø12.02  with central hole > Ø2.98	3 - 6	426		IT 7	✓			
POLY 4005-TC Ø2.97 - Ø6.50 	4 - 6	434		IT 7	✓			
POLY 4007 Ø0.37 - Ø12.02  with central hole > Ø2.97	3 - 6	436		IT 7	✓			
POLY 4008-FC Ø2.50 - Ø12.03 	4 - 6	444		IT 7		✓		

REAMERS WITH CARBIDE OR CERMET INSERTS

Use CERMET in materials p. 464

REAMERS WITH CARBIDE OR CERMET INSERTS	Z	Page		Hole tolerance	CARBIDE	POLYCUT	TiAlN	CERMET
POLY 4361 Ø6.00 - Ø24.00 	4 - 6	446		IT 5 IT 6 IT 7	✓		✓	✓
POLY 4371 Ø6.00 - Ø24.00 	4 - 6	448		IT 5 IT 6 IT 7	✓		✓	✓

REAMERS ON REQUEST - CARBIDE OR CERMET INSERTS

Use CERMET in materials p. 464

SOLID REAMERS	Z	Page		Hole tolerance				
POLY 4261 Ø5.80 - Ø120.00 	4 - 6	450		IT 7	ON REQUEST			
POLY 4271 Ø5.80 - Ø120.00 	4 - 6	451		IT 7	ON REQUEST			
POLY 4264 Ø5.80 - Ø120.00 	4 - 6	450		IT 7	ON REQUEST			
POLY 4274 Ø5.80 - Ø120.00 	4 - 6	451		IT 7	ON REQUEST			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

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○ good ◎ excellent

✓ = item from stock

EXPANSIBLE REAMERS

		Z	Page		Hole tolerance	☐ CARBIDE	POLYCUT	TiAlN	☐ CERMET
POLY 4361 Ø5.80 - Ø55.00		4 - 6	452		IT5 IT6 IT7	ON REQUEST			
POLY 4371 Ø5.80 - Ø55.00		4 - 6	453		IT5 IT6 IT7	ON REQUEST			
POLY 4364 Ø5.80 - Ø55.00		4 - 6	452		IT5 IT6 IT7	ON REQUEST			
POLY 4374 Ø5.80 - Ø55.00		4 - 6	453		IT5 IT6 IT7	ON REQUEST			

BORING AND CHAMFERING TOOLS

		Z	Page		Hole tolerance	CARBIDE	POLYCUT	TiAlN	CERMET
DIXI 2577 Ø0.26 - Ø0.86		-	454			✓			
DIXI 2567 Ø0.20 - Ø1.00		-	455			✓			

BORING TOOLS

		Z	Page		Hole tolerance	CARBIDE	POLYCUT	TiAlN	CERMET
DIXI 2578 Ø0.30 - Ø1.00		3	456			✓			
DIXI 2579 Ø0.60 - Ø3.00			457			✓			
DIXI 2580 Ø0.50 - Ø20.00			458			✓			
DIXI 2581 Ø0.50 - Ø18.00		-	459			✓			

BORING TOOL HOLDERS

		Z	Page		Hole tolerance	CARBIDE	POLYCUT	TiAlN	CERMET
POLY 2764 Ø6.00 - Ø24.00		-	457						

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

◎	◎	◯	◯	◎	◎	◎	◎	◎	◎	◯	◎	
◎	◎	◯	◯	◎	◎	◎	◎	◎	◎	◯	◎	
◎	◎	◯	◯	◎	◎	◎	◎	◎	◎	◯	◎	
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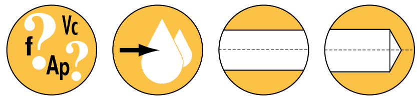
◎	◎	◯	◯	◎	◎	◎	◎	◎	◎	◯	◎	
◎	◎	◯	◯	◎	◎	◎	◎	◎	◎	◯	◎	

◯ good ◎ excellent

STRAIGHT FLUTE REAMERS IRREGULAR TEETH

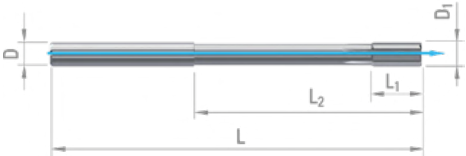


P.462 > Ø2.98

- Solid carbide reamers with irregular straight teeth and through coolant developed for the machining of blind and through holes in all kind of materials.
- All Ø with tolerance ±2μm available through our express-service

Ref. A

Ref. B



○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.40	(0.407)	3	5	3	38	3	B	959801
0.41	(0.417)	3	5	3	38	3	B	964623
0.42	(0.427)	3	5	3	38	3	B	959802
0.43	(0.437)	3	5	3	38	3	B	978100
0.44	(0.447)	3	5	3	38	3	B	959803
0.45	(0.457)	3	5	3	38	3	B	954360
0.46	(0.467)	3	5	3	38	3	B	959804
0.47	(0.477)	3	5	3	38	3	B	963057
0.48	(0.487)	3	5	3	38	3	B	959805
0.49	(0.497)	3	5	3	38	3	B	954359
0.50	(0.507)	3	5	3	38	3	B	959662
0.51	(0.517)	4	6	3	38	3	B	200007
0.52	(0.527)	4	6	3	38	3	B	200000
0.53	(0.537)	4	6	3	38	3	B	200004
0.54	(0.547)	4	6	3	38	3	B	200005
0.55	(0.557)	4	6	3	38	3	B	200001
0.56	(0.567)	4	6	3	38	3	B	966312
0.57	(0.577)	4	6	3	38	3	B	326970
0.58	(0.587)	4	6	3	38	3	B	200003
0.59	(0.597)	4	6	3	38	3	B	200006
0.60	(0.607)	4	6	3	38	3	B	200002
0.61	(0.617)	4	7	3	38	3	B	964889
0.62	(0.627)	4	7	3	38	3	B	200010
0.63	(0.637)	4	7	3	38	3	B	965815
0.64	(0.647)	4	7	3	38	3	B	200015
0.65	(0.657)	4	7	3	38	3	B	200008

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.66	(0.667)	4	7	3	38	3	B	200012
0.67	(0.677)	4	7	3	38	3	B	200013
0.68	(0.687)	4	7	3	38	3	B	200011
0.69	(0.697)	4	7	3	38	3	B	200014
0.70	(0.707)	4	7	3	38	3	B	200009
0.71	(0.717)	4	8	3	38	3	B	955902
0.72	(0.727)	4	8	3	38	3	B	200018
0.73	(0.737)	4	8	3	38	3	B	959571
0.74	(0.747)	4	8	3	38	3	B	200022
0.75	(0.757)	4	8	3	38	3	B	200016
0.76	(0.767)	4	8	3	38	3	B	961872
0.77	(0.777)	4	8	3	38	3	B	200020
0.78	(0.787)	4	8	3	38	3	B	200019
0.79	(0.797)	4	8	3	38	3	B	200021
0.80	(0.807)	4	8	3	38	3	B	200017
0.81	(0.817)	5	9	3	38	3	B	964624
0.82	(0.827)	5	9	3	38	3	B	200025
0.83	(0.837)	5	9	3	38	3	B	200029
0.84	(0.847)	5	9	3	38	3	B	200028
0.85	(0.857)	5	9	3	38	3	B	200023
0.86	(0.867)	5	9	3	38	3	B	200030
0.87	(0.877)	5	9	3	38	3	B	200031
0.88	(0.887)	5	9	3	38	3	B	200026
0.89	(0.897)	5	9	3	38	3	B	200027
0.90	(0.907)	5	9	3	38	3	B	200024

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STRAIGHT FLUTE REAMERS
IRREGULAR TEETH

P.462 > Ø2.98

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.91	(0.917)	5	10	3	38	3	B	200039
0.92	(0.927)	5	10	3	38	3	B	200035
0.93	(0.937)	5	10	3	38	3	B	960023
0.94	(0.947)	5	10	3	38	3	B	963188
0.95	(0.957)	5	10	3	38	3	B	200034
0.96	(0.967)	5	10	3	38	3	B	200036
0.97	(0.977)	5	10	3	38	3	B	200037
0.98	(0.987)	5	10	3	38	3	B	200032
0.99	(0.997)	5	10	3	38	3	B	200033
1.00	(1.007)	5	10	3	38	3	B	200038
1.01	(1.017)	5	11	3	38	3	B	959800
1.02	(1.027)	5	11	3	38	3	B	200040
1.03	(1.037)	5	11	3	38	3	B	966908
1.04	(1.047)	5	11	3	38	3	B	962626
1.05	(1.057)	5	11	3	38	3	B	200041
1.06	(1.067)	5	11	3	38	3	B	966799
1.07	(1.077)	5	11	3	38	3	B	968047
1.08	(1.087)	5	11	3	38	3	B	200042
1.09	(1.097)	5	12	3	38	3	B	955685
1.10	(1.107)	5	12	3	38	3	B	200045
1.11	(1.117)	5	12	3	38	3	B	951529
1.12	(1.127)	5	12	3	38	3	B	951598
1.13	(1.137)	5	12	3	38	3	B	968503
1.14	(1.147)	5	12	3	38	3	B	968504
1.15	(1.157)	5	12	3	38	3	B	200043
1.16	(1.167)	5	12	3	38	3	B	967147
1.17	(1.177)	5	12	3	38	3	B	956647
1.18	(1.187)	5	12	3	38	3	B	67307
1.19	(1.197)	5	12	3	38	3	B	960753
1.20	(1.207)	5	12	3	38	3	B	200044
1.21	(1.217)	6	13	3	38	3	B	67308
1.22	(1.227)	6	13	3	38	3	B	968605
1.23	(1.237)	6	13	3	38	3	B	968606
1.24	(1.247)	6	13	3	38	3	B	968607
1.25	(1.257)	6	13	3	38	3	B	200046
1.26	(1.267)	6	13	3	38	3	B	968608
1.27	(1.277)	6	13	3	38	3	B	964024
1.28	(1.287)	6	13	3	38	3	B	200048
1.29	(1.297)	6	13	3	38	3	B	950915
1.30	(1.307)	6	13	3	38	3	B	200047
1.31	(1.317)	6	13	3	38	3	B	959472
1.32	(1.327)	6	13	3	38	3	B	961369
1.33	(1.337)	6	13	3	38	3	B	961963
1.34	(1.347)	6	13	3	38	3	B	326971
1.35	(1.357)	6	13	3	38	3	B	200049
1.36	(1.367)	6	13	3	38	3	B	968242
1.37	(1.377)	6	13	3	38	3	B	960591

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
1.38	(1.387)	6	13	3	38	3	B	966541
1.39	(1.397)	6	13	3	38	3	B	960202
1.40	(1.407)	6	13	3	38	3	B	200050
1.41	(1.417)	7	15	3	38	3	B	957425
1.42	(1.427)	7	15	3	38	3	B	955757
1.43	(1.437)	7	15	3	38	3	B	955746
1.44	(1.447)	7	15	3	38	3	B	961345
1.45	(1.457)	7	15	3	38	3	B	200053
1.46	(1.467)	7	15	3	38	3	B	66791
1.47	(1.477)	7	15	3	38	3	B	961456
1.48	(1.487)	7	15	3	38	3	B	200051
1.49	(1.497)	7	15	3	38	3	B	200052
1.50	(1.507)	7	15	3	38	3	B	200054
1.51	(1.517)	7	15	3	50	3	B	200104
1.52	(1.527)	7	15	3	50	3	B	200105
1.53	(1.537)	7	15	3	50	3	B	960836
1.54	(1.547)	7	15	3	50	3	B	63795
1.55	(1.557)	7	15	3	50	3	B	200125
1.56	(1.567)	7	15	3	50	3	B	973910
1.57	(1.577)	7	15	3	50	3	B	963006
1.58	(1.587)	7	15	3	50	3	B	961472
1.59	(1.597)	7	15	3	50	3	B	959620
1.60	(1.607)	7	15	3	50	3	B	200111
1.61	(1.617)	7	16	3	50	3	B	59391
1.62	(1.627)	7	16	3	50	3	B	955366
1.63	(1.637)	7	16	3	50	3	B	326972
1.64	(1.647)	7	16	3	50	3	B	326973
1.65	(1.657)	7	16	3	50	3	B	200124
1.66	(1.667)	7	16	3	50	3	B	991141
1.67	(1.677)	7	16	3	50	3	B	965451
1.68	(1.687)	7	16	3	50	3	B	326974
1.69	(1.697)	7	16	3	50	3	B	952172
1.70	(1.707)	7	16	3	50	3	B	200126
1.71	(1.717)	7	17	3	50	3	B	66359
1.72	(1.727)	7	17	3	50	3	B	959573
1.73	(1.737)	7	17	3	50	3	B	326975
1.74	(1.747)	7	17	3	50	3	B	968498
1.75	(1.757)	7	17	3	50	3	B	200127
1.76	(1.767)	7	17	3	50	3	B	974605
1.77	(1.777)	7	17	3	50	3	B	961458
1.78	(1.787)	7	17	3	50	3	B	63459
1.79	(1.797)	7	17	3	50	3	B	200146
1.80	(1.807)	7	17	3	50	3	B	200112
1.81	(1.817)	8	17	3	50	3	B	962183
1.82	(1.827)	8	17	3	50	3	B	960953
1.83	(1.837)	8	17	3	50	3	B	951867
1.84	(1.847)	8	17	3	50	3	B	326976

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STRAIGHT FLUTE REAMERS
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P.462

> Ø2.98

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
1.85	(1.857)	8	17	3	50	3	B	200113
1.86	(1.867)	8	17	3	50	3	B	964274
1.87	(1.877)	8	17	3	50	3	B	326977
1.88	(1.887)	8	17	3	50	3	B	954731
1.89	(1.897)	8	17	3	50	3	B	200137
1.90	(1.907)	8	17	3	50	3	B	200114
1.91	(1.917)	8	18	3	50	3	B	982028
1.92	(1.927)	8	18	3	50	3	B	326978
1.93	(1.937)	8	18	3	50	3	B	326979
1.94	(1.947)	8	18	3	50	3	B	67301
1.95	(1.957)	8	18	3	50	3	B	200115
1.96	(1.967)	8	18	3	50	3	B	200145
1.97	(1.977)	8	18	3	50	3	B	200106
1.98	(1.987)	8	18	3	50	3	B	200107
1.99	(1.997)	8	18	3	50	3	B	200108
2.00	(2.007)	8	18	3	50	3	B	200102
2.01	(2.017)	8	18	3	50	3	B	200109
2.02	(2.027)	8	18	3	50	3	B	200110
2.03	(2.037)	8	18	3	50	3	B	63271
2.04	(2.047)	8	18	3	50	3	B	200147
2.05	(2.057)	8	18	3	50	3	B	200121
2.06	(2.067)	8	18	3	50	3	B	954744
2.07	(2.077)	8	18	3	50	3	B	63796
2.08	(2.087)	8	18	3	50	3	B	57717
2.09	(2.097)	8	18	3	50	3	B	957058
2.10	(2.107)	8	18	3	50	3	B	200144
2.11	(2.117)	8	18	3	50	3	B	952428
2.12	(2.127)	8	18	3	50	3	B	952429
2.13	(2.137)	8	18	3	50	3	B	967590
2.14	(2.147)	8	18	3	50	3	B	968815
2.15	(2.157)	8	18	3	50	3	B	200120
2.16	(2.167)	8	18	3	50	3	B	968156
2.17	(2.177)	8	18	3	50	3	B	959096
2.18	(2.187)	8	18	3	50	3	B	968449
2.19	(2.197)	8	18	3	50	3	B	952213
2.20	(2.207)	8	18	3	50	3	B	200139
2.21	(2.217)	8	18	3	50	3	B	968816
2.22	(2.227)	8	18	3	50	3	B	953362
2.23	(2.237)	8	18	3	50	3	B	326980
2.24	(2.247)	8	18	3	50	3	B	326981
2.25	(2.257)	8	18	3	50	3	B	200119
2.26	(2.267)	8	18	3	50	3	B	326982
2.27	(2.277)	8	18	3	50	3	B	956015
2.28	(2.287)	8	18	3	50	3	B	326983
2.29	(2.297)	8	18	3	50	3	B	985826
2.30	(2.307)	8	18	3	50	3	B	200131
2.31	(2.317)	10	20	3	50	3	B	951944

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
2.32	(2.327)	10	20	3	50	3	B	200135
2.33	(2.337)	10	20	3	50	3	B	957326
2.34	(2.347)	10	20	3	50	3	B	956298
2.35	(2.357)	10	20	3	50	3	B	200130
2.36	(2.367)	10	20	3	50	3	B	955027
2.37	(2.377)	10	20	3	50	3	B	958068
2.38	(2.387)	10	20	3	50	3	B	962361
2.39	(2.397)	10	20	3	50	3	B	965907
2.40	(2.407)	10	20	3	50	3	B	200129
2.41	(2.417)	10	20	3	50	3	B	950038
2.42	(2.427)	10	20	3	50	3	B	950039
2.43	(2.437)	10	20	3	50	3	B	955020
2.44	(2.447)	10	20	3	50	3	B	962239
2.45	(2.457)	10	20	3	50	3	B	200128
2.46	(2.467)	10	20	3	50	3	B	326984
2.47	(2.477)	10	20	3	50	3	B	959535
2.48	(2.487)	10	20	3	50	3	B	200140
2.49	(2.497)	10	20	3	50	3	B	200141
2.50	(2.507)	10	20	3	50	3	B	200103
2.51	(2.517)	10	20	3	61	4	B	200142
2.52	(2.527)	10	20	3	61	4	B	200143
2.53	(2.537)	10	20	3	61	4	B	954733
2.54	(2.547)	10	20	3	61	4	B	955042
2.55	(2.557)	10	20	3	61	4	B	200118
2.56	(2.567)	10	20	3	61	4	B	326985
2.57	(2.577)	10	20	3	61	4	B	326986
2.58	(2.587)	10	20	3	61	4	B	958772
2.59	(2.597)	10	20	3	61	4	B	971141
2.60	(2.607)	10	20	3	61	4	B	200117
2.61	(2.617)	10	25	3	61	4	B	970909
2.62	(2.627)	10	25	3	61	4	B	952158
2.63	(2.637)	10	25	3	61	4	B	326987
2.64	(2.647)	10	25	3	61	4	B	962551
2.65	(2.657)	10	25	3	61	4	B	200116
2.66	(2.667)	10	25	3	61	4	B	954075
2.67	(2.677)	10	25	3	61	4	B	200136
2.68	(2.687)	10	25	3	61	4	B	954450
2.69	(2.697)	10	25	3	61	4	B	991586
2.70	(2.707)	10	25	3	61	4	B	200123
2.71	(2.717)	10	25	3	61	4	B	954783
2.72	(2.727)	10	25	3	61	4	B	326988
2.73	(2.737)	10	25	3	61	4	B	326989
2.74	(2.747)	10	25	3	61	4	B	969786
2.75	(2.757)	10	25	3	61	4	B	200122
2.76	(2.767)	10	25	3	61	4	B	326990
2.77	(2.777)	10	25	3	61	4	B	326991
2.78	(2.787)	10	25	3	61	4	B	954734

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STRAIGHT FLUTE REAMERS
IRREGULAR TEETH

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D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
2.79	(2.797)	10	25	3	61	4	B	965219
2.80	(2.807)	10	25	3	61	4	B	200138
2.81	(2.817)	10	25	3	61	4	B	953881
2.82	(2.827)	10	25	3	61	4	B	960888
2.83	(2.837)	10	25	3	61	4	B	326992
2.84	(2.847)	10	25	3	61	4	B	326993
2.85	(2.857)	10	25	3	61	4	B	200132
2.86	(2.867)	10	25	3	61	4	B	326994
2.87	(2.877)	10	25	3	61	4	B	326995
2.88	(2.887)	10	25	3	61	4	B	326996
2.89	(2.897)	10	25	3	61	4	B	953937
2.90	(2.907)	10	25	3	61	4	B	200133
2.91	(2.917)	10	25	3	61	4	B	964090
2.92	(2.927)	10	25	3	61	4	B	66683
2.93	(2.937)	10	25	3	61	4	B	326997
2.94	(2.947)	10	25	3	61	4	B	326998
2.95	(2.957)	10	25	3	61	4	B	200134
2.96	(2.967)	10	25	3	61	4	B	961012
2.97	(2.977)	10	25	3	61	4	B	959664
2.98	(2.987)	10	25	3	70	6	B	321202
2.99	(2.997)	10	25	3	70	6	B	321203
3.00	(3.007)	10	25	3	70	6	B	321204
3.01	(3.018)	10	25	3	70	6	B	321205
3.02	(3.028)	10	25	3	70	6	B	321206
3.03	(3.038)	10	25	3	70	6	B	321207
3.04	(3.048)	10	25	3	70	6	B	321208
3.05	(3.058)	10	25	3	70	6	B	321209
3.06	(3.068)	10	25	3	70	6	B	321210
3.07	(3.078)	10	25	3	70	6	B	321211
3.08	(3.088)	10	25	3	70	6	B	321212
3.09	(3.098)	10	25	3	70	6	B	321213
3.10	(3.108)	10	-	3	70	6	A	321214
3.11	(3.118)	10	-	3	70	6	A	321215
3.12	(3.128)	10	-	3	70	6	A	321216
3.13	(3.138)	10	-	3	70	6	A	321217
3.14	(3.148)	10	-	3	70	6	A	321218
3.15	(3.158)	10	-	3	70	6	A	321219
3.16	(3.168)	10	-	3	70	6	A	321220
3.17	(3.178)	10	-	3	70	6	A	321221
3.18	(3.188)	10	-	3	70	6	A	321222
3.19	(3.198)	10	-	3	70	6	A	321223
3.20	(3.208)	10	-	3	70	6	A	321224
3.21	(3.218)	10	-	3	70	6	A	321225
3.22	(3.228)	10	-	3	70	6	A	321226
3.23	(3.238)	10	-	3	70	6	A	321227
3.24	(3.248)	10	-	3	70	6	A	321228
3.25	(3.258)	10	-	3	70	6	A	321229

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
3.26	(3.268)	10	-	3	70	6	A	321230
3.27	(3.278)	10	-	3	70	6	A	321231
3.28	(3.288)	10	-	3	70	6	A	321232
3.29	(3.298)	10	-	3	70	6	A	321233
3.30	(3.308)	10	-	3	70	6	A	321234
3.31	(3.318)	10	-	3	70	6	A	321235
3.32	(3.328)	10	-	3	70	6	A	321236
3.33	(3.338)	10	-	3	70	6	A	321237
3.34	(3.348)	10	-	3	70	6	A	321238
3.35	(3.358)	10	-	3	70	6	A	321239
3.36	(3.368)	10	-	3	70	6	A	321240
3.37	(3.378)	10	-	3	70	6	A	321241
3.38	(3.388)	10	-	3	70	6	A	321242
3.39	(3.398)	10	-	3	70	6	A	321243
3.40	(3.408)	10	-	3	70	6	A	321244
3.41	(3.418)	10	-	3	70	6	A	321245
3.42	(3.428)	10	-	3	70	6	A	321246
3.43	(3.438)	10	-	3	70	6	A	321247
3.44	(3.448)	10	-	3	70	6	A	321248
3.45	(3.458)	10	-	3	70	6	A	321249
3.46	(3.468)	10	-	3	70	6	A	321250
3.47	(3.478)	10	-	3	70	6	A	321251
3.48	(3.488)	10	-	3	70	6	A	321252
3.49	(3.498)	10	-	3	70	6	A	321253
3.50	(3.508)	10	-	3	70	6	A	321254
3.51	(3.518)	10	-	3	70	6	A	321255
3.52	(3.528)	10	-	3	70	6	A	321256
3.53	(3.538)	10	-	3	70	6	A	321257
3.54	(3.548)	10	-	3	70	6	A	321258
3.55	(3.558)	10	-	3	70	6	A	321259
3.56	(3.568)	10	-	3	70	6	A	321260
3.57	(3.578)	10	-	3	70	6	A	321261
3.58	(3.588)	10	-	3	70	6	A	321262
3.59	(3.598)	10	-	3	70	6	A	321263
3.60	(3.608)	10	-	3	70	6	A	321264
3.61	(3.618)	10	-	3	70	6	A	321265
3.62	(3.628)	10	-	3	70	6	A	321266
3.63	(3.638)	10	-	3	70	6	A	321267
3.64	(3.648)	10	-	3	70	6	A	321268
3.65	(3.658)	10	-	3	70	6	A	321269
3.66	(3.668)	10	-	3	70	6	A	321270
3.67	(3.678)	10	-	3	70	6	A	321271
3.68	(3.688)	10	-	3	70	6	A	321272
3.69	(3.698)	10	-	3	70	6	A	321273
3.70	(3.708)	10	-	3	70	6	A	321274
3.71	(3.718)	10	-	3	70	6	A	321275
3.72	(3.728)	10	-	3	70	6	A	321276

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STRAIGHT FLUTE REAMERS
IRREGULAR TEETH

P.462

> Ø2.98

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
3.73	(3.738)	10	-	3	70	6	A	321277
3.74	(3.748)	10	-	3	70	6	A	321278
3.75	(3.758)	10	-	3	70	6	A	321279
3.76	(3.768)	10	-	3	70	6	A	321280
3.77	(3.778)	10	-	3	70	6	A	321281
3.78	(3.788)	10	-	3	70	6	A	321282
3.79	(3.798)	10	-	3	70	6	A	321283
3.80	(3.808)	10	-	3	70	6	A	321284
3.81	(3.818)	10	-	3	70	6	A	321285
3.82	(3.828)	10	-	3	70	6	A	321286
3.83	(3.838)	10	-	3	70	6	A	321287
3.84	(3.848)	10	-	3	70	6	A	321288
3.85	(3.858)	10	-	3	70	6	A	321289
3.86	(3.868)	10	-	3	70	6	A	321290
3.87	(3.878)	10	-	3	70	6	A	321291
3.88	(3.888)	10	-	3	70	6	A	321292
3.89	(3.898)	10	-	3	70	6	A	321293
3.90	(3.908)	10	-	3	70	6	A	321294
3.91	(3.918)	10	-	3	70	6	A	321295
3.92	(3.928)	10	-	3	70	6	A	321296
3.93	(3.938)	10	-	3	70	6	A	321297
3.94	(3.948)	10	-	3	70	6	A	321298
3.95	(3.958)	10	-	3	70	6	A	321299
3.96	(3.968)	10	-	3	70	6	A	321300
3.97	(3.978)	10	-	3	70	6	A	321301
3.98	(3.988)	10	-	3	70	6	A	321302
3.99	(3.998)	10	-	3	70	6	A	321303
4.00	(4.008)	10	-	3	70	6	A	321304
4.01	(4.018)	10	-	3	70	6	A	321305
4.02	(4.028)	10	-	3	70	6	A	321306
4.03	(4.038)	10	-	3	70	6	A	321307
4.04	(4.048)	10	-	3	70	6	A	321308
4.05	(4.058)	10	-	3	70	6	A	321309
4.06	(4.068)	10	-	3	70	6	A	321310
4.07	(4.078)	10	-	3	70	6	A	321311
4.08	(4.088)	10	-	3	70	6	A	321312
4.09	(4.098)	10	-	3	70	6	A	321313
4.10	(4.108)	10	-	3	70	6	A	420528
4.11	(4.118)	10	-	3	70	6	A	420529
4.12	(4.128)	10	-	3	70	6	A	420530
4.13	(4.138)	10	-	3	70	6	A	420531
4.14	(4.148)	10	-	3	70	6	A	420532
4.15	(4.158)	10	-	3	70	6	A	420533
4.16	(4.168)	10	-	3	70	6	A	420534
4.17	(4.178)	10	-	3	70	6	A	420535
4.18	(4.188)	10	-	3	70	6	A	420536
4.19	(4.198)	10	-	3	70	6	A	420537

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
4.20	(4.208)	12	-	4	80	6	A	321324
4.21	(4.218)	12	-	4	80	6	A	321325
4.22	(4.228)	12	-	4	80	6	A	321326
4.23	(4.238)	12	-	4	80	6	A	321327
4.24	(4.248)	12	-	4	80	6	A	321328
4.25	(4.258)	12	-	4	80	6	A	321329
4.26	(4.268)	12	-	4	80	6	A	321330
4.27	(4.278)	12	-	4	80	6	A	321331
4.28	(4.288)	12	-	4	80	6	A	321332
4.29	(4.298)	12	-	4	80	6	A	321333
4.30	(4.308)	12	-	4	80	6	A	321334
4.31	(4.318)	12	-	4	80	6	A	321335
4.32	(4.328)	12	-	4	80	6	A	321336
4.33	(4.338)	12	-	4	80	6	A	321337
4.34	(4.348)	12	-	4	80	6	A	321338
4.35	(4.358)	12	-	4	80	6	A	321339
4.36	(4.368)	12	-	4	80	6	A	321340
4.37	(4.378)	12	-	4	80	6	A	321341
4.38	(4.388)	12	-	4	80	6	A	321342
4.39	(4.398)	12	-	4	80	6	A	321343
4.40	(4.408)	12	-	4	80	6	A	321344
4.41	(4.418)	12	-	4	80	6	A	321345
4.42	(4.428)	12	-	4	80	6	A	321346
4.43	(4.438)	12	-	4	80	6	A	321347
4.44	(4.448)	12	-	4	80	6	A	321348
4.45	(4.458)	12	-	4	80	6	A	321349
4.46	(4.468)	12	-	4	80	6	A	321350
4.47	(4.478)	12	-	4	80	6	A	321351
4.48	(4.488)	12	-	4	80	6	A	321352
4.49	(4.498)	12	-	4	80	6	A	321353
4.50	(4.508)	12	-	4	80	6	A	321354
4.51	(4.518)	12	-	4	80	6	A	321355
4.52	(4.528)	12	-	4	80	6	A	321356
4.53	(4.538)	12	-	4	80	6	A	321357
4.54	(4.548)	12	-	4	80	6	A	321358
4.55	(4.558)	12	-	4	80	6	A	321359
4.56	(4.568)	12	-	4	80	6	A	321360
4.57	(4.578)	12	-	4	80	6	A	321361
4.58	(4.588)	12	-	4	80	6	A	321362
4.59	(4.598)	12	-	4	80	6	A	321363
4.60	(4.608)	12	-	4	80	6	A	321364
4.61	(4.618)	12	-	4	80	6	A	321365
4.62	(4.628)	12	-	4	80	6	A	321366
4.63	(4.638)	12	-	4	80	6	A	321367
4.64	(4.648)	12	-	4	80	6	A	321368
4.65	(4.658)	12	-	4	80	6	A	321369
4.66	(4.668)	12	-	4	80	6	A	321370

STRAIGHT FLUTE REAMERS
IRREGULAR TEETH

P.462 > Ø2.98

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
4.67	(4.678)	12	-	4	80	6	A	321371
4.68	(4.688)	12	-	4	80	6	A	321372
4.69	(4.698)	12	-	4	80	6	A	321373
4.70	(4.708)	12	-	4	80	6	A	321374
4.71	(4.718)	12	-	4	80	6	A	321375
4.72	(4.728)	12	-	4	80	6	A	321376
4.73	(4.738)	12	-	4	80	6	A	321377
4.74	(4.748)	12	-	4	80	6	A	321378
4.75	(4.758)	12	-	4	80	6	A	321379
4.76	(4.768)	12	-	4	80	6	A	321380
4.77	(4.778)	12	-	4	80	6	A	321381
4.78	(4.788)	12	-	4	80	6	A	321382
4.79	(4.798)	12	-	4	80	6	A	321383
4.80	(4.808)	12	-	4	80	6	A	321384
4.81	(4.818)	12	-	4	80	6	A	321385
4.82	(4.828)	12	-	4	80	6	A	321386
4.83	(4.838)	12	-	4	80	6	A	321387
4.84	(4.848)	12	-	4	80	6	A	321388
4.85	(4.858)	12	-	4	80	6	A	321389
4.86	(4.868)	12	-	4	80	6	A	321390
4.87	(4.878)	12	-	4	80	6	A	321391
4.88	(4.888)	12	-	4	80	6	A	321392
4.89	(4.898)	12	-	4	80	6	A	321393
4.90	(4.908)	12	-	4	80	6	A	321394
4.91	(4.918)	12	-	4	80	6	A	321395
4.92	(4.928)	12	-	4	80	6	A	321396
4.93	(4.938)	12	-	4	80	6	A	321397
4.94	(4.948)	12	-	4	80	6	A	321398
4.95	(4.958)	12	-	4	80	6	A	321399
4.96	(4.968)	12	-	4	80	6	A	321400
4.97	(4.978)	12	-	4	80	6	A	321401
4.98	(4.988)	12	-	4	80	6	A	321402
4.99	(4.998)	12	-	4	80	6	A	321403
5.00	(5.008)	12	-	4	80	6	A	321404
5.01	(5.018)	12	-	4	80	6	A	321405
5.02	(5.028)	12	-	4	80	6	A	321406
5.03	(5.038)	12	-	4	80	6	A	321407
5.04	(5.048)	12	-	4	80	6	A	321408
5.05	(5.058)	12	-	4	80	6	A	321409
5.06	(5.068)	12	-	4	80	6	A	321410
5.07	(5.078)	12	-	4	80	6	A	321411
5.08	(5.088)	12	-	4	80	6	A	321412
5.09	(5.098)	12	-	4	80	6	A	321413
5.10	(5.108)	12	-	4	80	6	A	321414
5.11	(5.118)	12	-	4	80	6	A	321415
5.12	(5.128)	12	-	4	80	6	A	321416
5.13	(5.138)	12	-	4	80	6	A	321417

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
5.14	(5.148)	12	-	4	80	6	A	321418
5.15	(5.158)	12	-	4	80	6	A	321419
5.16	(5.168)	12	-	4	80	6	A	321420
5.17	(5.178)	12	-	4	80	6	A	321421
5.18	(5.188)	12	-	4	80	6	A	321422
5.19	(5.198)	12	-	4	80	6	A	321423
5.20	(5.208)	12	-	4	80	6	A	321424
5.21	(5.218)	12	-	4	80	6	A	321425
5.22	(5.228)	12	-	4	80	6	A	321426
5.23	(5.238)	12	-	4	80	6	A	321427
5.24	(5.248)	12	-	4	80	6	A	321428
5.25	(5.258)	12	-	4	80	6	A	321429
5.26	(5.268)	12	-	4	80	6	A	321430
5.27	(5.278)	12	-	4	80	6	A	321431
5.28	(5.288)	12	-	4	80	6	A	321432
5.29	(5.298)	12	-	4	80	6	A	321433
5.30	(5.308)	12	-	4	80	6	A	321434
5.31	(5.318)	12	-	4	80	6	A	321435
5.32	(5.328)	12	-	4	80	6	A	321436
5.33	(5.338)	12	-	4	80	6	A	321437
5.34	(5.348)	12	-	4	80	6	A	321438
5.35	(5.358)	12	-	4	80	6	A	321439
5.36	(5.368)	12	-	4	80	6	A	321440
5.37	(5.378)	12	-	4	80	6	A	321441
5.38	(5.388)	12	-	4	80	6	A	321442
5.39	(5.398)	12	-	4	80	6	A	321443
5.40	(5.408)	12	-	4	80	6	A	321444
5.41	(5.418)	12	-	4	80	6	A	321445
5.42	(5.428)	12	-	4	80	6	A	321446
5.43	(5.438)	12	-	4	80	6	A	321447
5.44	(5.448)	12	-	4	80	6	A	321448
5.45	(5.458)	12	-	4	80	6	A	321449
5.46	(5.468)	12	-	4	80	6	A	321450
5.47	(5.478)	12	-	4	80	6	A	321451
5.48	(5.488)	12	-	4	80	6	A	321452
5.49	(5.498)	12	-	4	80	6	A	321453
5.50	(5.508)	12	-	4	80	6	A	321454
5.51	(5.518)	12	-	4	80	6	A	321455
5.52	(5.528)	12	-	4	80	6	A	321456
5.53	(5.538)	12	-	4	80	6	A	321457
5.54	(5.548)	12	-	4	80	6	A	321458
5.55	(5.558)	12	-	4	80	6	A	321459
5.56	(5.568)	12	-	4	80	6	A	321460
5.57	(5.578)	12	-	4	80	6	A	321461
5.58	(5.588)	12	-	4	80	6	A	321462
5.59	(5.598)	12	-	4	80	6	A	321463
5.60	(5.608)	12	-	4	80	6	A	321464

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STRAIGHT FLUTE REAMERS
IRREGULAR TEETH

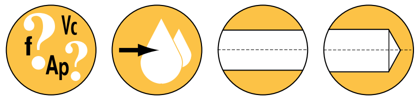
P.462 > Ø2.98

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
5.61	(5.618)	12	-	4	80	6	A	321465
5.62	(5.628)	12	-	4	80	6	A	321466
5.63	(5.638)	12	-	4	80	6	A	321467
5.64	(5.648)	12	-	4	80	6	A	321468
5.65	(5.658)	12	-	4	80	6	A	321469
5.66	(5.668)	12	-	4	80	6	A	321470
5.67	(5.678)	12	-	4	80	6	A	321471
5.68	(5.688)	12	-	4	80	6	A	321472
5.69	(5.698)	12	-	4	80	6	A	321473
5.70	(5.708)	12	-	4	80	6	A	321474
5.71	(5.718)	12	-	4	80	6	A	321475
5.72	(5.728)	12	-	4	80	6	A	321476
5.73	(5.738)	12	-	4	80	6	A	321477
5.74	(5.748)	12	-	4	80	6	A	321478
5.75	(5.758)	12	-	4	80	6	A	321479
5.76	(5.768)	12	-	4	80	6	A	321480
5.77	(5.778)	12	-	4	80	6	A	321481
5.78	(5.788)	12	-	4	80	6	A	321482
5.79	(5.798)	12	-	4	80	6	A	321483
5.80	(5.808)	12	-	4	80	6	A	321484
5.81	(5.818)	12	-	4	80	6	A	321485
5.82	(5.828)	12	-	4	80	6	A	321486
5.83	(5.838)	12	-	4	80	6	A	321487
5.84	(5.848)	12	-	4	80	6	A	321488
5.85	(5.858)	12	-	4	80	6	A	321489
5.86	(5.868)	12	-	4	80	6	A	321490
5.87	(5.878)	12	-	4	80	6	A	321491
5.88	(5.888)	12	-	4	80	6	A	321492
5.89	(5.898)	12	-	4	80	6	A	321493
5.90	(5.908)	12	-	4	80	6	A	321494
5.91	(5.918)	12	-	4	80	6	A	321495
5.92	(5.928)	12	-	4	80	6	A	321496
5.93	(5.938)	12	-	4	80	6	A	321497
5.94	(5.948)	12	-	4	80	6	A	321498
5.95	(5.958)	12	-	4	80	6	A	321499
5.96	(5.968)	12	-	4	80	6	A	321500
5.97	(5.978)	12	-	4	80	6	A	321501
5.98	(5.988)	12	-	4	80	6	A	321502
5.99	(5.998)	12	-	4	80	6	A	321503
6.00	(6.008)	12	-	4	80	6	A	321504
6.01	(6.020)	12	-	4	80	6	A	321505
6.02	(6.030)	12	-	4	80	6	A	321506
6.03	(6.040)	12	-	4	80	6	A	321507
6.04	(6.050)	12	-	4	80	6	A	321508
6.05	(6.060)	12	-	4	80	6	A	321509
6.06	(6.070)	12	-	4	80	6	A	321510
6.07	(6.080)	12	-	4	80	6	A	321511

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
6.08	(6.090)	12	-	4	80	6	A	321512
6.09	(6.100)	12	-	4	80	6	A	321513
6.10	(6.110)	12	-	4	80	6	A	321514
6.11	(6.120)	12	-	4	80	6	A	321515
6.12	(6.130)	12	-	4	80	6	A	321516
6.13	(6.140)	12	-	4	80	6	A	321517
6.14	(6.150)	12	-	4	80	6	A	321518
6.15	(6.160)	12	-	4	80	6	A	321519
6.16	(6.170)	12	-	4	80	6	A	321520
6.17	(6.180)	12	-	4	80	6	A	321521
6.18	(6.190)	12	-	4	80	6	A	321522
6.19	(6.200)	12	-	4	80	6	A	321523
6.20	(6.210)	16	-	6	101	6	A	341670
6.30	(6.310)	16	-	6	101	6	A	341680
6.35	(6.360)	16	-	6	101	6	A	341685
6.40	(6.410)	16	-	6	101	6	A	341690
6.48	(6.490)	16	-	6	101	6	A	341698
6.49	(6.500)	16	-	6	101	6	A	341699
6.50	(6.510)	16	-	6	101	6	A	341700
6.51	(6.520)	16	-	6	101	6	A	341701
6.52	(6.530)	16	-	6	101	6	A	341702
6.55	(6.560)	16	-	6	101	6	A	341705
6.60	(6.610)	16	-	6	101	6	A	341710
6.70	(6.710)	16	-	6	101	6	A	341720
6.80	(6.810)	16	-	6	101	6	A	341730
6.90	(6.910)	16	-	6	101	6	A	341740
7.00	(7.010)	16	-	6	101	6	A	341750
7.01	(7.020)	16	-	6	101	6	A	341751
7.02	(7.030)	16	-	6	101	6	A	341752
7.10	(7.110)	16	-	6	101	6	A	341760
7.20	(7.210)	16	-	6	101	6	A	341770
7.30	(7.310)	16	-	6	101	6	A	341780
7.40	(7.410)	16	-	6	101	6	A	341790
7.50	(7.510)	16	-	6	101	6	A	341800
7.60	(7.610)	16	-	6	101	6	A	341810
7.70	(7.710)	16	-	6	101	6	A	341820
7.80	(7.810)	16	-	6	101	6	A	341830
7.90	(7.910)	16	-	6	101	6	A	341840
7.98	(7.990)	16	-	6	101	6	A	341848
7.99	(8.000)	16	-	6	101	6	A	341849
8.00	(8.010)	16	-	6	101	6	A	341850
8.01	(8.020)	16	-	6	101	6	A	341851
8.02	(8.030)	16	-	6	101	6	A	341852
8.05	(8.060)	16	-	6	101	6	A	341855
8.10	(8.110)	16	-	6	101	6	A	420538
8.20	(8.210)	16	-	8	117	6	A	420539
8.30	(8.310)	16	-	8	117	6	A	420540

POLY 4001 - 4001-TC

STRAIGHT FLUTE REAMERS
IRREGULAR TEETH



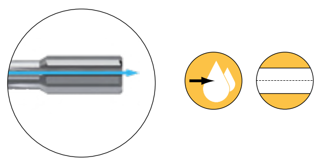
P.462 > Ø2.98

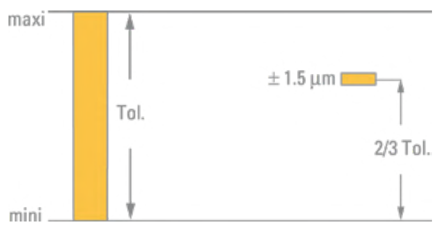
D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
8.40	(8.410)	16	-	8	117	6	A	420541
8.50	(8.510)	16	-	8	117	6	A	420542
8.70	(8.710)	16	-	8	117	6	A	420543
9.00	(9.010)	16	-	8	117	6	A	420544
9.30	(9.310)	16	-	8	117	6	A	420545
9.50	(9.510)	16	-	8	117	6	A	420546
9.70	(9.710)	16	-	8	117	6	A	420547
9.98	(9.990)	16	-	8	117	6	A	420548
9.99	(10.000)	16	-	8	117	6	A	420549
10.00	(10.010)	16	-	8	117	6	A	420550
10.01	(10.022)	16	-	8	117	6	A	420551
10.02	(10.032)	16	-	8	117	6	A	420552
10.04	(10.052)	16	-	8	117	6	A	420553
10.05	(10.062)	16	-	8	117	6	A	420554
10.10	(10.112)	16	-	8	117	6	A	420555
10.40	(10.412)	19	-	10	133	6	A	420556
10.50	(10.512)	19	-	10	133	6	A	420557
10.60	(10.612)	19	-	10	133	6	A	420558
11.00	(11.012)	19	-	10	133	6	A	420559
11.50	(11.512)	19	-	10	133	6	A	420560
11.80	(11.812)	19	-	10	133	6	A	420561
12.00	(12.012)	19	-	10	133	6	A	420562
12.02	(12.032)	19	-	10	133	6	A	420563

All Ø with tolerance ±2µm available through our express-service

POLY 4001

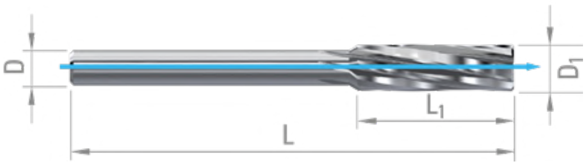
POLY 4001-TC





POLY 4005-TC

HELICAL REAMERS, RIGHT-HAND HELIX RIGHT-HAND CUTTING, IRREGULAR TEETH



P.462

- Solid carbide reamers with right hand helix, right hand cut, irregular theeth and through coolant developed for the machining of blind holes in all kind of materials.
- Better chip removal to the back of the tool compared to straight flutes.
- All Ø with tolerance ±2µm available through our express-service.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom. H7	D_1 ± 1.5 µm	L_1	D_{h5}	L	Z	CARBIDE
2.97	(2.977)	20	2.5	56	4	969074
2.99	(2.997)	20	2.5	56	4	969379
3.00	(3.007)	20	2.5	56	4	969382
3.01	(3.018)	20	2.5	56	4	969398
3.02	(3.028)	20	2.5	56	4	969399
3.05	(3.058)	20	2.5	56	4	969400
3.08	(3.088)	20	2.5	56	4	969401
3.10	(3.108)	20	2.5	56	4	969402
3.11	(3.118)	20	2.5	56	4	969403
3.15	(3.158)	20	2.5	56	4	969404
3.18	(3.188)	20	2.5	56	4	969405
3.20	(3.208)	20	2.5	56	4	969406
3.21	(3.218)	20	2.5	56	4	969407
3.25	(3.258)	20	2.5	56	4	969408
3.28	(3.288)	20	2.5	56	4	969409
3.30	(3.308)	20	2.5	56	4	969410
3.31	(3.318)	20	2.5	56	4	969411
3.35	(3.358)	20	2.5	56	4	969412
3.38	(3.388)	20	2.5	56	4	969413
3.40	(3.408)	20	2.5	56	4	969414
3.41	(3.418)	20	2.5	56	4	969415
3.45	(3.458)	20	2.5	56	4	969416
3.49	(3.498)	20	2.5	56	4	969417
3.50	(3.508)	20	3.0	56	4	969418
3.51	(3.518)	20	3.0	56	4	969421

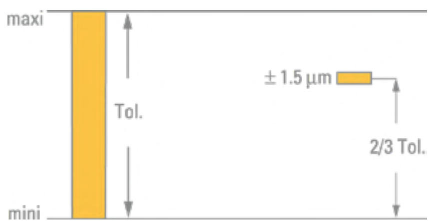
D nom. H7	D_1 ± 1.5 µm	L_1	D_{h5}	L	Z	CARBIDE
3.55	(3.558)	20	3.0	56	4	969422
3.58	(3.588)	20	3.0	56	4	969423
3.60	(3.608)	20	3.0	56	4	969424
3.61	(3.618)	20	3.0	56	4	969425
3.65	(3.658)	20	3.0	56	4	969426
3.68	(3.688)	20	3.0	56	4	969427
3.70	(3.708)	20	3.0	56	4	969428
3.71	(3.718)	20	3.0	56	4	969429
3.75	(3.758)	20	3.0	56	4	969430
3.78	(3.788)	20	3.0	56	4	969431
3.80	(3.808)	20	3.0	56	4	969432
3.85	(3.858)	20	3.0	56	4	969433
3.90	(3.908)	20	3.0	56	4	969434
3.95	(3.958)	20	3.0	56	4	969435
4.00	(4.008)	20	3.0	56	4	969436
4.04	(4.048)	22	3.5	63	6	993718
4.10	(4.108)	22	3.5	63	6	969437
4.20	(4.208)	22	3.5	63	6	969438
4.30	(4.308)	22	3.5	63	6	969439
4.40	(4.408)	22	3.5	63	6	969440
4.50	(4.508)	22	4.0	63	6	969441
4.60	(4.608)	22	4.0	63	6	969442
4.70	(4.708)	22	4.0	63	6	969443
4.80	(4.808)	22	4.0	63	6	969444
4.90	(4.908)	22	4.0	63	6	969445

HELICAL REAMERS, RIGHT-HAND HELIX
RIGHT-HAND CUTTING, IRREGULAR TEETH

P.462

D nom. H7	D_1 ± 1.5 µm	L_1	D_{h5}	L	Z	CARBIDE
5.00	(5.008)	22	4.0	63	6	969446
5.10	(5.108)	22	4.0	63	6	969447
5.20	(5.208)	22	4.0	63	6	969448
5.30	(5.308)	22	4.0	63	6	969449
5.40	(5.408)	22	4.0	63	6	969450
5.50	(5.508)	22	5.0	63	6	969451
5.60	(5.608)	22	5.0	63	6	969452
5.70	(5.708)	22	5.0	63	6	969453
5.80	(5.808)	22	5.0	63	6	969454
5.90	(5.908)	22	5.0	63	6	969455
6.00	(6.008)	22	5.0	63	6	969456
6.10	(6.110)	22	5.0	63	6	969457
6.20	(6.210)	22	5.0	63	6	969458
6.30	(6.310)	22	5.0	63	6	969459
6.40	(6.410)	22	5.0	63	6	969460
6.50	(6.510)	22	5.0	63	6	969461

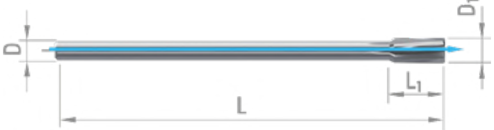
All Ø with tolerance ±2µm available through our express-service



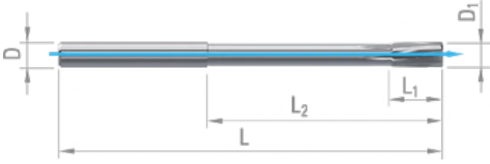
POLY 4007 - 4007-TC

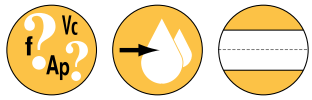
HELICAL REAMERS, LEFT-HAND HELIX RIGHT-HAND CUTTING, IRREGULAR TEETH

Ref. A



Ref. B





P.462 > Ø2.97

- Solid carbide reamers with left hand helix, right hand cut, irregular theeth and through coolant developed for the machining of through holes in all kind of materials.
- Forward chip removal facilitated by the left hand helix.
- All Ø with tolerance ±2µm available through our express-service.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.37	3	5	3	38	3	B	983079
0.38	3	5	3	38	3	B	326999
0.39	3	5	3	38	3	B	969543
0.40	3	5	3	38	3	B	200716
0.41	3	5	3	38	3	B	963823
0.42	3	5	3	38	3	B	200717
0.43	3	5	3	38	3	B	327000
0.44	3	5	3	38	3	B	200718
0.45	3	5	3	38	3	B	965207
0.46	3	5	3	38	3	B	200719
0.47	3	5	3	38	3	B	327001
0.48	3	5	3	38	3	B	200720
0.49	3	5	3	38	3	B	963716
0.50	3	5	3	38	3	B	200746
0.51	4	6	3	38	3	B	200745
0.52	4	6	3	38	3	B	200738
0.53	4	6	3	38	3	B	200742
0.54	4	6	3	38	3	B	200743
0.55	4	6	3	38	3	B	200739
0.56	4	6	3	38	3	B	968834
0.57	4	6	3	38	3	B	973253
0.58	4	6	3	38	3	B	200741
0.59	4	6	3	38	3	B	200744
0.60	4	6	3	38	3	B	200740
0.61	4	7	3	38	3	B	964652
0.62	4	7	3	38	3	B	200750
0.63	4	7	3	38	3	B	327002
0.64	4	7	3	38	3	B	200755
0.65	4	7	3	38	3	B	200748
0.66	4	7	3	38	3	B	200752

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.67	4	7	3	38	3	B	200753
0.68	4	7	3	38	3	B	200751
0.69	4	7	3	38	3	B	200754
0.70	4	7	3	38	3	B	200749
0.71	4	8	3	38	3	B	965167
0.72	4	8	3	38	3	B	200758
0.73	4	8	3	38	3	B	327003
0.74	4	8	3	38	3	B	200762
0.75	4	8	3	38	3	B	200756
0.76	4	8	3	38	3	B	327004
0.77	4	8	3	38	3	B	200760
0.78	4	8	3	38	3	B	200759
0.79	4	8	3	38	3	B	200761
0.80	4	8	3	38	3	B	200757
0.81	5	9	3	38	3	B	965168
0.82	5	9	3	38	3	B	200765
0.83	5	9	3	38	3	B	200769
0.84	5	9	3	38	3	B	200768
0.85	5	9	3	38	3	B	200763
0.86	5	9	3	38	3	B	200770
0.87	5	9	3	38	3	B	200771
0.88	5	9	3	38	3	B	200766
0.89	5	9	3	38	3	B	200767
0.90	5	9	3	38	3	B	200764
0.91	5	10	3	38	3	B	200733
0.92	5	10	3	38	3	B	200729
0.93	5	10	3	38	3	B	327005
0.94	5	10	3	38	3	B	327006
0.95	5	10	3	38	3	B	200728
0.96	5	10	3	38	3	B	200730

POLY 4007 - 4007-TC

HELICAL REAMERS, LEFT-HAND HELIX
RIGHT-HAND CUTTING, IRREGULAR TEETH

P.462 > Ø2.97

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
0.97	5	10	3	38	3	B	200731
0.98	5	10	3	38	3	B	200726
0.99	5	10	3	38	3	B	200727
1.00	5	10	3	38	3	B	200732
1.01	5	11	3	38	3	B	200715
1.02	5	11	3	38	3	B	200772
1.03	5	11	3	38	3	B	967191
1.04	5	11	3	38	3	B	327007
1.05	5	11	3	38	3	B	200773
1.06	5	11	3	38	3	B	327008
1.07	5	11	3	38	3	B	327009
1.08	5	11	3	38	3	B	200774
1.09	5	11	3	38	3	B	965169
1.10	5	11	3	38	3	B	200777
1.11	5	12	3	38	3	B	327010
1.12	5	12	3	38	3	B	327011
1.13	5	12	3	38	3	B	327012
1.14	5	12	3	38	3	B	327013
1.15	5	12	3	38	3	B	200775
1.16	5	12	3	38	3	B	327014
1.17	5	12	3	38	3	B	327015
1.18	5	12	3	38	3	B	63965
1.19	5	12	3	38	3	B	327016
1.20	5	12	3	38	3	B	200776
1.21	6	13	3	38	3	B	965171
1.22	6	13	3	38	3	B	327017
1.23	6	13	3	38	3	B	327018
1.24	6	13	3	38	3	B	327019
1.25	6	13	3	38	3	B	200778
1.26	6	13	3	38	3	B	963588
1.27	6	13	3	38	3	B	972014
1.28	6	13	3	38	3	B	200780
1.29	6	13	3	38	3	B	327020
1.30	6	13	3	38	3	B	200779
1.31	6	13	3	38	3	B	967299
1.32	6	13	3	38	3	B	327021
1.33	6	13	3	38	3	B	327022
1.34	6	13	3	38	3	B	973390
1.35	6	13	3	38	3	B	200734
1.36	6	13	3	38	3	B	327023
1.37	6	13	3	38	3	B	327024
1.38	6	13	3	38	3	B	327025
1.39	6	13	3	38	3	B	327026
1.40	6	13	3	38	3	B	200735
1.41	7	15	3	38	3	B	327027
1.42	7	15	3	38	3	B	327028
1.43	7	15	3	38	3	B	327029

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
1.44	7	15	3	38	3	B	327030
1.45	7	15	3	38	3	B	200783
1.46	7	15	3	38	3	B	327031
1.47	7	15	3	38	3	B	327032
1.48	7	15	3	38	3	B	200781
1.49	7	15	3	38	3	B	200782
1.50	7	15	3	38	3	B	200784
1.51	7	15	3	50	3	B	200787
1.52	7	15	3	50	3	B	200788
1.53	7	15	3	50	3	B	327033
1.54	7	15	3	50	3	B	327034
1.55	7	15	3	50	3	B	200692
1.56	7	15	3	50	3	B	976176
1.57	7	15	3	50	3	B	964655
1.58	7	15	3	50	3	B	63966
1.59	7	15	3	50	3	B	965174
1.60	7	15	3	50	3	B	200794
1.61	7	16	3	50	3	B	965175
1.62	7	16	3	50	3	B	327035
1.63	7	16	3	50	3	B	327036
1.64	7	16	3	50	3	B	327037
1.65	7	16	3	50	3	B	200691
1.66	7	16	3	50	3	B	327038
1.67	7	16	3	50	3	B	327039
1.68	7	16	3	50	3	B	327040
1.69	7	16	3	50	3	B	965209
1.70	7	16	3	50	3	B	200693
1.71	7	17	3	50	3	B	327041
1.72	7	17	3	50	3	B	327042
1.73	7	17	3	50	3	B	327043
1.74	7	17	3	50	3	B	327044
1.75	7	17	3	50	3	B	200694
1.76	7	17	3	50	3	B	327045
1.77	7	17	3	50	3	B	327046
1.78	7	17	3	50	3	B	327047
1.79	7	17	3	50	3	B	200713
1.80	7	17	3	50	3	B	200795
1.81	8	17	3	50	3	B	327048
1.82	8	17	3	50	3	B	327049
1.83	8	17	3	50	3	B	971471
1.84	8	17	3	50	3	B	327050
1.85	8	17	3	50	3	B	200796
1.86	8	17	3	50	3	B	972720
1.87	8	17	3	50	3	B	964530
1.88	8	17	3	50	3	B	971918
1.89	8	17	3	50	3	B	200704
1.90	8	17	3	50	3	B	20079

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HELICAL REAMERS, LEFT-HAND HELIX
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$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
1.91	8	18	3	50	3	B	965177
1.92	8	18	3	50	3	B	327051
1.93	8	18	3	50	3	B	327052
1.94	8	18	3	50	3	B	327053
1.95	8	18	3	50	3	B	200682
1.96	8	18	3	50	3	B	200712
1.97	8	18	3	50	3	B	200789
1.98	8	18	3	50	3	B	200790
1.99	8	18	3	50	3	B	200791
2.00	8	18	3	50	3	B	200785
2.01	8	18	3	50	3	B	200792
2.02	8	18	3	50	3	B	200793
2.03	8	18	3	50	3	B	327054
2.04	8	18	3	50	3	B	200714
2.05	8	18	3	50	3	B	200688
2.06	8	18	3	50	3	B	327055
2.07	8	18	3	50	3	B	327056
2.08	8	18	3	50	3	B	327057
2.09	8	18	3	50	3	B	968093
2.10	8	18	3	50	3	B	200711
2.11	8	18	3	50	3	B	327058
2.12	8	18	3	50	3	B	968735
2.13	8	18	3	50	3	B	327059
2.14	8	18	3	50	3	B	968737
2.15	8	18	3	50	3	B	200687
2.16	8	18	3	50	3	B	327060
2.17	8	18	3	50	3	B	327061
2.18	8	18	3	50	3	B	327062
2.19	8	18	3	50	3	B	967119
2.20	8	18	3	50	3	B	200706
2.21	8	18	3	50	3	B	327063
2.22	8	18	3	50	3	B	327064
2.23	8	18	3	50	3	B	327065
2.24	8	18	3	50	3	B	327066
2.25	8	18	3	50	3	B	200686
2.26	8	18	3	50	3	B	327067
2.27	8	18	3	50	3	B	327068
2.28	8	18	3	50	3	B	327069
2.29	8	18	3	50	3	B	327070
2.30	8	18	3	50	3	B	200698
2.31	10	20	3	50	3	B	327071
2.32	10	20	3	50	3	B	200702
2.33	10	20	3	50	3	B	327072
2.34	10	20	3	50	3	B	327073
2.35	10	20	3	50	3	B	200697
2.36	10	20	3	50	3	B	327074
2.37	10	20	3	50	3	B	327075
2.38	10	20	3	50	3	B	327076
2.39	10	20	3	50	3	B	327077
2.40	10	20	3	50	3	B	200696
2.41	10	20	3	50	3	B	972007
2.42	10	20	3	50	3	B	327078
2.43	10	20	3	50	3	B	327079
2.44	10	20	3	50	3	B	327080
2.45	10	20	3	50	3	B	200695
2.46	10	20	3	50	3	B	327081
2.47	10	20	3	50	3	B	327082
2.48	10	20	3	50	3	B	200707
2.49	10	20	3	50	3	B	200708
2.50	10	20	3	50	3	B	200786
2.51	10	20	3	61	4	B	200709
2.52	10	20	3	61	4	B	200710
2.53	10	20	3	61	4	B	327083
2.54	10	20	3	61	4	B	327084
2.55	10	20	3	61	4	B	200685
2.56	10	20	3	61	4	B	327085
2.57	10	20	3	61	4	B	327086
2.58	10	20	3	61	4	B	327087
2.59	10	20	3	61	4	B	327088
2.60	10	20	3	61	4	B	200684
2.61	10	25	3	61	4	B	327089
2.62	10	25	3	61	4	B	327090
2.63	10	25	3	61	4	B	327091
2.64	10	25	3	61	4	B	327092
2.65	10	25	3	61	4	B	200683
2.66	10	25	3	61	4	B	327093
2.67	10	25	3	61	4	B	200703
2.68	10	25	3	61	4	B	327094
2.69	10	25	3	61	4	B	327095
2.70	10	25	3	61	4	B	200690
2.71	10	25	3	61	4	B	327096
2.72	10	25	3	61	4	B	327097
2.73	10	25	3	61	4	B	327098
2.74	10	25	3	61	4	B	327099
2.75	10	25	3	61	4	B	200689
2.76	10	25	3	61	4	B	327100
2.77	10	25	3	61	4	B	327101
2.78	10	25	3	61	4	B	327102
2.79	10	25	3	61	4	B	327103
2.80	10	25	3	61	4	B	200705
2.81	10	25	3	61	4	B	327104
2.82	10	25	3	61	4	B	327105
2.83	10	25	3	61	4	B	327106
2.84	10	25	3	61	4	B	327107

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$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
2.85	10	25	3	61	4	B	200699
2.86	10	25	3	61	4	B	327108
2.87	10	25	3	61	4	B	327109
2.88	10	25	3	61	4	B	327110
2.89	10	25	3	61	4	B	327111
2.90	10	25	3	61	4	B	200700
2.91	10	25	3	61	4	B	327112
2.92	10	25	3	61	4	B	327113
2.93	10	25	3	61	4	B	327114
2.94	10	25	3	61	4	B	327115
2.95	10	25	3	61	4	B	200701
2.96	10	25	3	61	4	B	327116
2.97	10	25	3	61	4	B	200747
2.98	10	25	3	70	6	B	321524
2.99	10	25	3	70	6	B	321525
3.00	10	25	3	70	6	B	321526
3.01	10	25	3	70	6	B	321527
3.02	10	25	3	70	6	B	321528
3.03	10	25	3	70	6	B	321529
3.04	10	25	3	70	6	B	321530
3.05	10	25	3	70	6	B	321531
3.06	10	25	3	70	6	B	321532
3.07	10	25	3	70	6	B	321533
3.08	10	25	3	70	6	B	321534
3.09	10	25	3	70	6	B	321535
3.10	10	-	3	70	6	A	321536
3.11	10	-	3	70	6	A	321537
3.12	10	-	3	70	6	A	321538
3.13	10	-	3	70	6	A	321539
3.14	10	-	3	70	6	A	321540
3.15	10	-	3	70	6	A	321541
3.16	10	-	3	70	6	A	321542
3.17	10	-	3	70	6	A	321543
3.18	10	-	3	70	6	A	321544
3.19	10	-	3	70	6	A	321545
3.20	10	-	3	70	6	A	321546
3.21	10	-	3	70	6	A	321547
3.22	10	-	3	70	6	A	321548
3.23	10	-	3	70	6	A	321549
3.24	10	-	3	70	6	A	321550
3.25	10	-	3	70	6	A	321551
3.26	10	-	3	70	6	A	321552
3.27	10	-	3	70	6	A	321553
3.28	10	-	3	70	6	A	321554
3.29	10	-	3	70	6	A	321555
3.30	10	-	3	70	6	A	321556
3.31	10	-	3	70	6	A	321557

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
3.32	10	-	3	70	6	A	321558
3.33	10	-	3	70	6	A	321559
3.34	10	-	3	70	6	A	321560
3.35	10	-	3	70	6	A	321561
3.36	10	-	3	70	6	A	321562
3.37	10	-	3	70	6	A	321563
3.38	10	-	3	70	6	A	321564
3.39	10	-	3	70	6	A	321565
3.40	10	-	3	70	6	A	321566
3.41	10	-	3	70	6	A	321567
3.42	10	-	3	70	6	A	321568
3.43	10	-	3	70	6	A	321569
3.44	10	-	3	70	6	A	321570
3.45	10	-	3	70	6	A	321571
3.46	10	-	3	70	6	A	321572
3.47	10	-	3	70	6	A	321573
3.48	10	-	3	70	6	A	321574
3.49	10	-	3	70	6	A	321575
3.50	10	-	3	70	6	A	321576
3.51	10	-	3	70	6	A	321577
3.52	10	-	3	70	6	A	321578
3.53	10	-	3	70	6	A	321579
3.54	10	-	3	70	6	A	321580
3.55	10	-	3	70	6	A	321581
3.56	10	-	3	70	6	A	321582
3.57	10	-	3	70	6	A	321583
3.58	10	-	3	70	6	A	321584
3.59	10	-	3	70	6	A	321585
3.60	10	-	3	70	6	A	321586
3.61	10	-	3	70	6	A	321587
3.62	10	-	3	70	6	A	321588
3.63	10	-	3	70	6	A	321589
3.64	10	-	3	70	6	A	321590
3.65	10	-	3	70	6	A	321591
3.66	10	-	3	70	6	A	321592
3.67	10	-	3	70	6	A	321593
3.68	10	-	3	70	6	A	321594
3.69	10	-	3	70	6	A	321595
3.70	10	-	3	70	6	A	321596
3.71	10	-	3	70	6	A	321597
3.72	10	-	3	70	6	A	321598
3.73	10	-	3	70	6	A	321599
3.74	10	-	3	70	6	A	321600
3.75	10	-	3	70	6	A	321601
3.76	10	-	3	70	6	A	321602
3.77	10	-	3	70	6	A	321603
3.78	10	-	3	70	6	A	321604

HELICAL REAMERS, LEFT-HAND HELIX RIGHT-HAND CUTTING, IRREGULAR TEETH

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$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
3.79	10	-	3	70	6	A	321605
3.80	10	-	3	70	6	A	321606
3.81	10	-	3	70	6	A	321607
3.82	10	-	3	70	6	A	321608
3.83	10	-	3	70	6	A	321609
3.84	10	-	3	70	6	A	321610
3.85	10	-	3	70	6	A	321611
3.86	10	-	3	70	6	A	321612
3.87	10	-	3	70	6	A	321613
3.88	10	-	3	70	6	A	321614
3.89	10	-	3	70	6	A	321615
3.90	10	-	3	70	6	A	321616
3.91	10	-	3	70	6	A	321617
3.92	10	-	3	70	6	A	321618
3.93	10	-	3	70	6	A	321619
3.94	10	-	3	70	6	A	321620
3.95	10	-	3	70	6	A	321621
3.96	10	-	3	70	6	A	321622
3.97	10	-	3	70	6	A	321623
3.98	10	-	3	70	6	A	321624
3.99	10	-	3	70	6	A	321625
4.00	10	-	3	70	6	A	321626
4.01	10	-	3	70	6	A	321627
4.02	10	-	3	70	6	A	321628
4.03	10	-	3	70	6	A	321629
4.04	10	-	3	70	6	A	321630
4.05	10	-	3	70	6	A	321631
4.06	10	-	3	70	6	A	321632
4.07	10	-	3	70	6	A	321633
4.08	10	-	3	70	6	A	321634
4.09	10	-	3	70	6	A	321635
4.10	10	-	3	70	6	A	420564
4.11	10	-	3	70	6	A	420565
4.12	10	-	3	70	6	A	420566
4.13	10	-	3	70	6	A	420567
4.14	10	-	3	70	6	A	420568
4.15	10	-	3	70	6	A	420569
4.16	10	-	3	70	6	A	420570
4.17	10	-	3	70	6	A	420571
4.18	10	-	3	70	6	A	420572
4.19	10	-	3	70	6	A	420573
4.20	12	-	4	80	6	A	321646
4.21	12	-	4	80	6	A	321647
4.22	12	-	4	80	6	A	321648
4.23	12	-	4	80	6	A	321649
4.24	12	-	4	80	6	A	321650
4.25	12	-	4	80	6	A	321651

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
4.26	12	-	4	80	6	A	321652
4.27	12	-	4	80	6	A	321653
4.28	12	-	4	80	6	A	321654
4.29	12	-	4	80	6	A	321655
4.30	12	-	4	80	6	A	321656
4.31	12	-	4	80	6	A	321657
4.32	12	-	4	80	6	A	321658
4.33	12	-	4	80	6	A	321659
4.34	12	-	4	80	6	A	321660
4.35	12	-	4	80	6	A	321661
4.36	12	-	4	80	6	A	321662
4.37	12	-	4	80	6	A	321663
4.38	12	-	4	80	6	A	321664
4.39	12	-	4	80	6	A	321665
4.40	12	-	4	80	6	A	321666
4.41	12	-	4	80	6	A	321667
4.42	12	-	4	80	6	A	321668
4.43	12	-	4	80	6	A	321669
4.44	12	-	4	80	6	A	321670
4.45	12	-	4	80	6	A	321671
4.46	12	-	4	80	6	A	321672
4.47	12	-	4	80	6	A	321673
4.48	12	-	4	80	6	A	321674
4.49	12	-	4	80	6	A	321675
4.50	12	-	4	80	6	A	321676
4.51	12	-	4	80	6	A	321677
4.52	12	-	4	80	6	A	321678
4.53	12	-	4	80	6	A	321679
4.54	12	-	4	80	6	A	321680
4.55	12	-	4	80	6	A	321681
4.56	12	-	4	80	6	A	321682
4.57	12	-	4	80	6	A	321683
4.58	12	-	4	80	6	A	321684
4.59	12	-	4	80	6	A	321685
4.60	12	-	4	80	6	A	321686
4.61	12	-	4	80	6	A	321687
4.62	12	-	4	80	6	A	321688
4.63	12	-	4	80	6	A	321689
4.64	12	-	4	80	6	A	321690
4.65	12	-	4	80	6	A	321691
4.66	12	-	4	80	6	A	321692
4.67	12	-	4	80	6	A	321693
4.68	12	-	4	80	6	A	321694
4.69	12	-	4	80	6	A	321695
4.70	12	-	4	80	6	A	321696
4.71	12	-	4	80	6	A	321697
4.72	12	-	4	80	6	A	321698

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HELICAL REAMERS, LEFT-HAND HELIX
RIGHT-HAND CUTTING, IRREGULAR TEETH

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$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
4.73	12	-	4	80	6	A	321699
4.74	12	-	4	80	6	A	321700
4.75	12	-	4	80	6	A	321701
4.76	12	-	4	80	6	A	321702
4.77	12	-	4	80	6	A	321703
4.78	12	-	4	80	6	A	321704
4.79	12	-	4	80	6	A	321705
4.80	12	-	4	80	6	A	321706
4.81	12	-	4	80	6	A	321707
4.82	12	-	4	80	6	A	321708
4.83	12	-	4	80	6	A	321709
4.84	12	-	4	80	6	A	321710
4.85	12	-	4	80	6	A	321711
4.86	12	-	4	80	6	A	321712
4.87	12	-	4	80	6	A	321713
4.88	12	-	4	80	6	A	321714
4.89	12	-	4	80	6	A	321715
4.90	12	-	4	80	6	A	321716
4.91	12	-	4	80	6	A	321717
4.92	12	-	4	80	6	A	321718
4.93	12	-	4	80	6	A	321719
4.94	12	-	4	80	6	A	321720
4.95	12	-	4	80	6	A	321721
4.96	12	-	4	80	6	A	321722
4.97	12	-	4	80	6	A	321723
4.98	12	-	4	80	6	A	321724
4.99	12	-	4	80	6	A	321725
5.00	12	-	4	80	6	A	321726
5.01	12	-	4	80	6	A	321727
5.02	12	-	4	80	6	A	321728
5.03	12	-	4	80	6	A	321729
5.04	12	-	4	80	6	A	321730
5.05	12	-	4	80	6	A	321731
5.06	12	-	4	80	6	A	321732
5.07	12	-	4	80	6	A	321733
5.08	12	-	4	80	6	A	321734
5.09	12	-	4	80	6	A	321735
5.10	12	-	4	80	6	A	321736
5.11	12	-	4	80	6	A	321737
5.12	12	-	4	80	6	A	321738
5.13	12	-	4	80	6	A	321739
5.14	12	-	4	80	6	A	321740
5.15	12	-	4	80	6	A	321741
5.16	12	-	4	80	6	A	321742
5.17	12	-	4	80	6	A	321743
5.18	12	-	4	80	6	A	321744
5.19	12	-	4	80	6	A	321745
5.20	12	-	4	80	6	A	321746
5.21	12	-	4	80	6	A	321747
5.22	12	-	4	80	6	A	321748
5.23	12	-	4	80	6	A	321749
5.24	12	-	4	80	6	A	321750
5.25	12	-	4	80	6	A	321751
5.26	12	-	4	80	6	A	321752
5.27	12	-	4	80	6	A	321753
5.28	12	-	4	80	6	A	321754
5.29	12	-	4	80	6	A	321755
5.30	12	-	4	80	6	A	321756
5.31	12	-	4	80	6	A	321757
5.32	12	-	4	80	6	A	321758
5.33	12	-	4	80	6	A	321759
5.34	12	-	4	80	6	A	321760
5.35	12	-	4	80	6	A	321761
5.36	12	-	4	80	6	A	321762
5.37	12	-	4	80	6	A	321763
5.38	12	-	4	80	6	A	321764
5.39	12	-	4	80	6	A	321765
5.40	12	-	4	80	6	A	321766
5.41	12	-	4	80	6	A	321767
5.42	12	-	4	80	6	A	321768
5.43	12	-	4	80	6	A	321769
5.44	12	-	4	80	6	A	321770
5.45	12	-	4	80	6	A	321771
5.46	12	-	4	80	6	A	321772
5.47	12	-	4	80	6	A	321773
5.48	12	-	4	80	6	A	321774
5.49	12	-	4	80	6	A	321775
5.50	12	-	4	80	6	A	321776
5.51	12	-	4	80	6	A	321777
5.52	12	-	4	80	6	A	321778
5.53	12	-	4	80	6	A	321779
5.54	12	-	4	80	6	A	321780
5.55	12	-	4	80	6	A	321781
5.56	12	-	4	80	6	A	321782
5.57	12	-	4	80	6	A	321783
5.58	12	-	4	80	6	A	321784
5.59	12	-	4	80	6	A	321785
5.60	12	-	4	80	6	A	321786
5.61	12	-	4	80	6	A	321787
5.62	12	-	4	80	6	A	321788
5.63	12	-	4	80	6	A	321789
5.64	12	-	4	80	6	A	321790
5.65	12	-	4	80	6	A	321791
5.66	12	-	4	80	6	A	321792

POLY 4007 - 4007-TC

HELICAL REAMERS, LEFT-HAND HELIX
RIGHT-HAND CUTTING, IRREGULAR TEETH

P.462

> Ø2.97

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
5.67	12	-	4	80	6	A	321793
5.68	12	-	4	80	6	A	321794
5.69	12	-	4	80	6	A	321795
5.70	12	-	4	80	6	A	321796
5.71	12	-	4	80	6	A	321797
5.72	12	-	4	80	6	A	321798
5.73	12	-	4	80	6	A	321799
5.74	12	-	4	80	6	A	321800
5.75	12	-	4	80	6	A	321801
5.76	12	-	4	80	6	A	321802
5.77	12	-	4	80	6	A	321803
5.78	12	-	4	80	6	A	321804
5.79	12	-	4	80	6	A	321805
5.80	12	-	4	80	6	A	321806
5.81	12	-	4	80	6	A	321807
5.82	12	-	4	80	6	A	321808
5.83	12	-	4	80	6	A	321809
5.84	12	-	4	80	6	A	321810
5.85	12	-	4	80	6	A	321811
5.86	12	-	4	80	6	A	321812
5.87	12	-	4	80	6	A	321813
5.88	12	-	4	80	6	A	321814
5.89	12	-	4	80	6	A	321815
5.90	12	-	4	80	6	A	321816
5.91	12	-	4	80	6	A	321817
5.92	12	-	4	80	6	A	321818
5.93	12	-	4	80	6	A	321819
5.94	12	-	4	80	6	A	321820
5.95	12	-	4	80	6	A	321821
5.96	12	-	4	80	6	A	321822
5.97	12	-	4	80	6	A	321823
5.98	12	-	4	80	6	A	321824
5.99	12	-	4	80	6	A	321825
6.00	12	-	4	80	6	A	321826
6.01	12	-	4	80	6	A	321827
6.02	12	-	4	80	6	A	321828
6.03	12	-	4	80	6	A	321829
6.04	12	-	4	80	6	A	321830
6.05	12	-	4	80	6	A	321831
6.06	12	-	4	80	6	A	321832
6.07	12	-	4	80	6	A	321833
6.08	12	-	4	80	6	A	321834
6.09	12	-	4	80	6	A	321835
6.10	12	-	4	80	6	A	321836
6.11	12	-	4	80	6	A	321837
6.12	12	-	4	80	6	A	321838
6.13	12	-	4	80	6	A	321839

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
6.14	12	-	4	80	6	A	321840
6.15	12	-	4	80	6	A	321841
6.16	12	-	4	80	6	A	321842
6.17	12	-	4	80	6	A	321843
6.18	12	-	4	80	6	A	321844
6.19	12	-	4	80	6	A	321845
6.20	16	-	6	101	6	A	342052
6.30	16	-	6	101	6	A	342062
6.40	16	-	6	101	6	A	342072
6.50	16	-	6	101	6	A	342082
6.51	16	-	6	101	6	A	342083
6.52	16	-	6	101	6	A	342084
6.60	16	-	6	101	6	A	342092
6.70	16	-	6	101	6	A	342102
6.80	16	-	6	101	6	A	342112
6.90	16	-	6	101	6	A	342122
7.00	16	-	6	101	6	A	342132
7.01	16	-	6	101	6	A	342133
7.02	16	-	6	101	6	A	342134
7.10	16	-	6	101	6	A	342142
7.20	16	-	6	101	6	A	342152
7.30	16	-	6	101	6	A	342162
7.40	16	-	6	101	6	A	342172
7.50	16	-	6	101	6	A	342182
7.51	16	-	6	101	6	A	342183
7.52	16	-	6	101	6	A	342184
7.60	16	-	6	101	6	A	342192
7.70	16	-	6	101	6	A	342202
7.80	16	-	6	101	6	A	342212
7.90	16	-	6	101	6	A	342222
7.98	16	-	6	101	6	A	342230
7.99	16	-	6	101	6	A	342231
8.00	16	-	6	101	6	A	342232
8.01	16	-	6	101	6	A	342233
8.02	16	-	6	101	6	A	342234
8.10	16	-	6	101	6	A	420574
8.20	16	-	8	117	6	A	420575
8.30	16	-	8	117	6	A	420576
8.40	16	-	8	117	6	A	420577
8.50	16	-	8	117	6	A	420578
8.51	16	-	8	117	6	A	420579
8.52	16	-	8	117	6	A	420580
8.70	16	-	8	117	6	A	420581
8.90	16	-	8	117	6	A	420582
9.00	16	-	8	117	6	A	420583
9.01	16	-	8	117	6	A	420584
9.02	16	-	8	117	6	A	420585

POLY 4007 - 4007-TC

HELICAL REAMERS, LEFT-HAND HELIX
RIGHT-HAND CUTTING, IRREGULAR TEETH

P.462

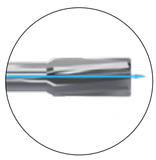
> Ø2.97

$D_{1\ 0/+0.003}$	L_1	L_2	D_{h5}	L	Z	Ref.	CARBIDE
9.10	16	-	8	117	6	A	420586
9.50	16	-	8	117	6	A	420587
9.70	16	-	8	117	6	A	420588
10.00	16	-	8	117	6	A	420589
10.01	16	-	8	117	6	A	420590
10.02	16	-	8	117	6	A	420591
10.03	16	-	8	117	6	A	420592
10.10	16	-	8	117	6	A	420593
10.48	19	-	10	133	6	A	420594
10.49	19	-	10	133	6	A	420595
10.50	19	-	10	133	6	A	420596
10.51	19	-	10	133	6	A	420597
10.52	19	-	10	133	6	A	420598
10.60	19	-	10	133	6	A	420599
10.98	19	-	10	133	6	A	420600
10.99	19	-	10	133	6	A	420601
11.00	19	-	10	133	6	A	420602
11.01	19	-	10	133	6	A	420603
11.02	19	-	10	133	6	A	420604
11.48	19	-	10	133	6	A	420605
11.49	19	-	10	133	6	A	420606
11.50	19	-	10	133	6	A	420607
11.51	19	-	10	133	6	A	420608
11.52	19	-	10	133	6	A	420609
11.80	19	-	10	133	6	A	420610
11.98	19	-	10	133	6	A	420611
11.99	19	-	10	133	6	A	420612
12.00	19	-	10	133	6	A	420613
12.01	19	-	10	133	6	A	420614
12.02	19	-	10	133	6	A	420615

All Ø with tolerance ±2µm available through our express-service

POLY 4007

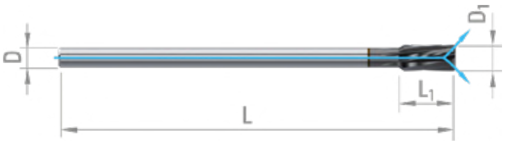
POLY 4007-TC



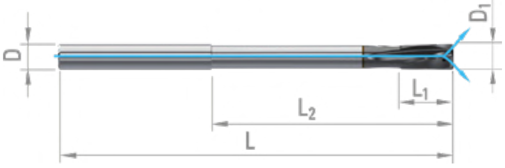
POLY 4008-FC

HELICAL REAMERS, LEFT-HAND HELIX RIGHT-HAND CUT

Ref. A



Ref. B



P.462 > Ø2.50

- Solid carbide reamers with left hand helix, right hand cut, irregular theeth and coolant in the flutes developed for the machining of through holes in all kind of materials.
- Forward chip removal facilitated by the left hand helix.
- The extra smooth POLYCUT coating improves tool life even at high temperatures in difficult to machine materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	POLYCUT
2.50	(2.507)	10	25	3	70	4	B	416681
2.51	(2.517)	10	25	3	70	4	B	416682
2.52	(2.527)	10	25	3	70	4	B	416683
2.53	(2.537)	10	25	3	70	4	B	416684
2.60	(2.607)	10	25	3	70	4	B	416685
2.70	(2.707)	10	25	3	70	4	B	416686
2.80	(2.807)	10	25	3	70	4	B	416687
2.90	(2.907)	10	25	3	70	4	B	416688
2.97	(2.977)	10	25	3	70	4	B	416689
2.98	(2.987)	10	25	3	70	4	B	416690
2.99	(2.997)	10	25	3	70	4	B	416691
3.00	(3.007)	10	25	3	70	4	B	416692
3.01	(3.018)	10	25	3	70	4	B	416693
3.02	(3.028)	10	25	3	70	4	B	416694
3.03	(3.038)	10	25	3	70	4	B	416695
3.10	(3.108)	10	25	3	70	4	B	416696
3.20	(3.208)	10	-	3	70	4	A	416697
3.30	(3.308)	10	-	3	70	4	A	416698
3.40	(3.408)	10	-	3	70	4	A	416699
3.50	(3.508)	10	-	3	70	4	A	416700
3.60	(3.608)	10	-	3	70	4	A	416701
3.70	(3.708)	10	-	3	70	4	A	416702
3.80	(3.808)	10	-	3	70	4	A	416703
3.90	(3.908)	10	-	3	70	4	A	416704
3.97	(3.978)	10	-	3	70	4	A	416705
3.98	(3.988)	10	-	3	70	4	A	416706
3.99	(3.998)	10	-	3	70	4	A	416707
4.00	(4.008)	10	-	3	70	4	A	416708
4.01	(4.018)	10	-	3	70	4	A	416709
4.02	(4.028)	10	-	3	70	4	A	416710

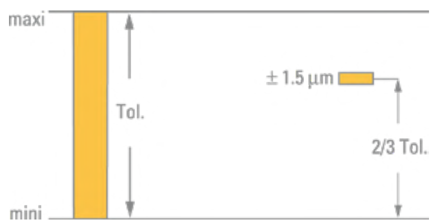
D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	POLYCUT
4.03	(4.038)	10	-	3	70	4	A	416711
4.50	(4.508)	12	-	4	80	4	A	416712
4.97	(4.978)	12	-	4	80	4	A	416713
4.98	(4.988)	12	-	4	80	4	A	416714
4.99	(4.998)	12	-	4	80	4	A	416715
5.00	(5.008)	12	-	4	80	4	A	416716
5.01	(5.018)	12	-	4	80	4	A	416717
5.02	(5.028)	12	-	4	80	4	A	416718
5.03	(5.038)	12	-	4	80	4	A	416719
5.50	(5.508)	12	-	4	80	4	A	416720
5.97	(5.978)	12	-	4	80	4	A	416721
5.98	(5.988)	12	-	4	80	4	A	416722
5.99	(5.998)	12	-	4	80	4	A	416723
6.00	(6.008)	12	-	4	80	4	A	416724
6.01	(6.020)	12	-	4	80	4	A	416725
6.02	(6.030)	12	-	4	80	4	A	416726
6.03	(6.040)	12	-	4	80	4	A	416727
6.50	(6.510)	16	-	6	101	6	A	416728
6.97	(6.980)	16	-	6	101	6	A	416729
6.98	(6.990)	16	-	6	101	6	A	416730
6.99	(7.000)	16	-	6	101	6	A	416731
7.00	(7.010)	16	-	6	101	6	A	416732
7.01	(7.020)	16	-	6	101	6	A	416733
7.02	(7.030)	16	-	6	101	6	A	416734
7.03	(7.040)	16	-	6	101	6	A	416735
7.50	(7.510)	16	-	6	101	6	A	416736
7.97	(7.980)	16	-	6	101	6	A	416737
7.98	(7.990)	16	-	6	101	6	A	416738
7.99	(8.000)	16	-	6	101	6	A	416739
8.00	(8.010)	16	-	6	101	6	A	416740

POLY 4008-FC

HELICAL REAMERS, LEFT-HAND HELIX RIGHT-HAND CUT

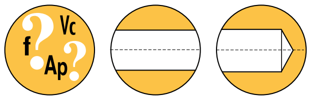
P.462 > Ø2.50

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h5}	L	Z	Ref.	POLYCUT
8.01	(8.020)	16	-	6	101	6	A	416741
8.02	(8.030)	16	-	6	101	6	A	416742
8.03	(8.040)	16	-	6	101	6	A	416743
8.50	(8.510)	16	-	8	117	6	A	416744
8.97	(8.980)	16	-	8	117	6	A	416745
8.98	(8.990)	16	-	8	117	6	A	416746
8.99	(9.000)	16	-	8	117	6	A	416747
9.00	(9.010)	16	-	8	117	6	A	416748
9.01	(9.020)	16	-	8	117	6	A	416749
9.02	(9.030)	16	-	8	117	6	A	416750
9.03	(9.040)	16	-	8	117	6	A	416751
9.50	(9.510)	16	-	8	117	6	A	421557
9.97	(9.980)	16	-	8	117	6	A	416752
9.98	(9.990)	16	-	8	117	6	A	416753
9.99	(10.000)	16	-	8	117	6	A	416754
10.00	(10.010)	16	-	8	117	6	A	416755
10.01	(10.022)	16	-	8	117	6	A	416756
10.02	(10.032)	16	-	8	117	6	A	416757
10.03	(10.042)	16	-	8	117	6	A	416758
10.50	(10.512)	19	-	10	133	6	A	416759
10.97	(10.982)	19	-	10	133	6	A	416760
10.98	(10.992)	19	-	10	133	6	A	416761
10.99	(11.002)	19	-	10	133	6	A	416762
11.00	(11.012)	19	-	10	133	6	A	416763
11.01	(11.022)	19	-	10	133	6	A	416764
11.02	(11.032)	19	-	10	133	6	A	416765
11.03	(11.042)	19	-	10	133	6	A	416766
11.50	(11.512)	19	-	10	133	6	A	416767
11.97	(11.982)	19	-	10	133	6	A	416768
11.98	(12.992)	19	-	10	133	6	A	416769
11.99	(12.002)	19	-	10	133	6	A	416770
12.00	(12.012)	19	-	10	133	6	A	416771
12.01	(12.022)	19	-	10	133	6	A	416772
12.02	(12.032)	19	-	10	133	6	A	416773
12.03	(12.042)	19	-	10	133	6	A	416774

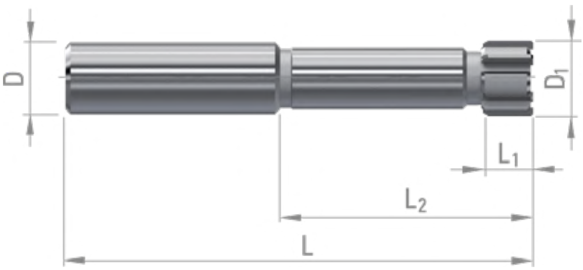


POLY 4361

EXPANSIBLE REAMERS



P.464



- Expandable tipped reamers developed for the machining of blind and through holes in all kind of materials.
- The expansion system compensates the tool wear.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h6}	L	Z	**POLY**	CARBIDE	TiAlN	CERMET
6.00	(6.006)	10	40	12	80	4	4361 4361-TC 4361-FC	61859 61883 326753	965576 341107 955517	963287 964213 955527
7.00	(7.007)	10	40	12	80	4	4361 4361-TC 4361-FC	63863 341082 977363	341096 341108 955518	341122 964215 955528
8.00	(8.007)	10	40	12	80	4	4361 4361-TC 4361-FC	61860 61884 966766	341097 958621 955519	61594 62263 955529
9.00	(9.007)	10	50	12	90	4	4361 4361-TC 4361-FC	954994 974647 969137	341098 341109 955520	341123 61671 955530
10.00	(10.007)	10	50	12	90	6	4361 4361-TC 4361-FC	61666 61885 970436	987470 985270 955521	971287 305651 955531
11.00	(11.009)	10	50	12	100	6	4361 4361-TC 4361-FC	953002 341083 341089	341099 341110 982623	341124 952860 957205
12.00	(12.009)	10	50	12	100	6	4361 4361-TC 4361-FC	61862 61886 961924	953717 957400 955522	956390 61823 955532
13.00	(13.009)	10	50	12	100	6	4361 4361-TC 4361-FC	953441 951466 956383	953899 62899 994806	341125 951704 341139
14.00	(14.009)	10	50	12	100	6	4361 4361-TC 4361-FC	61709 61045 965308	950932 957939 955523	341126 64881 955533
15.00	(15.009)	14	50	12	100	6	4361 4361-TC 4361-FC	952323 955048 964856	953408 341111 341118	66609 62055 961253
16.00	(16.009)	14	50	16	110	6	4361 4361-TC 4361-FC	61863 61044 959763	953900 341112 955524	990911 60455 955534

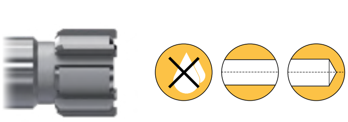
POLY 4361

EXPANSIBLE REAMERS

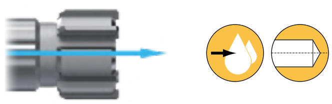
P.464

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h6}	L	Z	**POLY**	CARBIDE	TiAlN	CERMET
17.00	(17.009)	14	50	16	110	6	4361 4361-TC 4361-FC	67322 320133 341090	341100 308083 964572	341127 341132 959907
18.00	(18.009)	14	50	16	110	6	4361 4361-TC 4361-FC	61864 61887 964631	341101 341113 955525	965018 341133 955535
19.00	(19.010)	14	60	20	130	6	4361 4361-TC 4361-FC	971893 341084 341091	341102 341114 969769	341128 341134 985097
20.00	(20.010)	14	60	20	130	6	4361 4361-TC 4361-FC	61866 61888 965283	341103 65708 955526	965020 341135 955536
21.00	(21.010)	14	60	20	130	6	4361 4361-TC 4361-FC	959277 341085 983187	341104 341115 341119	341129 341136 959112
22.00	(22.010)	14	60	20	130	6	4361 4361-TC 4361-FC	61867 341086 341093	953901 341116 959097	965019 341137 965586
23.00	(23.010)	14	60	20	130	6	4361 4361-TC 4361-FC	956588 341087 341094	341105 341117 341120	341130 341138 341140
24.00	(24.010)	14	60	20	130	6	4361 4361-TC 4361-FC	61868 341088 341095	341106 968505 341121	341131 969504 962965

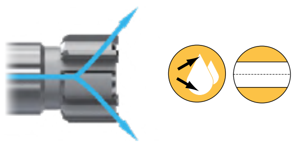
POLY 4361

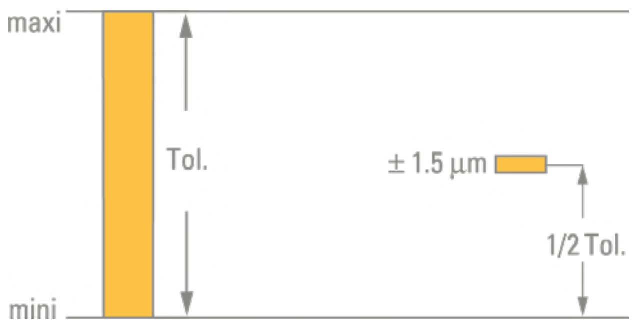


POLY 4361-TC



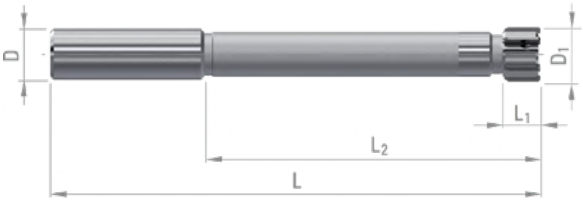
POLY 4361-FC





POLY 4371

EXPANSIBLE REAMERS



P.464

- Expandable tipped reamers developed for the machining of blind and through holes in all kind of materials.
- The expansion system compensates the tool wear.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h6}	L	Z	**POLY**	CARBIDE	TiAlN	CERMET
6.00	(6.006)	10	80	12	120	4	4371 4371-TC 4371-FC	61869 958107 976190	341156 965969 955537	341186 341204 955547
7.00	(7.007)	10	80	12	120	4	4371 4371-TC 4371-FC	950528 968331 956371	341157 341166 955538	341187 341205 955548
8.00	(8.007)	10	80	12	120	4	4371 4371-TC 4371-FC	61870 341141 973938	341158 341167 955539	341188 967206 955549
9.00	(9.007)	10	90	12	130	4	4371 4371-TC 4371-FC	954860 950120 976838	341159 341168 955540	341189 341206 955550
10.00	(10.007)	10	90	12	130	6	4371 4371-TC 4371-FC	61871 341142 962768	310374 341169 955541	341190 341207 955551
11.00	(11.009)	10	100	12	150	6	4371 4371-TC 4371-FC	972464 341143 312249	982208 341170 959071	341191 341208 341221
12.00	(12.009)	10	100	12	150	6	4371 4371-TC 4371-FC	61872 962624 986143	310375 341171 955542	341192 341209 955552
13.00	(13.009)	10	100	12	150	6	4371 4371-TC 4371-FC	952545 341144 972342	341160 341172 977697	341193 341210 341222
14.00	(14.009)	10	100	12	150	6	4371 4371-TC 4371-FC	61873 341145 964796	310950 341173 955543	965516 341211 955553
15.00	(15.009)	14	100	12	150	6	4371 4371-TC 4371-FC	64404 341146 965648	304409 341174 976749	341194 341212 341223
16.00	(16.009)	14	100	16	160	6	4371 4371-TC 4371-FC	61874 977762 982330	964387 341175 955544	341195 341213 955554

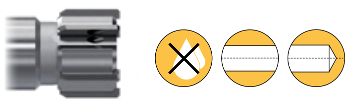
POLY 4371

EXPANSIBLE REAMERS

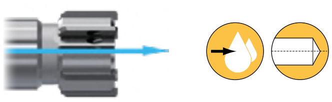
P.464

D nom. H7	D_1 ± 1.5 µm	L_1	L_2	D_{h6}	L	Z	**POLY**	CARBIDE	TiAlN	CERMET
17.00	(17.009)	14	100	16	160	6	4371 4371-TC 4371-FC	960993 341147 341152	59895 341176 341184	341196 341214 341224
18.00	(18.009)	14	100	16	160	6	4371 4371-TC 4371-FC	61875 961483 962767	310376 341177 955545	341197 341215 955555
19.00	(19.010)	14	120	20	190	6	4371 4371-TC 4371-FC	66588 319972 955676	341161 341178 967797	341198 320656 341225
20.00	(20.010)	14	120	20	190	6	4371 4371-TC 4371-FC	61876 400483 341153	341162 341179 955546	341199 341216 955556
21.00	(21.010)	14	120	20	190	6	4371 4371-TC 4371-FC	334784 341148 994332	341163 341180 310771	341200 341217 983957
22.00	(22.010)	14	120	20	190	6	4371 4371-TC 4371-FC	963583 341149 341154	964388 341181 965966	341201 341218 341226
23.00	(23.010)	14	120	20	190	6	4371 4371-TC 4371-FC	963174 341150 962757	341164 341182 310773	341202 341219 341227
24.00	(24.010)	14	120	20	190	6	4371 4371-TC 4371-FC	62827 341151 341155	341165 341183 341185	341203 341220 341228

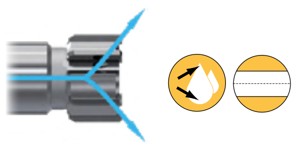
POLY 4371

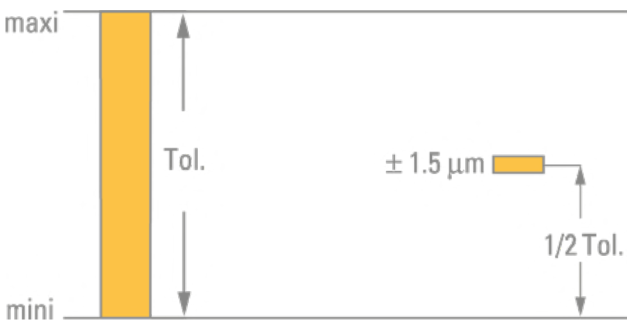


POLY 4371-TC



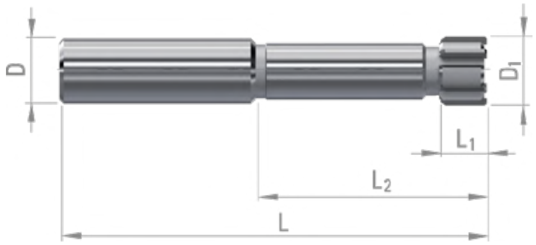
POLY 4371-FC

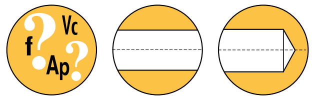




POLY 4261 - 4264

SOLID REAMERS





P.464

TOOLS ON REQUEST

- Tipped solid reamers, short length, straight irregular flute, for blind and through holes.
- Tools developed for boring all types of materials.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

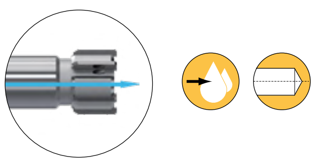
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N													S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎	○	○	○	○

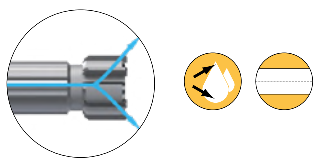
D_1	L_1	L_2	D_{h6}	L	Z	CARBIDE	TiAlN	POLYCUT	C-TOP	CERMET
5.800 - 7.609	10	40	12	80	4	□	■	■	■	□
7.610 - 8.609	10	40	12	80	4	□	■	■	■	□
8.610 - 9.609	10	50	12	90	4	□	■	■	■	□
9.610 - 10.609	10	50	12	90	6	□	■	■	■	□
10.610 - 14.609	10	50	12	100	6	□	■	■	■	□
14.610 - 15.609	14	50	12	100	6	□	■	■	■	□
15.610 - 18.609	14	50	16	110	6	□	■	■	■	□
18.610 - 21.109	14	60	20	130	6	□	■	■	■	□
21.110 - 25.109	14	60	20	130	6	□	■	■	■	□
25.110 - 26.109	14	75	25	145	6	□	■	■	■	□
26.110 - 28.109	18	75	25	145	6	□	■	■	■	□
28.110 - 33.109	18	75	25	145	6	□	■	■	■	□
33.110 - 45.109	18	75	25	145	6	□	■	■	■	□
45.110 - 65.109	18	90	32	160	8	□	■	■	■	□
65.110 - 90.109	18	90	32	160	10	□	■	■	■	□
90.110 - 130.000	18	90	32	160	12	□	■	■	■	□

POLY 4261

POLY 4261-TC

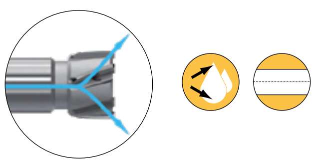


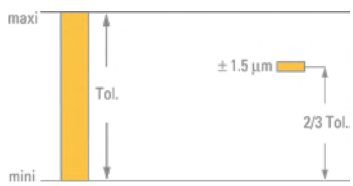
POLY 4261-FC



POLY 4264

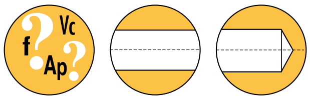
POLY 4264-FC





POLY 4271 - 4274

SOLID REAMERS



P.464

TOOLS ON REQUEST

- Tipped solid reamers, long length, straight irregular flute, for blind and through holes.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

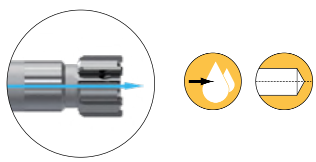
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎	○	○	○	○

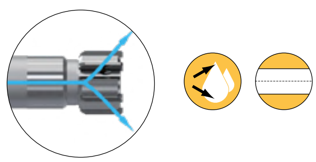
D_1	L_1	L_2	D_{h6}	L	Z	CARBIDE	TiAlN	POLYCUT	C-TOP	CERMET
5.800 - 7.609	10	80	12	120	4	□	■	■	■	□
7.610 - 8.609	10	80	12	120	4	□	■	■	■	□
8.610 - 9.609	10	90	12	130	4	□	■	■	■	□
9.610 - 10.609	10	90	12	130	6	□	■	■	■	□
10.610 - 14.609	10	100	12	150	6	□	■	■	■	□
14.610 - 15.609	14	100	12	150	6	□	■	■	■	□
15.610 - 18.609	14	100	16	160	6	□	■	■	■	□
18.610 - 21.109	14	120	20	190	6	□	■	■	■	□
21.110 - 25.109	14	120	20	190	6	□	■	■	■	□
25.110 - 26.109	14	150	25	220	6	□	■	■	■	□
26.110 - 28.109	18	150	25	220	6	□	■	■	■	□
28.110 - 33.109	18	150	25	220	6	□	■	■	■	□
33.110 - 45.109	18	150	25	220	6	□	■	■	■	□
45.110 - 65.109	18	180	32	250	8	□	■	■	■	□
65.110 - 90.109	18	180	32	250	10	□	■	■	■	□
90.110 - 130.000	18	180	32	250	12	□	■	■	■	□

POLY 4271

POLY 4271-TC

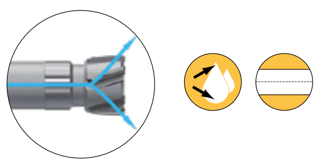


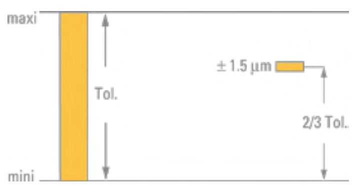
POLY 4271-FC



POLY 4274

POLY 4274-FC



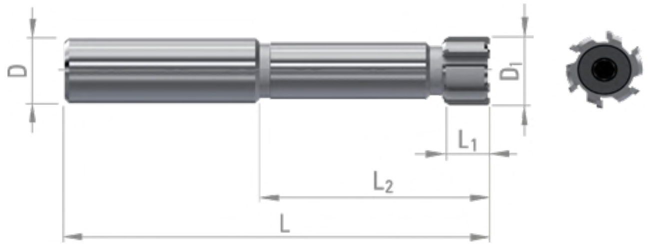


POLY 4361 - 4364

EXPANSIBLE REAMERS

P.464

TOOLS ON REQUEST



- Expandable tipped reamers developed for the machining of blind and through holes in all kind of materials.
- The expansion system compensates the tool wear.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAIN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

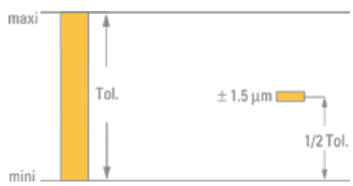
D_1	L_1	L_2	D_{h6}	L	Z	CARBIDE	TiAIN	CERMET
5.80 - 7.60	10	40	12	80	4	□	■	□
7.61 - 8.60	10	40	12	80	4	□	■	□
8.61 - 9.60	10	50	12	90	4	□	■	□
9.61 - 10.60	10	50	12	90	6	□	■	□
10.61 - 14.60	10	50	12	100	6	□	■	□
14.61 - 15.60	14	50	12	100	6	□	■	□
15.61 - 18.60	14	50	16	110	6	□	■	□
18.61 - 21.10	14	60	20	130	6	□	■	□
21.11 - 25.10	14	60	20	130	6	□	■	□
25.11 - 28.10	18	75	25	145	6	□	■	□
28.11 - 45.00	18	75	25	145	6	□	■	□
45.00 - 55.00	18	90	32	160	8	□	■	□

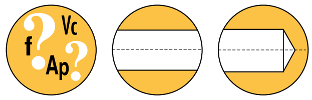
POLY 4361-TC

POLY 4361-FC

POLY 4364

POLY 4364-FC





P.464

EXPANSIBLE REAMERS

- Expandable tipped reamers developed for the machining of blind and through holes in all kind of materials.
- The expansion system compensates the tool wear.
- CERMET improves tool life and surface finish in low-alloy steels.
- TiAlN coating improves tool life in ferrous materials.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

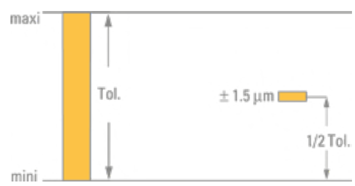
D_1	L_1	L_2	D_{h6}	L	Z	CARBIDE	TiAlN	CERMET
5.80 - 7.60	10	80	12	120	4	□	■	□
7.61 - 8.60	10	80	12	120	4	□	■	□
8.61 - 9.60	10	90	12	130	4	□	■	□
9.61 - 10.60	10	90	12	130	6	□	■	□
10.61 - 14.60	10	100	12	150	6	□	■	□
14.61 - 15.60	14	100	12	150	6	□	■	□
15.61 - 18.60	14	100	16	160	6	□	■	□
18.61 - 21.10	14	120	20	190	6	□	■	□
21.11 - 25.10	14	120	20	190	6	□	■	□
25.11 - 28.10	18	150	25	220	6	□	■	□
28.11 - 45.00	18	150	25	220	6	□	■	□
45.00 - 55.00	18	180	32	250	8	□	■	□

POLY 4371-TC

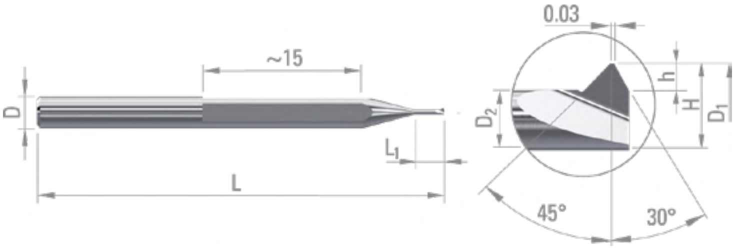
POLY 4371-FC

POLY 4374

POLY 4374-FC



P.464



- Micro boring and chamfering tools developed for boring, bevelling and counter-bevelling of small turned parts.
- Geometry adapted to NIHS 06-10 threads (DIN 14, ISO 1501).
- The use of DIXI 2764 holders is recommended.

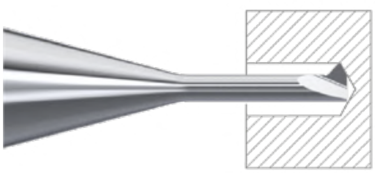
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

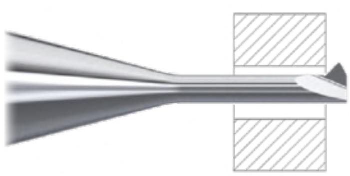
ISO	N											S						H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D_1	L_1	D_2	h	H	D_{h5}	L	for...	CARBIDE
0.26	0.84	0.14	0.06	0.20	3	46	S 0.30	968880
0.35	1.04	0.21	0.07	0.28	3	46	S 0.40	969086
0.44	1.35	0.28	0.08	0.36	3	46	S 0.50	969087
0.53	1.66	0.33	0.10	0.43	3	46	S 0.60	969088
0.66	2.04	0.36	0.15	0.51	3	46	S 0.70	969089
0.75	2.30	0.43	0.16	0.59	3	46	S 0.80	969090
0.86	2.72	0.46	0.20	0.66	3	46	S 0.90	969091

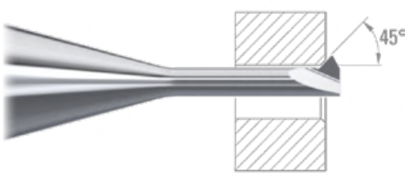
Blind hole reaming



Through hole reaming

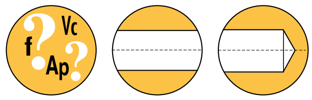


Chamfering

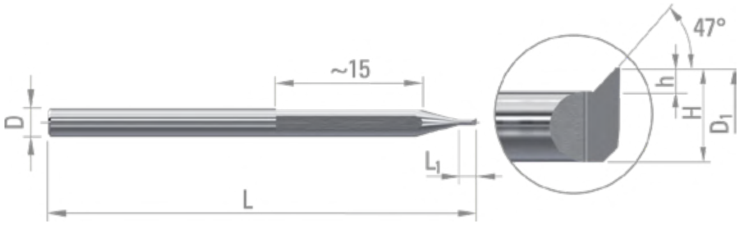


Tools holder p. 467

BORING AND CHAMFERING TOOLS



P.464



- Micro boring and chamfering tools developed for boring and counter-bevelling of small turned parts.
- The use of DIXI 2764 holders is recommended.

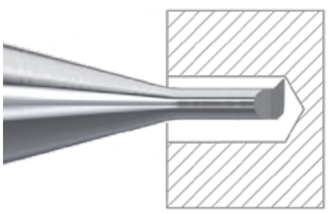
◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

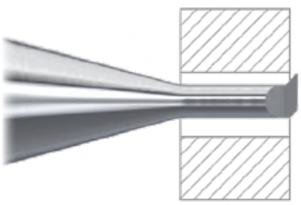
ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◯	◯	◯	◎	◎				

D_1	L_1	h	H	D_{h5}	L	CARBIDE
0.20	0.20 0.40	0.04	0.16	3	46	997972 997973
0.30	0.30 0.60	0.06	0.24	3	46	997974 997975
0.40	0.40 0.80	0.08	0.32	3	46	997976 997977
0.50	0.50 1.00	0.10	0.40	3	46	997978 997979
0.60	0.60 1.20	0.12	0.48	3	46	997980 997981
0.70	0.70 1.40	0.14	0.56	3	46	997982 997983
0.80	0.80 1.60	0.16	0.64	3	46	997984 997985
0.90	0.90 1.80	0.18	0.72	3	46	997986 997987
1.00	1.00 2.00	0.20	0.80	3	46	997988 997989

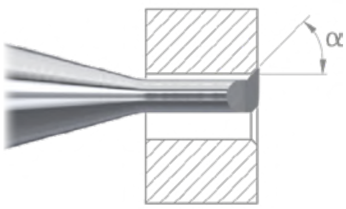
Blind hole reaming



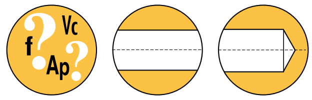
Through hole reaming



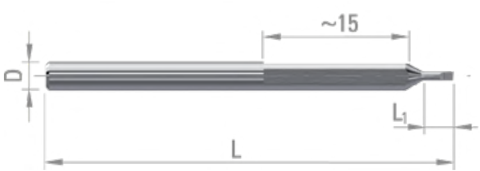
Chamfering



Tools holder p. 467



P.464



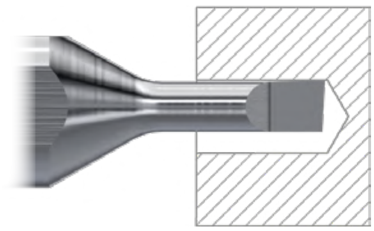
- Micro boring tools developed for boring and internal straightening of small turned parts.
- Reinforced geometry for a longer tool life.
- The use of DIXI 2764 holders is recommended.

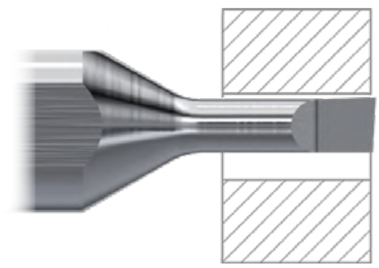
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

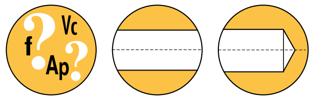
D_1	L_1	D_{h5}	L	CARBIDE
0.30	0.60 0.90 1.20	3	46	997948 997949 997950
0.40	0.80 1.20 1.60	3	46	997951 997952 997953
0.50	1.00 1.50 2.00	3	46	997954 997955 997956
0.60	1.20 1.80 2.40	3	46	997957 997958 997959
0.70	1.40 2.10 2.80	3	46	997960 997961 997962
0.80	1.60 2.40 3.60	3	46	997963 997964 997965
0.90	1.80 2.70 3.60	3	46	997966 997967 997968
1.00	2.00 3.00 4.00	3	46	997969 997970 997971



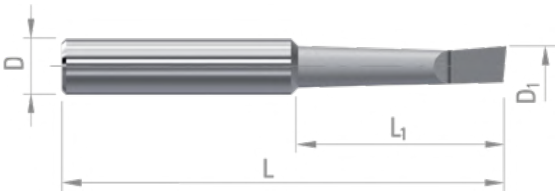


DIXI 2579

BORING TOOLS



P.464



- Boring tools developed for boring and internal facing of turned parts.
- Reinforced geometry for a longer tool life.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	◯	◯	◯	◯	◯	◯	◯	◯	◎	◎	◎	◎	◎	◎

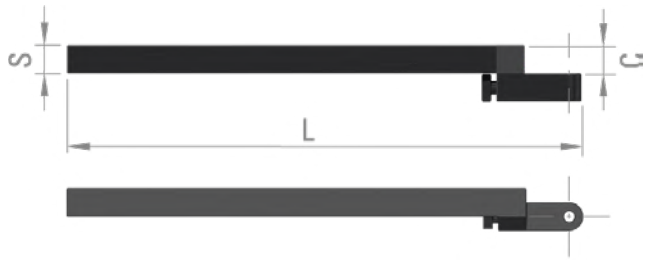
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	◯	◯	◯	◎	◎				

D_1	L_1	D_{h5}	L	CARBIDE
0.60	3	4	25	53197
0.80	4	4	25	53198
1.00	5	4	25	53199
1.20	6	4	25	53200
1.50	8	4	32	53201
1.80	9	4	32	53202
2.00	10	4	32	53203
2.50	12	4	32	53204
3.00	15	4	32	53205

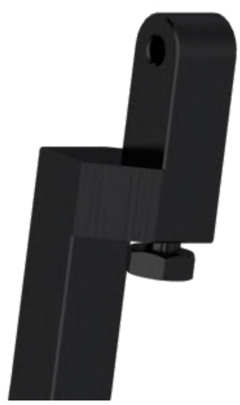
POLY 2764

BORING TOOLS HOLDER

- Boring tool holders developed for the assembly of DIXI 2567, DIXI 2577 and DIXI 2578 micro boring tools on sliding head turning machines.

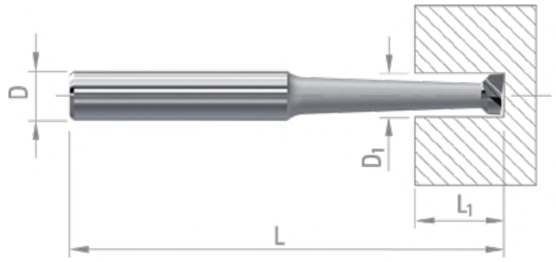


S	D_1	L	C	Art.
7×7	3	146	7	305008
8×8	3	146	8	305009
10 ×10	3	150	10	305010



DIXI 2580

BORING TOOLS
BLIND HOLE



P.464

- Boring tools developed for the boring of blind and through holes.
- Used in a fixed position by turning or assembled on fine boring heads.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

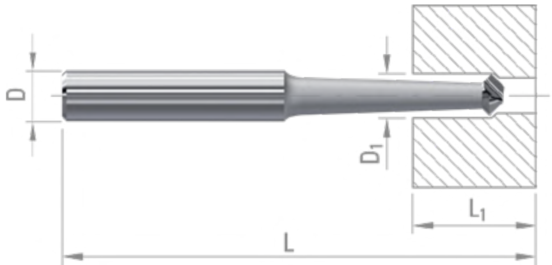
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D_1	L_1	D_{h5}	L	CARBIDE
0.50	3	4	25	36091
0.80	4	4	25	36092
1.00	4	4	25	33855
1.20	6	4	25	33856
1.50	7	4	28	33857
1.70	7	4	28	33858
2.00	9	4	30	33859
2.20	9	4	30	33860
2.50	12	4	33	33861
3.00	14	4	35	33862
3.50	14	4	35	33863
4.00	17	4	38	33864
5.00	23	4	38	794
2.00	9	6	38	33865
2.50	12	6	40	33866
3.00	14	6	42	33867
4.00	17	6	45	33868
5.00	22	6	52	795
6.00	24	6	52	796
7.00	30	6	52	797
8.00	32	6	52	798
10.00	40	6	60	800
3.00	17	8	47	790
4.00	21	8	51	791
5.00	22	8	52	801
6.00	25	8	55	802
7.00	28	8	60	803

D_1	L_1	D_{h5}	L	CARBIDE
10.00	45	8	65	804
12.00	54	8	70	805
13.00	54	8	78	5603
3.00	17	10	45	792
4.00	21	10	49	793
5.00	22	10	50	806
6.00	25	10	54	807
7.00	28	10	56	808
9.00	32	10	65	809
10.00	32	10	65	810
12.00	45	10	70	811
13.00	55	10	80	812
15.00	75	10	100	813
18.00	75	10	100	814
8.00	30	12	70	815
10.00	40	12	80	816
13.00	60	12	90	817
15.00	70	12	100	818
18.00	70	12	100	819
13.00	60	16	115	820
15.00	60	16	115	821
18.00	75	16	115	822
20.00	75	16	115	824

DIXI 2581

BORING TOOLS THROUGH HOLE



P.464

- Boring tools developed for the boring of through holes.
- Used in a fixed position by turning or assembled on fine boring heads.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	○	◎	◎				

D_1	L_1	D_{h5}	L	CARBIDE
0.50	3	4	25	36093
0.80	4	4	25	36094
1.00	4	4	25	33869
1.20	6	4	25	33870
1.50	7	4	28	33871
1.70	7	4	28	33872
2.00	9	4	30	33873
2.20	9	4	30	33874
2.50	12	4	33	33875
3.00	14	4	35	33876
3.50	14	4	35	33877
4.00	17	4	38	33878
5.00	23	4	38	745
2.00	9	6	38	33879
2.50	12	6	40	33880
3.00	14	6	42	33881
4.00	17	6	45	33882
5.00	22	6	52	746
6.00	24	6	52	747
8.00	32	6	52	749
10.00	40	6	60	751
3.00	17	8	47	740
4.00	21	8	51	741
5.00	22	8	52	752
6.00	25	8	55	753
7.00	28	8	60	754

D_1	L_1	D_{h5}	L	CARBIDE
9.00	45	8	65	755
11.00	54	8	70	756
3.00	17	10	45	742
4.00	21	10	49	743
5.00	22	10	50	757
6.00	25	10	54	758
7.00	28	10	56	759
9.00	32	10	65	760
10.00	32	10	65	761
12.00	45	10	70	762
13.00	55	10	80	763
15.00	75	10	100	764
18.00	75	10	100	765
8.00	30	12	70	766
10.00	40	12	80	767
13.00	60	12	90	768
15.00	70	12	100	769
18.00	70	12	100	770
20.00	80	12	110	825
13.00	60	16	115	771
15.00	60	16	115	772
18.00	75	16	115	773

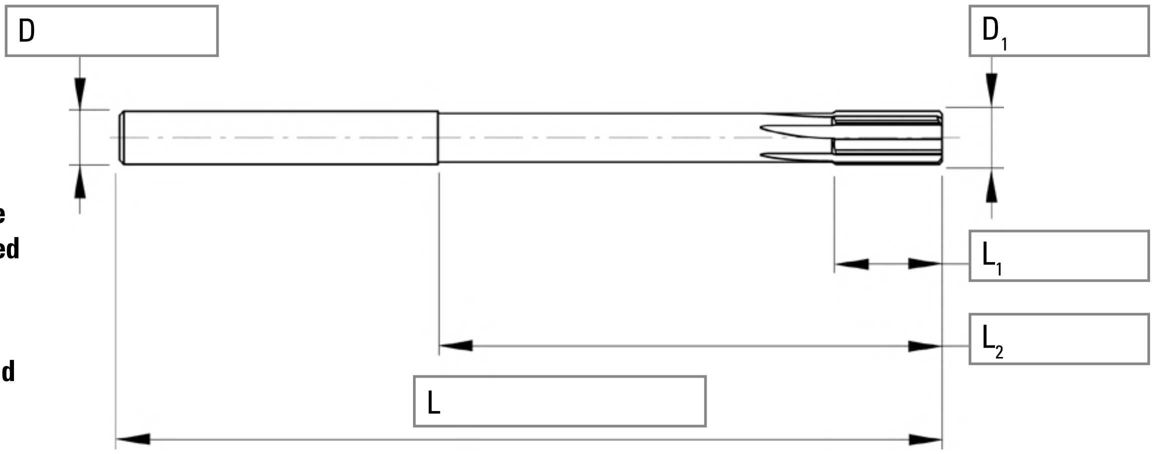
POLY 4001 SP

Z =

Quantity

Dimension and tolerance of the hole to be machined

Material to be machined



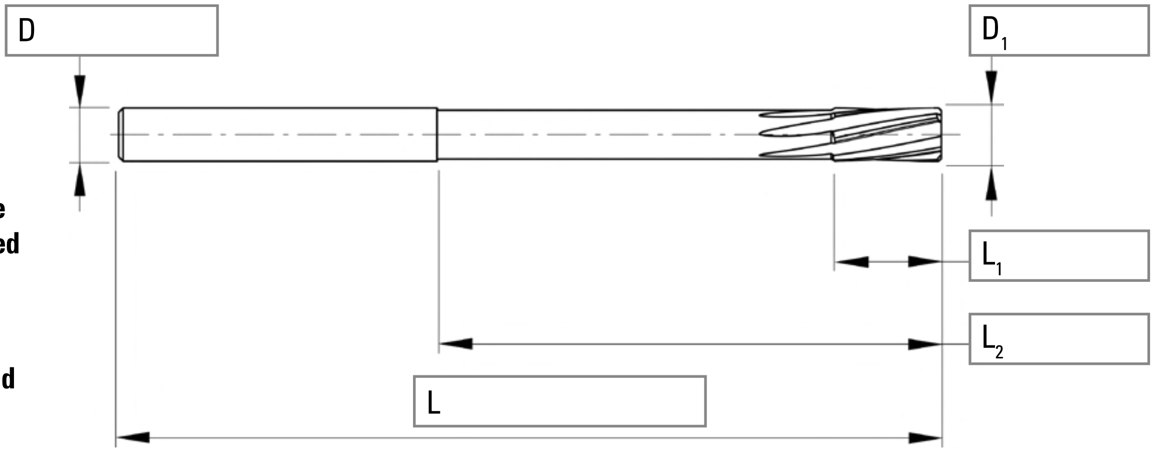
POLY 4007 SP

Z =

Quantity

Dimension and tolerance of the hole to be machined

Material to be machined



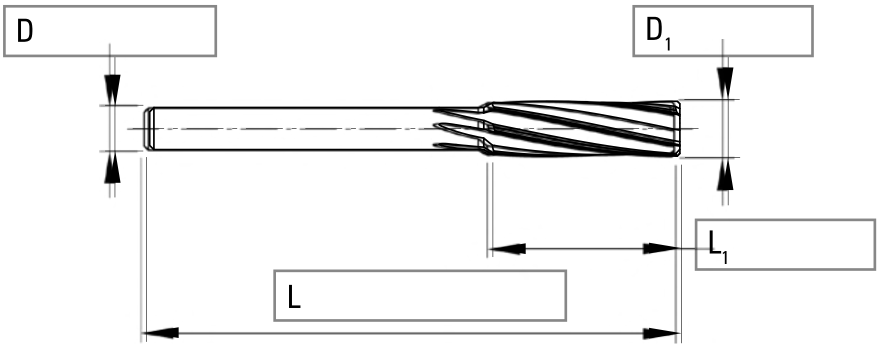
POLY 4005 SP

Z =

Quantity

Dimension and tolerance of the hole to be machined

Material to be machined



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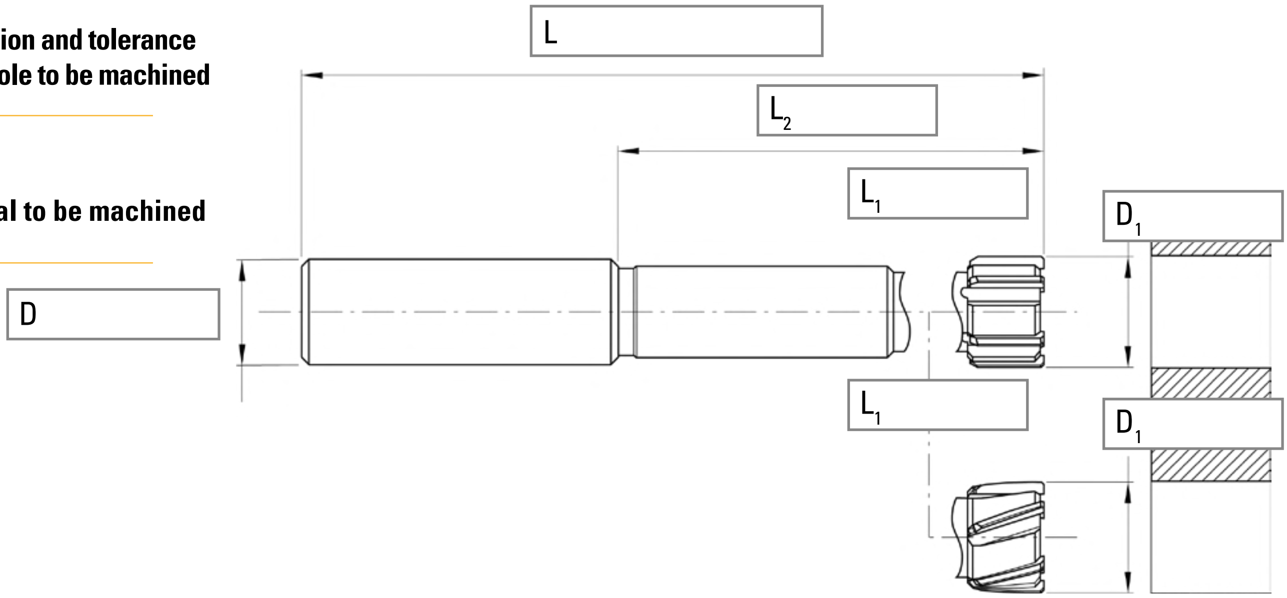
REAMERS WITH INSERTS

Quantity

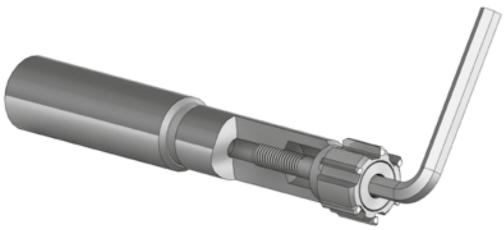
Dimension and tolerance of the hole to be machined

Material to be machined



☐ Expansible

☐ Solid

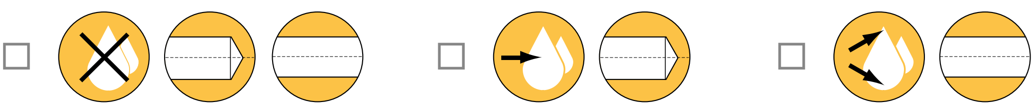


D_1	Expansion
5.80 - 9.60	+10° = D1 + 0.0025
9.61 - 21.10	+10° = D1 + 0.0035
21.11 - 51.10	+10° = D1 + 0.0050

Material to be machined

☐ CARBIDE ☐ CARBIDE + TiAlN ☐ CERMET ☐ Other:

Cooling



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POLY 4001 - 4005 - 4007

		VDI 3323	Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	30
	Low alloyed steel < 800 N/mm^2	6 - 9	25
	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	20
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	25
	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	20
K	Grey cast iron < 250 HB	15 - 16	30
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	25
N	Wrought aluminium alloy < 12% Si	21 - 22	50
	Cast aluminium alloy >12% Si	23 - 25	40
	Copper alloy good machinability with Pb	26	40
	Copper alloy with difficult machinability	27 - 28	40
	Plastics, wood	29 - 30	40
	Gold, silver	-	30
S	Refractory alloy, Fe, Ni, Co base	31- 35	10
	Titanium, titanium alloy	36 - 37	15

POLY 4008

		VDI 3323	Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	120
	Low alloyed steel < 800 N/mm^2	6 - 9	120
	High-alloy steel > 800 N/mm^2, stainless steel ferr.- marten.	10 - 13	30
M	Austenitic stainless steel < 700 N/mm^2	14.1-14.2	40
	Nickel-free stainless steel/DUPLEX >700 N/mm^2	14.3-14.4	30
K	Grey cast iron < 250 HB	15 - 16	120
	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	120
N	Wrought aluminium alloy < 12% Si	21 - 22	180
	Cast aluminium alloy >12% Si	23 - 25	160
	Copper alloy good machinability with Pb	26	180
	Copper alloy with difficult machinability	27 - 28	180
	Plastics, wood	29 - 30	100
	Gold, silver	-	160
S	Refractory alloy, Fe, Ni, Co base	31- 35	15
	Titanium, titanium alloy	36 - 37	15

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 0.40 - 0.80		Ø D_1 0.80 - 1.20		Ø D_1 1.20 - 2.50		Ø D_1 2.50 - 4.20		Ø D_1 4.20 - 6.20		Ø D_1 6.20 - 8.00		Ø D_1 8.00 - 12.00	
f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.18-0.25	0.2	0.25-0.30	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.18-0.25	0.2	0.25-0.30	0.2
0.01-0.02	0.05	0.02-0.03	0.05	0.04-0.05	0.05	0.08-0.10	0.1	0.08-0.10	0.1	0.08-0.10	0.2	0.08-0.10	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.18-0.25	0.2	0.18-0.25	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.15-0.20	0.2	0.15-0.20	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.18-0.25	0.2	0.25-0.30	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.1	0.15-0.20	0.1	0.18-0.25	0.2	0.25-0.30	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.1	0.25-0.30	0.2	0.30-0.40	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.1	0.25-0.30	0.2	0.30-0.40	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.1	0.25-0.30	0.2	0.30-0.40	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.1	0.25-0.30	0.2	0.30-0.40	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.15	0.25-0.30	0.2	0.30-0.40	0.2
0.03-0.04	0.05	0.04-0.06	0.05	0.06-0.08	0.1	0.10-0.15	0.1	0.20-0.25	0.1	0.25-0.30	0.2	0.30-0.40	0.2
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.05	0.08-0.10	0.1	0.10-0.12	0.1	0.12-0.015	0.15
0.02-0.03	0.05	0.03-0.04	0.05	0.05-0.06	0.05	0.08-0.10	0.05	0.08-0.10	0.1	0.10-0.12	0.1	0.12-0.15	0.15

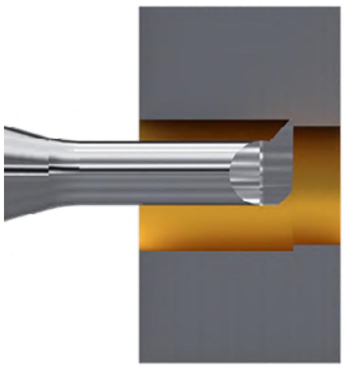
Ø D_1 2.50 - 4.20		Ø D_1 4.20 - 6.20		Ø D_1 6.20 - 8.00		Ø D_1 8.00 - 12.00	
f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)
0.200 - 0.300	0.1	0.300 - 0.400	0.1	0.500 - 0.600	0.2	0.600 - 0.800	0.2
0.200 - 0.300	0.1	0.300 - 0.400	0.1	0.500 - 0.600	0.2	0.600 - 0.800	0.2
0.120 - 0.150	0.1	0.150 - 0.200	0.1	0.200 - 0.250	0.2	0.250 - 0.300	0.2
0.100 - 0.150	0.1	0.150 - 0.200	0.1	0.300 - 0.400	0.2	0.400 - 0.500	0.2
0.100 - 0.150	0.1	0.150 - 0.200	0.1	0.300 - 0.400	0.2	0.400 - 0.500	0.2
0.250 - 0.300	0.1	0.300 - 0.400	0.1	0.500 - 0.600	0.2	0.600 - 0.800	0.2
0.250 - 0.300	0.1	0.300 - 0.400	0.1	0.500 - 0.600	0.2	0.600 - 0.800	0.2
0.300 - 0.400	0.1	0.500 - 0.600	0.1	0.800 - 1.000	0.2	1.000 - 1.200	0.2
0.300 - 0.400	0.1	0.500 - 0.600	0.1	0.800 - 1.000	0.2	1.000 - 1.200	0.2
0.300 - 0.400	0.1	0.500 - 0.600	0.1	0.800 - 1.000	0.2	1.000 - 1.200	0.2
0.300 - 0.400	0.1	0.500 - 0.600	0.1	0.800 - 1.000	0.2	1.000 - 1.200	0.2
0.200 - 0.300	0.1	0.300 - 0.400	0.15	0.600 - 0.800	0.2	0.800 - 1.000	0.2
0.300 - 0.400	0.1	0.500 - 0.600	0.1	0.800 - 1.000	0.2	1.000 - 1.200	0.2
0.080 - 0.100	0.05	0.100 - 0.120	0.1	0.150 - 0.200	0.1	0.150 - 0.200	0.15
0.080 - 0.100	0.05	0.100 - 0.120	0.1	0.150 - 0.200	0.1	0.150 - 0.200	0.15

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

POLY 4261-4264-4271-4274
4361-4364-4371-4374

		VDI 3323	HM Vc [m/min]	HM+ COATING Vc [m/min]	CERMET Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	**50**	**120**	**140**
P	Low alloyed steel < 800 N/mm²	6 - 9	**40**	**120**	**140**
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**30**	**30**	
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**25**	**40**	
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**20**	**30**	
K	Grey cast iron < 250 HB	15 - 16	**50**	**120**	**120**
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**50**	**120**	**120**
N	Wrought aluminium alloy < 12% Si	21 - 22	**70**	**180**	
N	Cast aluminium alloy >12% Si	23 - 25	**60**	**160**	
N	Copper alloy good machinability with Pb	26	**60**	**180**	
N	Copper alloy with difficult machinability	27 - 28	**60**	**180**	
N	Plastics, wood	29 - 30	**60**	**100**	
N	Gold, silver	-	**50**	**160**	
S	Refractory alloy, Fe, Ni, Co base	31- 35	**15**	**15**	
S	Titanium, titanium alloy	36 - 37	**15**	**15**	

DIXI 2567 - 2577 - 2578
2579 - 2580 - 2581



		VDI 3323	Fixed tools Vc [m/min]	Turning tools Vc [m/min]
P	Unalloyed steel, leaded steel	1 - 5	**100** - 150	**70** - 110
P	Low alloyed steel < 800 N/mm²	6 - 9	**70** - 120	**50** - 80
P	High-alloy steel > 800 N/mm², stainless steel ferr.- marten.	10 - 13	**30** - 70	**20** - 50
M	Austenitic stainless steel < 700 N/mm²	14.1-14.2	**50** - 80	**40** - 60
M	Nickel-free stainless steel/DUPLEX >700 N/mm²	14.3-14.4	**30** - 70	**20** - 50
K	Grey cast iron < 250 HB	15 - 16	**60** - 150	**40** - 110
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	**30** - 90	**20** - 60
N	Wrought aluminium alloy < 12% Si	21 - 22	**200** - 400	**140** - 280
N	Cast aluminium alloy >12% Si	23 - 25	**180** - 350	**130** - 250
N	Copper alloy good machinability with Pb	26	**150** - 250	**110** - 180
N	Copper alloy with difficult machinability	27 - 28	**120** - 160	**80** - 110
N	Plastics, wood	29 - 30	**200** - 300	**140** - 210
N	Gold, silver	-	**150** - 250	**110** - 180
S	Refractory alloy, Fe, Ni, Co base	31- 35	**10** - 20	**10** - 10
S	Titanium, titanium alloy	36 - 37	**15** - 40	**10** - 30

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times f\,[mm]$$

Feed per revolution f [mm]

Ø D_1 5.80 - 9.609		Ø D_1 9.610 - 18.609		Ø D_1 18.610 - 23.109		Ø D_1 23.110 - 31.109		Ø D_1 31.110 - 45.109		Ø D_1 45.110 - 70.00	
f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)	f (rpm)	Ream-all. (mm)
0.40 - 0.50	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.80 - 1.00	0.3	0.80 - 1.00	0.3
0.40 - 0.50	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.80 - 1.00	0.3	0.80 - 1.00	0.3
0.20 - 0.25	0.2	0.25 - 0.30	0.2	0.25 - 0.30	0.2	0.25 - 0.30	0.2	0.25 - 0.30	0.3	0.35 - 0.40	0.3
0.20 - 0.30	0.2	0.30 - 0.40	0.2	0.30 - 0.40	0.2	0.40 - 0.50	0.2	0.40 - 0.50	0.3	0.50 - 0.60	0.3
0.20 - 0.30	0.2	0.30 - 0.40	0.2	0.30 - 0.40	0.2	0.40 - 0.50	0.2	0.40 - 0.50	0.3	0.50 - 0.60	0.3
0.40 - 0.50	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.80 - 1.00	0.2	0.80 - 1.00	0.3	1.00 - 1.20	0.3
0.40 - 0.50	0.2	0.60 - 0.80	0.2	0.60 - 0.80	0.2	0.80 - 1.00	0.2	0.80 - 1.00	0.3	1.00 - 1.20	0.3
0.60 - 0.80	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.3	1.00 - 1.20	0.3	1.20 - 1.40	0.3
0.60 - 0.80	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.3	1.00 - 1.20	0.3	1.20 - 1.40	0.3
0.60 - 0.80	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.3	1.00 - 1.20	0.3	1.20 - 1.40	0.3
0.60 - 0.80	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.3	1.00 - 1.20	0.3	1.20 - 1.40	0.3
0.40 - 0.60	0.2	0.80 - 1.00	0.2	0.80 - 1.00	0.2	0.80 - 1.00	0.3	0.80 - 1.00	0.3	1.00 - 1.20	0.3
0.60 - 0.80	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.2	1.00 - 1.20	0.3	1.00 - 1.20	0.3	1.20 - 1.40	0.3
0.15 - 0.20	0.1	0.15 - 0.20	0.15	0.20 - 0.25	0.15	0.20 - 0.25	0.2	0.20 - 0.25	0.2	0.25 - 0.30	0.2
0.15 - 0.20	0.1	0.15 - 0.20	0.15	0.20 - 0.25	0.15	0.20 - 0.25	0.2	0.20 - 0.25	0.2	0.25 - 0.30	0.2

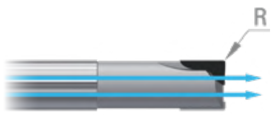
Feed per tooth fz [mm]

Ø D_1 0.20 - 0.50	Ø D_1 0.50 - 0.80	Ø D_1 08.00 - 1.00	Ø D_1 1.00 - 3.00	Ø D_1 3.00 - 6.00	Ø D_1 6.00 - 10.00	Ø D_1 10.00 - 20.00
0.002 - 0.005	0.005 - 0.008	0.008 - 0.010	0.010 - 0.030	0.024 - 0.049	0.036 - 0.060	0.040 - 0.080
0.002 - 0.005	0.004 - 0.007	0.007 - 0.009	0.009 - 0.027	0.027 - 0.053	0.054 - 0.060	0.030 - 0.070
0.002 - 0.004	0.004 - 0.006	0.006 - 0.008	0.008 - 0.024	0.024 - 0.047	0.048 - 0.050	0.030 - 0.070
0.001 - 0.004	0.004 - 0.006	0.006 - 0.007	0.007 - 0.022	0.022 - 0.044	0.044 - 0.050	0.030 - 0.060
0.001 - 0.003	0.003 - 0.005	0.005 - 0.006	0.006 - 0.018	0.018 - 0.035	0.036 - 0.040	0.020 - 0.050
0.003 - 0.008	0.007 - 0.012	0.012 - 0.015	0.015 - 0.044	0.044 - 0.089	0.088 - 0.090	0.060 - 0.120
0.002 - 0.006	0.006 - 0.009	0.009 - 0.012	0.012 - 0.035	0.035 - 0.071	0.070 - 0.070	0.050 - 0.100
0.004 - 0.011	0.011 - 0.017	0.017 - 0.022	0.022 - 0.065	0.065 - 0.130	0.130 - 0.140	0.080 - 0.180
0.004 - 0.010	0.010 - 0.016	0.016 - 0.020	0.020 - 0.059	0.059 - 0.118	0.118 - 0.120	0.080 - 0.170
0.004 - 0.010	0.010 - 0.016	0.016 - 0.020	0.020 - 0.059	0.059 - 0.118	0.118 - 0.120	0.080 - 0.170
0.002 - 0.006	0.006 - 0.010	0.010 - 0.012	0.012 - 0.037	0.037 - 0.074	0.074 - 0.080	0.050 - 0.100
0.004 - 0.011	0.011 - 0.017	0.017 - 0.022	0.022 - 0.065	0.065 - 0.130	0.130 - 0,140	0.080 - 0.180
0.004 - 0.010	0.010 - 0.016	0.016 - 0.020	0.020 - 0.059	0.059 - 0.118	0.118 - 0.120	0.080 - 0.170
0.001 - 0.003	0.002 - 0.004	0.004 - 0.005	0.005 - 0.015	0.015 - 0.030	0.030 - 0.030	0.020 - 0.040
0.002 - 0.006	0.006 - 0.009	0.009 - 0.012	0.012 - 0.035	0.035 - 0.071	0.070 - 0.070	0.050 - 0.100

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !


DIXI
polytool

✓ = item from stock

MILLING CUTTERS	Z	Page		PCD ●	CVD ▮	DIA ◆	CBN ▲
DIXI 70600 PCD Ø0.50 - Ø10.00 	1	474		✓			
DIXI 70630 PCD Ø3.00 - Ø12.00 	1	475		✓			
DIXI 70600 DIA Ø3.00 - Ø6.00 	1	476				✓	
DIXI 72310 DIA Ø0.40 - Ø2.00 	1	477				✓	
DIXI 72421-SH DIA Ø6.00 - Ø12.00 	1	478				✓	
DIXI 72420-SH Ø1.00 - Ø20.00 	1 - 2	479		✓	✓		
DIXI 70520-SH Ø1.00 - Ø20.00 	1 - 2	480		✓	✓		
DIXI 70320-SH PCD Ø2.00 - Ø20.00 	1 - 2	481	R = D₁/2	✓			
DIXI 70320 DIA Ø2.00 - Ø10.00 	1	482	R = D₁/2			✓	
DIXI 70330 DIA Ø0.40 - Ø1.50 	1	483	R = D₁/2			✓	

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
						◎	○	◎	◎*	◎			
									◎*				
						◎	○	◎	○*	◎			
						◎	○	◎	○*	◎			
						◎	○	◎	○*	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎*	◎			
						◎	○	◎	◎*	◎			

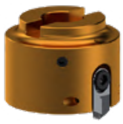
* Plastic only

○ good ◎ excellent

✓ = item from stock

ENGRAVING TOOLS		Z	Page		PCD ●	CVD ▮	DIA ◆	CBN ▲
DIXI 70170 PCD Ø0.10 - Ø0.20		1	484		✓			
DIXI 70070 PCD Ø0.05 - Ø0.20		1	485		✓			
DIXI 70170 DIA Ø0.05 - Ø0.10		1	486				✓	

CHAMFERING TOOLS		Z	Page		PCD ●	CVD ▮	DIA ◆	CBN ▲
DIXI 76230 DIA Ø0.10 - Ø0.30		1	487				✓	
DIXI 76231 DIA		1	488				✓	

FACE MILLING CUTTERS		Z	Page		PCD ●	CVD ▮	DIA ◆	CBN ▲
DIXI 81000 Ø40 - Ø125		2	489				✓	
DIXI 82000 Ø18 - Ø30		2	491				✓	
DIXI 20470 Ø8		-	492		✓		✓	
DIXI 80000 Ø40 - Ø125		6-16	493		✓			

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC

					◎	○	◎	◎	◎			
					◎	○	◎	○	◎			
					◎	○	◎	◎*	◎			

					◎	○	◎	◎*	◎			
					◎	○	◎	◎*	◎			

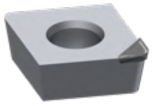
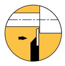
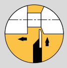
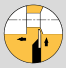
					◎	○	◎	◎*	◎			
					◎	○	◎	◎*	◎			
					◎	○	◎	◎*	◎			
					◎	○	◎	◎*	◎			

* Plastic only

○ good ◎ excellent

✓ = item from stock

TURNING TOOLS

TURNING TOOLS		Z	Page		PCD	CVD	DIA	CBN
DIXI 26420		-	494		✓	✓	✓	✓
DIXI 26500 AV		-	496		✓			
DIXI 26500 AR		-	496		✓			
DIXI 26500 TR		-	496		ON REQUEST			
DIXI 26500 FT		-	496		ON REQUEST			

DIADIX WHEEL DRESSERS

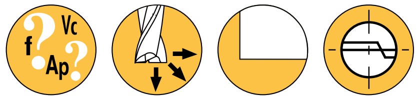
DIADIX WHEEL DRESSERS		Z	Page		PCD	CVD	DIA	CBN
DIXI 1973		-	500					
DIXI 1978		-	500		✓	✓		

ISO	P			M	K	N					S		H
VDI 3323	1-5	6-9	10-13	14.1-14.4	15-20	21-22	23-25	26-28	29-30	-	31-35	36-37	38-41
	Unalloyed Steel	Low alloyed steel	High alloyed steel	Aust. stainless steel	Cast iron	Wrought aluminium alloy	Cast iro aluminium (Si)	Cu alloy Bronze Brass	Plastic Composite Graphite Wood	Silver Gold	Super alloy Ni / Co	Titanium, Titanium alloy	Hardened steel & cast iron > 45 HRC
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			
						◎	○	◎	◎	◎			

○ good ◎ excellent

DIXI 70600 PCD

Z = 1



P.504

SLOT DRILLS, CENTRE CUTTING FOR FINISHING OPERATION

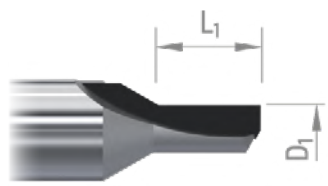
- PCD end mills with flat bottom developed for burr-free and deformation-free machining of non-ferrous materials. A typical application: the finishing of watch components.
- PCD improves tool life and productivity.

○ good ◎ excellent

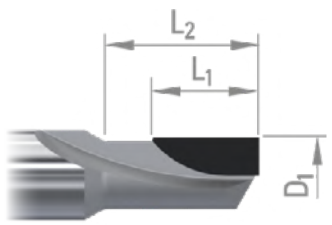
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		○										

$D_{1\,\pm 0.01}$	L_1	D_{h5}	L	PCD
0.50	1.00	3	38	398840
0.60	1.20	3	38	398841
0.70	1.40	3	38	398842
0.80	1.60	3	38	398843
0.90	1.80	3	38	398844
1.00	2.00	3	38	398845
1.10	2.20	3	38	398846
1.20	2.40	3	38	398847
1.30	2.60	3	38	398848
1.40	2.80	3	38	398849
1.50	3.00	3	38	398850
1.60	3.20	3	38	398851
1.70	3.40	3	38	398853
1.80	3.60	3	38	398854
1.90	3.80	3	38	398855
2.00	4.00	3	42	398856
2.50	5.00	6	42	398857
3.00	6.00	6	42	398858



$D_{1\,\pm 0.01}$	L_1		D_{h5}	L	PCD
4.00	6.50	10.00	6	42	302390
5.00	6.50	10.00	6	50	302391
6.00	8.00	12.00	6	50	302393
8.00	10.00	15.00	8	60	339191
10.00	12.00	20.00	10	60	339192

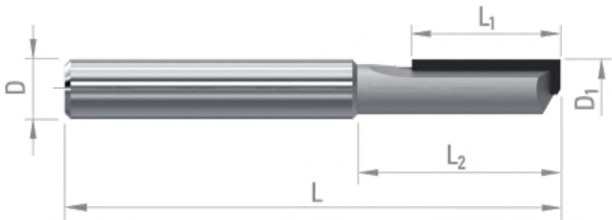


DIXI 70630 PCD

Z = 1

P.504

FINISHING END MILLS CENTRE CUTTING



- PCD superfinishing cutters developed to obtain transparent finishies in plastics.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations											◎										

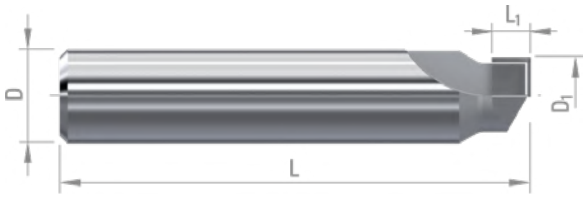
$D_{1 \pm 0.01}$	L_1	L_2	D_{h5}	L	PCD finishing	PCD resharpened
3	6	11.50	6	38	381663	381670
4	10	15.50	6	50	381665	381671
6	15	20.50	6	50	381666	381672
8	19	29.00	8	60	381667	381673
10	22	32.00	10	60	381668	381675
12	26	36.00	12	60	381669	381676

DIXI 70600 DIA

Z = 1

P.506

MONOCRISTALLINE DIAMOND END MILLS, CENTRE CUTTING



- Monocrystalline diamond end mills with flat bottom developed for burr-free and deformation-free machining of non-ferrous materials. A typical application: the finishing of watch components.
- DIA is used for mirror finish machining.

◯ good ◎ excellent

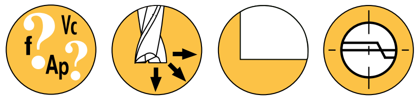
ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◯	◯	◯	◎	◎	◎	◎		◯										

$D_{1\ h10}$	L_1	D_{h5}	L	DIA
3	2.50	6	30	302394
4	2.50	6	30	302395
5	2.50	6	30	302396
6	2.50	6	30	302397

DIXI 72310 DIA

Z = 1



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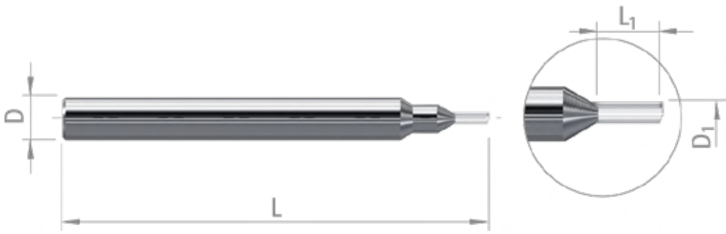
MONOCRISTALLINE DIAMOND MICRO END MILLS



- Monocrystalline diamond micro end mills with centre cut developed for non-ferrous materials, precious metals and composites.
- DIA is used for mirror finish machining.

○ good ◎ excellent

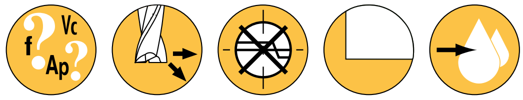
ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		○										

$D_{1\ h10}$	L_1	D_{h5}	L	DIA
0.40	0.80	3	30	953424
0.50	1.00	3	30	953425
0.60	1.20	3	30	953426
0.70	1.40	3	30	953427
0.80	1.60	3	30	953428
0.90	1.80	3	30	953429
1.00	2.50	3	30	953430
1.10	2.50	3	30	953431
1.20	2.50	3	30	953432
1.30	2.50	3	30	953433
1.40	2.50	3	30	953434
1.50	2.50	3	30	953435
1.60	2.50	3	30	953436
1.70	2.50	3	30	953437
1.80	2.50	3	30	953438
1.90	2.50	3	30	953439
2.00	2.50	3	30	953440

DIXI 72421-SH DIA

Z = 1



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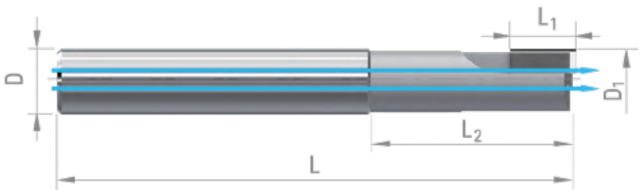
MONOCRISTALLINE DIAMOND END MILLS



- Monocrystalline diamond end mills, without centre cut, with throught coolant, developed for finish contouring of non-ferrous materials, precious metals and composites.
- DIA is used for mirror finish machining.

○ good ◎ excellent

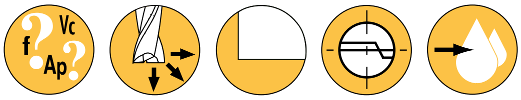
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N										S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		○										

$D_{1\ h10}$	L_2	D_{h5}	L_1	L	DIA plastic	DIA
6	25	6	4	57	970120	341428
			6	57	970122	341429
			8	57	974360	341430
8	25	8	4	63	970126	341432
			6	63	970128	341434
10	25	10	4	75	974317	341436
			6	75	974318	341437
12	25	12	4	83	974321	341439
			6	83	974322	341440

DIXI 72420 - 72420-SH

Z = 1-2



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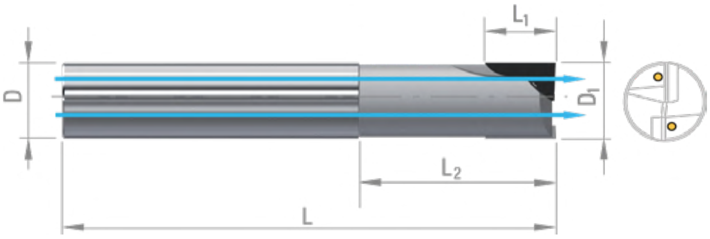
$D_1 \geq Ø 6$

END MILLS, CENTRE CUTTING AND THROUGH COOLANT



- PCD end mills with centre cut and through coolant developed for the general machining of non-ferrous materials, precious metals and composites.
- PCD improves tool life and productivity.
- CVD improves tool life in comparison to PCD. Do not use in case of interrupted cuts.

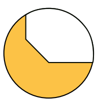
○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○									

$D_{1\ h10}$	L_1	L_2	D_{h5}	L	Z	PCD	CVD
1.00	2.00	-	6	42	1	979179	
1.50	3.00	-	6	42	1	977382	
2.00	3.00	6	6	42	1	66785	
2.00	3.00	20	6	75	1	970175	
3.00	4.00	6	6	42	1	67540	301958
3.00	4.00	15	6	75	2	970176	
3.00	4.00	20	6	75	2	970177	
4.00	4.00	8	6	50	1	957593	
4.00	6.50	10	6	50	1	67541	
4.00	6.50	15	6	75	2	970178	301959
4.00	6.50	25	6	75	2	970179	
5.00	5.00	10	6	50	2	957595	
5.00	6.50	10	6	50	2	53153	
5.00	6.50	35	6	75	2	970166	
6.00	6.00	12	6	57	2	976391	301960
6.00	8.00	34	6	75	2	976392	301961
6.00	8.00	50	6	100	2	976393	
7.00	8.00	34	8	75	2	976394	
8.00	7.00	14	8	63	2	976395	301962

$D_{1\ h10}$	L_1	L_2	D_{h5}	L	Z	PCD	CVD
8.00	10.00	34	8	75	2	976396	301963
8.00	10.00	50	8	100	2	976397	
8.00	10.00	75	8	125	2	976398	
9.00	10.00	35	10	75	2	976399	
10.00	8.00	16	10	75	2	976410	
10.00	12.00	35	10	75	2	976411	301965
10.00	12.00	75	10	125	2	976412	
11.00	12.00	38	12	83	2	976413	
12.00	10.00	20	12	83	2	976414	
12.00	12.00	38	12	83	2	976415	301966
12.00	12.00	75	12	125	2	976416	
14.00	12.00	24	14	83	2	976417	338991
14.00	12.00	38	14	83	2	976418	
14.00	12.00	75	14	125	2	976419	
16.00	14.00	28	16	92	2	976420	338992
16.00	14.00	42	16	92	2	976421	
16.00	14.00	75	16	125	2	976422	
20.00	18.00	36	20	104	2	976423	
20.00	18.00	50	20	125	2	976424	



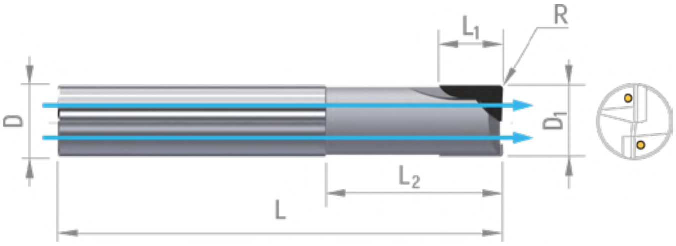
On request

DIXI 70520 - 70520-SH

Z = 1-2

P.510 D$_1$ ≥ Ø 6

END MILLS, CENTRE CUTTING AND THROUGH COOLANT



- PCD end mills with corner radius, centre cut and through coolant developed for the general machining of non-ferrous materials, precious metals and composites.
- PCD improves tool life and productivity.
- CVD improves tool life in comparison to PCD. Do not use in case of interrupted cuts.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

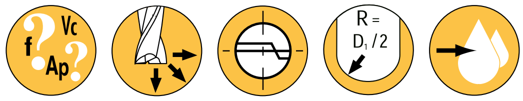
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○									

$D_{1\ h10}$	L_1	L_2	D_{h5}	L	R	Z	PCD	CVD
1.00	2.00	-	6	42	0.10	1	984384	
2.00	3.00	6	6	42	0.10	1	967923	
2.00	3.00	6	6	42	0.20	1	973528	
3.00	4.00	15	6	75	0.10	2	987438	338995
3.00	4.00	15	6	75	0.30	2	305810	
4.00	4.00	8	6	50	0.10	1	967925	
4.00	6.50	10	6	50	0.50	1	971465	
4.00	6.50	15	6	75	0.10	2	305811	
4.00	6.50	15	6	75	0.50	2	302378	
5.00	5.00	10	6	50	0.10	2	305812	
5.00	5.00	10	6	50	0.50	2	975839	
6.00	6.00	12	6	57	0.10	2	967926	338996
6.00	6.00	12	6	57	0.50	2	968992	
6.00	8.00	34	6	75	0.10	2	995208	
6.00	8.00	34	6	75	0.50	2	974475	
6.00	8.00	34	6	75	1.00	2	974476	
8.00	7.00	14	8	63	0.10	2	967927	339000
8.00	10.00	34	8	75	0.50	2	974477	
8.00	10.00	50	8	75	1.00	2	974478	

$D_{1\ h10}$	L_1	L_2	D_{h5}	L	R	Z	PCD	CVD
10.00	12.00	35	10	75	0.10	2	953153	339001
10.00	12.00	35	10	75	0.50	2	974479	
10.00	12.00	35	10	75	1.00	2	974480	
10.00	12.00	75	10	125	0.50	2	974482	
10.00	12.00	75	10	125	1.00	2	974481	
12.00	10.00	20	12	83	0.10	2	984083	339004
12.00	12.00	38	12	83	0.50	2	974483	
12.00	12.00	38	12	83	1.00	2	974484	
12.00	12.00	75	12	125	0.50	2	974485	
12.00	12.00	75	12	125	1.00	2	974486	
14.00	12.00	24	14	83	0.10	2	305814	
14.00	12.00	24	14	83	0.50	2	305816	339012
14.00	12.00	24	14	83	1.00	2	305817	
16.00	14.00	28	16	92	0.50	2	993052	
16.00	14.00	42	16	92	0.10	2	305818	339014
16.00	14.00	42	16	92	1.00	2	305139	
20.00	18.00	36	20	104	0.10	2	987718	
20.00	18.00	36	20	104	0.50	2	305819	
20.00	18.00	36	20	104	1.00	2	305820	

DIXI 70320-SH PCD

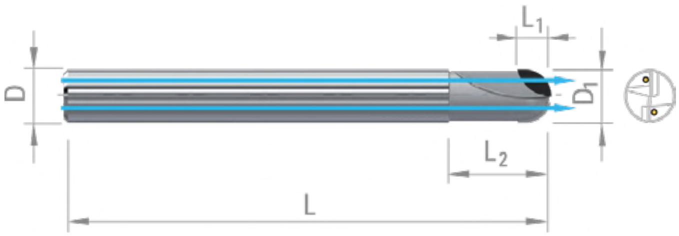
Z = 1-2



P.510

$D_1 \geq Ø\,6$

BALL-NOSE END MILLS WITH THROUGH COOLANT



- PCD ball-nose end mills with through coolant developed for the form machining of non-ferrous materials, precious metals and composites.
- PCD improves tool life and productivity.

○ good ◎ excellent

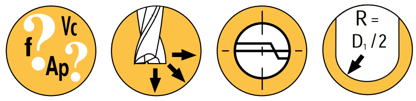
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○									

$D_{1\,h10}$	L_1	D	L_2	L	Z	PCD
2	2.00	6	6	42	1	953442
			25	75	1	970874
3	2.50	6	6	42	1	953443
			25	75	1	970875
			25	75	2	970876
4	3.00	6	8	50	1	959468
			10	50	1	953444
			10	50	2	970877
			25	75	2	970878
			35	75	2	981585
5	4.00	6	10	50	2	953445
			25	75	2	970883
6	4.00	6	12	57	2	976433
			34	75	2	976434
			50	100	2	976435
8	5.00	8	14	63	2	976436
			34	75	2	976437
			75	125	2	976438
10	6.00	10	16	72	2	976439
			35	75	2	976440
			75	125	2	976441
12	7.00	12	20	83	2	976442
			38	83	2	976443
			75	125	2	976444
14	8.00	14	24	83	2	305821
16	9.00	16	28	92	2	300800
20	11.00	20	36	104	2	305822

DIXI 70320 DIA

Z = 1



P.510

MONOCRISTALLINE DIAMOND BALL-NOSE END MILLS

- Monocristalline diamond ball-nose end mills developed for form machining of non-ferrous materials, precious metals.
- DIA is used for mirror finish machining.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

$D_{1\ h10}$	L_1	L_2	D_{h5}	L	DIA
2	2.00	4	6	57	341443
3	2.50	6	6	75	341445
4	3.00	8	6	75	341447
6	4.00	12	8	75	341449
8	5.00	16	10	75	341450
10	6.00	20	12	75	341451

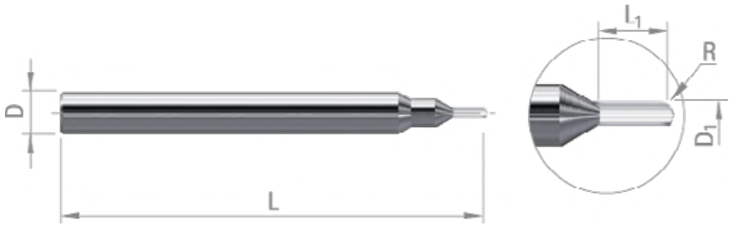
DIXI 70330 DIA

Z = 1

P.506

MONOCRISTALLINE DIAMOND END MILLS

- Monocristalline diamond ball nose end mills developed for finishing complex shapes in non-ferrous materials.
- DIA is used for mirror finish machining.



○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

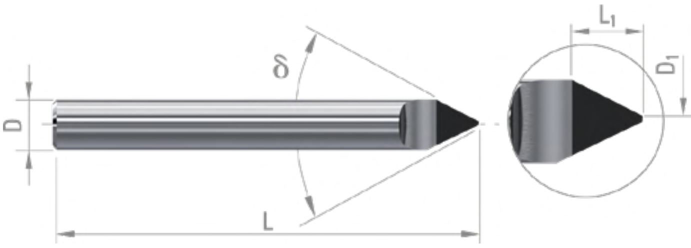
$D_{1\,h10}$	L_1	D_{h5}	L	DIA
0.40	0.80	3	30	417114
0.50	1.00	3	30	417115
0.60	1.20	3	30	417116
0.70	1.40	3	30	417117
0.80	1.60	3	30	417118
0.90	1.80	3	30	417119
1.00	2.50	3	30	417120
1.50	2.50	3	30	417150

DIXI 70170 PCD

Z = 1

P.512

PCD ENGRAVING TOOLS



- PCD engraving tools developed for the engraving of non-ferrous materials, precious metals and composites.
- PCD improves tool life and productivity.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○									

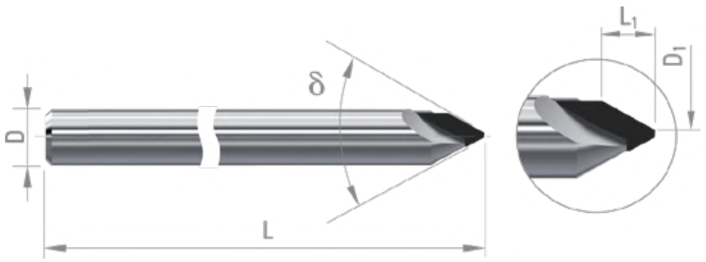
δ	L_1	D_{h5}	L	D_1	PCD
60°	5	6	50	0.10 0.20	303081 303082
90°	3	6	50	0.10 0.20	303083 303084

DIXI 70070 PCD

Z = 1

3/4 PCD ENGRAVING CUTTERS

P.512



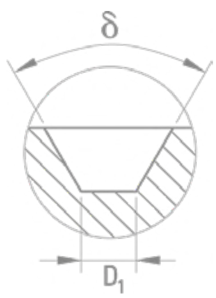
- Engraving cutters developed for high end engraving.
- PCD is used for matt engraving.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

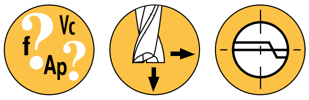
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◯	◯	◯	◎	◎	◎	◎	◯	◯										

δ	L_1	D_{h5}	L	D_1	PCD
40°	3.50	3	38	0.05 0.10	345623 413445
50°	2.70	3	38	0.05 0.10	367069 367070
60°	2.20	3	38	0.05 0.10	413446 413447
90°	1.20	3	38	0.10 0.20	413448 413449



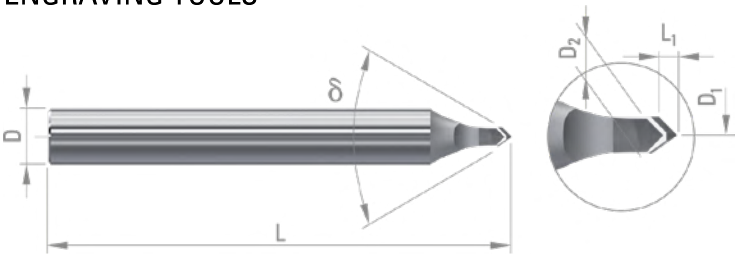
DIXI 70170 DIA

Z = 1



P.512

MONOCRISTALLINE DIAMOND ENGRAVING TOOLS



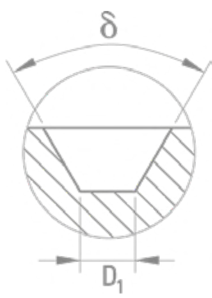
- Monocristalline diamond engraving tools developed for the engraving of non-ferrous materials, precious metals and composites.
- DIA is used for mirror finish machining.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S						H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

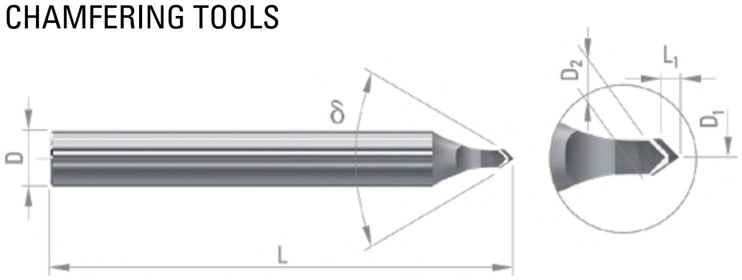
δ	L_1	D_{h5}	L	D_1	DIA
60°	1.40	6	50	0.05 0.10	302597 302598
90°	0.80	6	50	0.05 0.10	302599 302600

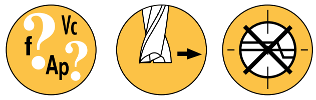


DIXI 76230 DIA

Z = 1

MONOCRISTALLINE DIAMOND CHAMFERING TOOLS





P.512

- Monocristalline diamond chamfering tools developed for the machining of non-ferrous materials, precious metals and composites.
- DIA is used for mirror finish machining.

○ good ◎ excellent

ISO	P												M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

δ	L_1	D_2	D_1	D_{h5}	L	DIA
30°	2.80	2	*0.30	6	50	978382
60°	1.40	3	*0.10	6	50	302596
	1.30	3	*0.30	6	50	978381
90°	0.80	3	*0.10	6	50	302595
	0.70	3	*0.30	6	50	977871

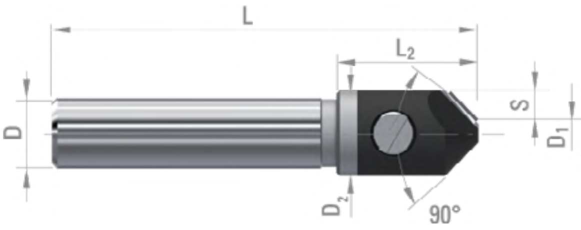
* not cutting

DIXI 76231 DIA

Z = 1

P.512

MONOCRISTALLINE DIAMOND CHAMFERING TOOLS



- Monocristalline diamond chamfering tools, developed for the finishing of non-ferrous materials, precious metals and composites. DIA is used for mirror finish machining.

○ good ◎ excellent

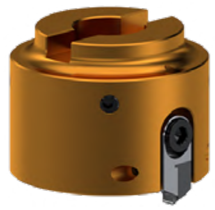
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N											S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

D_1	D_2	L_2	S_1	S_2	D_{h5}	L	DIA
4	10	-	3	4.10	10	60	974354
4	12	20	4	5.50	10	60	974355
4	14	20	5	7.00	10	60	974356
4	16	20	6	8.50	10	60	974357

FACE MILLING HEADS FOR MIRROR FINISH

P.514



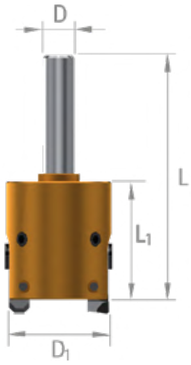
- Face milling heads developed for mirror finish machining of non-ferrous materials and precious metals.
- The heads are delivered balanced and already assembled with DIXI 20370 PCD for roughing and DIXI 20370 DIA inserts for finishing.

◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

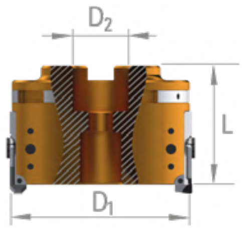
ISO	N											S					H			
Materials description	Wrought aluminium alloy	Cast aluminium alloy				Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◯	◯	◯	◎	◎	◎	◎		◎										

FACE MILLING HEADS WITH SHANK



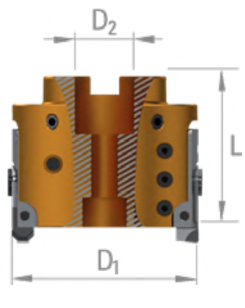
D_1	L_1	D_{h6}	L	PLASTIC	ALU/COPPER	BRASS
40	45	8	76	423639	423641	423643
40	45	12	76	423640	423642	423644

FACE MILLING HEADS



D_1	D_2	L	PLASTIC	ALU/COPPER	BRASS
40	16	45	423645	423648	423651
50	16	45	423646	423649	423652
60	22	45	423647	423650	423653

FACE MILLING HEADS WITH INCLINATION SETTING

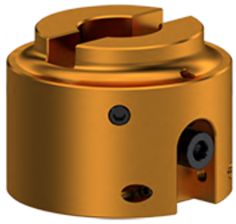


D_1	D_2	L	PLASTIC	ALU/COPPER	BRASS
60	22	50	423654	423658	423662
85	27	55	423655	423659	423663
100	27	55	423656	423660	423664
125	40	58	423657	423661	423665

FACE MILLING HEADS WITH SHANK

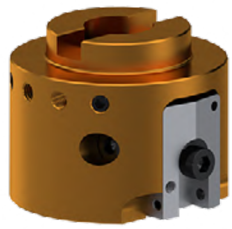
D_1	L_1	D_{h6}	L	Art.
40	45	8	76	384364
40	45	12	76	964273

FACE MILLING HEADS



D_1	D_2	L	Art.
40	16	45	970446
50	16	45	971872
60	22	45	962823

FACE MILLING HEADS WITH INCLINATION SETTING



D_1	D_2	L	Art.
60	22	50	996583
85	27	55	962824
100	27	55	964272
125	40	58	994652

ROUGHING INSERTS PCD

Material to be machined	PCD
Non ferrous materials	968117

FINISHING INSERTS DIA

Material to be machined	DIA
Plastic	968111
Aluminium / Copper	969556
Brass	969557

DIXI 82000

SUPERFINISHING MILLS FOR MIRROR FINISH MACHINING WITH CLAMPING SHANK

P.514

- Face milling heads developed for mirror finish machining of non-ferrous materials and precious metals.
- The heads are delivered balanced and already assembled with DIXI 20470 PCD for roughing and DIXI 20470 DIA inserts for finishing.

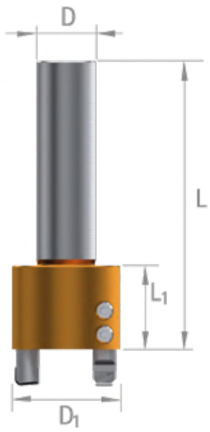
◯ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	◯	◯	◯	◎	◎	◎	◎		◎										

SUPERFINISHING MILLS FOR MIRROR FINISH MACHINING WITH CLAMPING SHANK

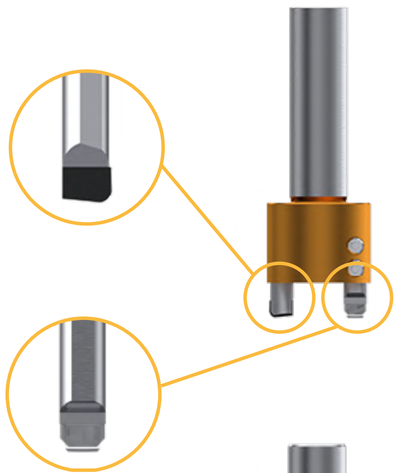
D_1	L_1	D_{h6}	L	PLASTIC	ALU/COPPER	BRASS
18	14	10	48	423666	423669	423672
30	14	10	48	423667	423670	423673
30	14	16	48	423668	423671	423674



SPARE PARTS

ROUGHING INSERTS PCD

Material to be machined	PCD
Non ferrous materials	398877



FINISHING INSERTS DIA

Material to be machined	DIA
Plastic	391750
Aluminium / Copper	419761
Brass	419763

FACE MILLING HEADS

D_1	L_1	D_{h6}	L	Art.
18	14	10	48	398876
30	14	10	48	427108
30	14	16	48	410354

INSERTS FOR POLISHING MACHINES

- Diamond inserts developed for single pass polishing of plastics and acrylics on dedicated machines.
- A colour code facilitates the choice of inserts according to the desired operations.
- After re-sharpening, DIXI ensures the height adjustment of the insert in its head (if supplied)

○ good ◎ excellent

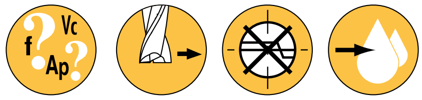
ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX/PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		◎										

Coulor	Aspect	D	L	Art.	
Black	Roughing	8	31	968179	
Red	Finishing	8	31	968181	
Green	Satined surface	8	31	974193	
Blue	Transparent surface	8	31	968178	

DIXI 80000

Z = 6-16



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ADJUSTABLE HOLDERS FOR ISO INSERTS FOR FACE MILLING APPLICATION

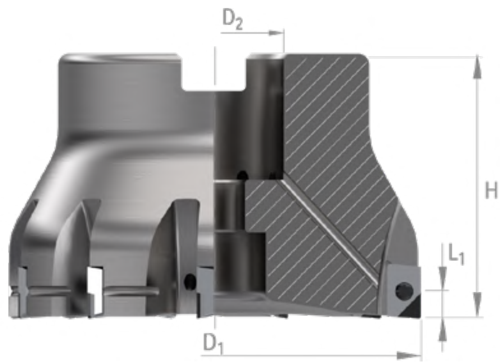
- Face milling heads with accurate inserts height setting developed for mirror finish machining of non-ferrous materials.
- Must be assembled with APKT inserts.

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎		○										

D_1	L_1	H	D_2	Z	Weight (kg)	Art.
40.00	3	40	16	6	0.20	955446
50.00	3	40	22	7	0.35	955447
63.00	3	40	22	8	0.60	955448
80.00	3	50	27	11	1.20	955449
100.00	3	50	32	13	2.00	955451
125.00	3	50	32	16	2.20	955452



Inserts delivered separately

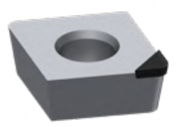
DIXI 2642 - 26420

ISO INSERTS FOR DIXI 80000

ISO	D	S	D_2	R	CARBIDE	TiAlN	PCD
APKT 100305	6.35	3.18	3.40	0.50	996517	996516	955606

ISO INSERTS

P.495



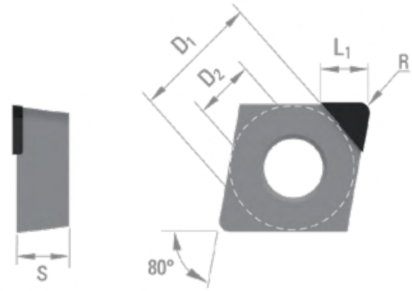
- ISO Inserts developed to increase productivity.
- PCD is used for high speed turning.
  DIA is used to obtain a mirror polished finish.
  CBN is used for turning hard materials (> 55 HRC) .

○ good ◎ excellent

ISO	P													M				K					
Materials description	Unalloyed steel					Low alloyed steel				High alloyed steel		Martensitic stainless steel		Austenitic stainless steel (DUPLEX / PH)				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14.1	14.2	14.3	14.4	15	16	17	18	19	20
Recommendations																							

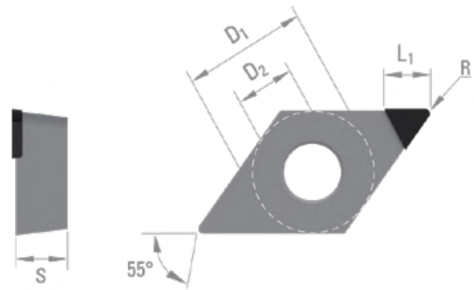
ISO	N												S					H			
Materials description	Wrought aluminium alloy		Cast aluminium alloy			Cu + Pb alloy	Cu alloy difficult		Gold, Silver	Graphite	Plastic	Wood	Special alloy Ni / Co			Titanium, titanium alloy		Hardened steel		Hard cast iron	
VDI 3323	21	22	23	24	25	26	27	28	-	-	29	30	31	32	33-35	36	37	38	39	40	41
Recommendations	◎	◎	○	○	○	◎	◎	◎	◎	◎	○	○									

ISO	D_1	L_1	S	D_2	R	PCD	CVD	DIA	CBN*
CCGW 060202	6.35	2	2.38	2.80	0.20	992915	394994	394973	395128
CCGW 060204	6.35	2	2.38	2.80	0.40	993323	410101	410106	395130
CCGW 09T302	9.525	2	3.97	4.40	0.20	302726			
CCGW 09T304	9.525	2	3.97	4.40	0.40	302728	394995	394974	
CCGW 09T308	9.525	2	3.97	4.40	0.80	302730	394996	394978	
CCGW 120404	12.70	2	4.76	5.50	0.20	993755	342927	345678	



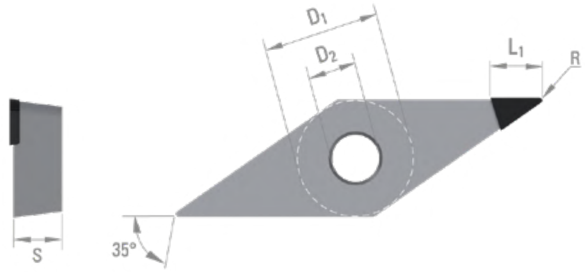
* for ferrous materials

ISO	D_1	L_1	S	D_2	R	PCD	CVD	DIA	CBN*
DCGW 070202	6.35	2	2.38	2.80	0.20	993320	394999	394979	395131
DCGW 070204	6.35	2	2.38	2.80	0.40	996026	410102	410107	
DCGW 070208	6.35	2	2.38	2.80	0.80	302748			
DCGW 11T302	9.525	2	3.18	3.40	0.20	302750	395000	394980	395132
DCGW 11T304	9.525	2	3.18	3.40	0.40	302752	395001	394981	395133
DCGW 11T308	9.525	2	3.18	3.40	0.80	302754	395002	394982	395134



* for ferrous materials

ISO	D_1	L_1	S	D_2	R	PCD	CVD	DIA	CBN*
VCGW 070202	3.97	2	2.38	2.25	0.20	302785	410103	410108	
VCGW 110302	6.35	2	3.18	2.80	0.20	302787	395003	394984	395135
VCGW 110304	6.35	2	3.18	2.80	0.40	301634	395004	394985	395136
VCGW 110308	6.35	2	3.18	3.40	0.80	302788			
VCGW 130302	7.94	2	3.18	3.40	0.20		395005	394987	
VCGW 130304	7.94	2	3.18	3.40	0.40		395006	394988	
VCGW 160402	9.525	2	4.67	4.40	0.20	302789	410104	410109	
VCGW 160404	9.525	2	4.67	4.40	0.40	302791	410105	410110	395137
VCGW 160408	9.525	2	4.67	4.40	0.80	302792	395007	394992	395138
VCGW 160412	9.525	2	4.67	4.40	1.20	302794			
VCGW 220530	12.70	2	5.56	5.50	3.00		395008	394993	



* for ferrous materials

CUTTING CONDITIONS

		VDI 3323	Vc m/min	ap (mm)	Feed per tooth fz [mm]
N	Wrought aluminium alloy < 12% Si	21 - 22	**150**	0.02 - 0.10	0.045 - 0.108
	Cast aluminium alloy ≤8% Si	23	**200**	0.02 - 0.10	0.039 - 0.094
	Copper alloy good machinability with Pb	26	**300**	0.02 - 0.10	0.045 - 0.108
	Copper alloy with difficult machinability	27-28	**300**	0.02 - 0.10	0.036 - 0.086
	Plastics	29	**600**	0.05 - 0.20	0.045 - 0.108
	Gold, silver	-	**250**	0.02 - 0.10	0.030 - 0.072

		VDI 3323	Vc m/min	ap (mm)	Feed per tooth fz [mm]
N	Wrought aluminium alloy < 12% Si	21 - 22	**225**	0.10 - 4.00	0.108 - 0.360
	Cast aluminium alloy ≤8% Si	23	**300**	0.10 - 4.00	0.039 - 0.094
	Copper alloy good machinability with Pb	26	**400**	0.10 - 4.00	0.045 - 0.108
	Copper alloy with difficult machinability	27-28	**400**	0.10 - 4.00	0.036 - 0.086
	Plastics	29	**500**	0.10 - 4.00	0.045 - 0.108
	Gold, silver	-	**350**	0.10 - 4.00	0.030 - 0.072

TURNING INSERTS
RIGHT-HAND CUTTING

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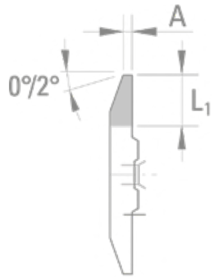
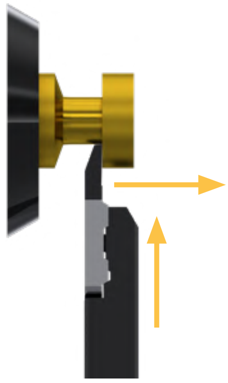
BACK TURNING

DIXI 26500 AR R PCD (BIMU 060R)

A	L_1	0° / PCD	2° / PCD
0.80	2.50	342916	345668
1.00	2.50	342917	345669
1.20	2.50	342918	345670
1.20	3.00	342919	345671
1.50	3.00	342920	345672
1.80	4.50	342922	345673
2.00	4.50	342923	345674

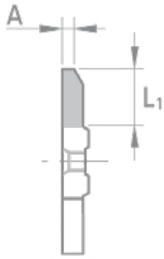


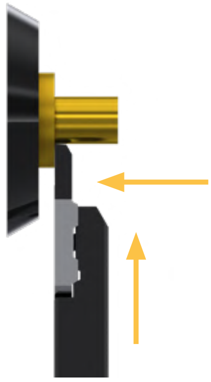


FRONT TURNING

DIXI 26500 AV R PCD (BIMU 064R)

A	L_1	PCD
1.50	5.00	342931



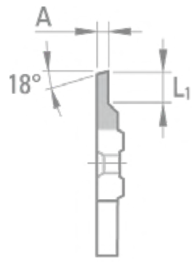


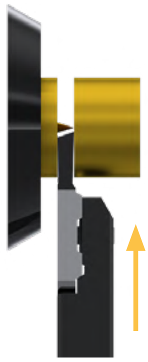
TOOLS ON REQUEST

PARTING OFF

DIXI 26500 TR R PCD SP (BIMU 050R)

A	L_1
0.80	4.00
1.00	4.00
1.20	5.00
1.50	6.50
1.80	6.50
2.00	6.50



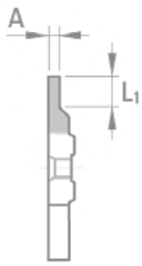


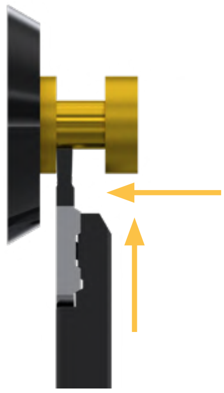
TOOLS ON REQUEST

PLUNGING / TURNING

DIXI 26500 FT R PCD SP (BIMU 060RP)

A	L_1
0.80	1.50
0.90	2.00
1.00	2.50
1.10	2.50
1.20	2.50
1.30	2.50



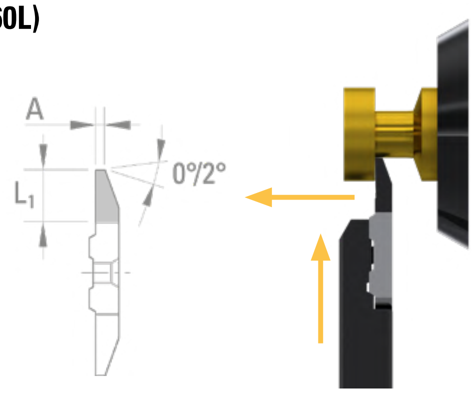


P.495

BACK TURNING

DIXI 26500 AR L PCD (BIMU 060L)

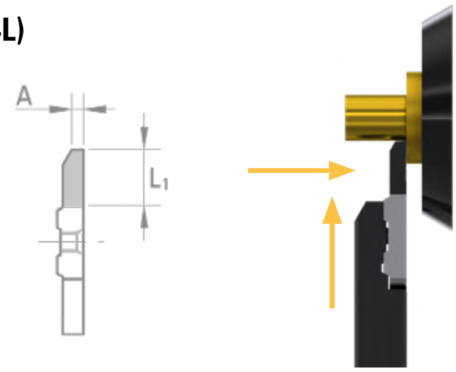
A	L_1	0° / PCD	2° / PCD
0.80	2.50	342924	345675
1.00	2.50	342925	345676
1.20	2.50	342926	345677
1.20	3.00	342927	345678
1.50	3.00	342928	345679
1.80	4.50	342929	345680
2.00	4.50	342930	345681



FRONT TURNING

DIXI 26500 AV L PCD (BIMU 064L)

A	L_1	PCD
1.50	5.00	342932

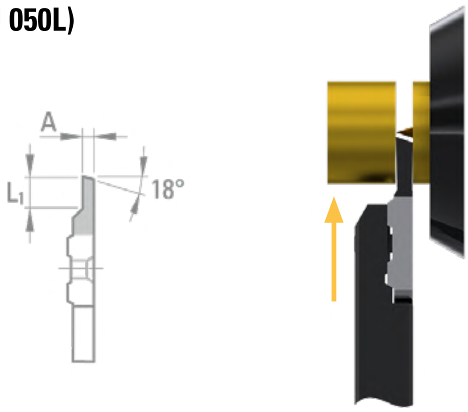


TOOLS ON REQUEST

PARTING OFF

DIXI 26500 TR L PCD SP (BIMU 050L)

A	L_1
0.80	4.00
1.00	4.00
1.20	5.00
1.50	6.50
1.80	6.50
2.00	6.50

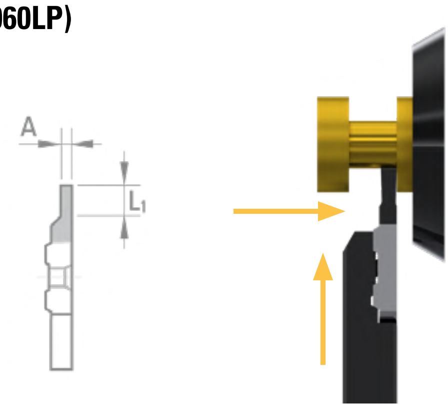


TOOLS ON REQUEST

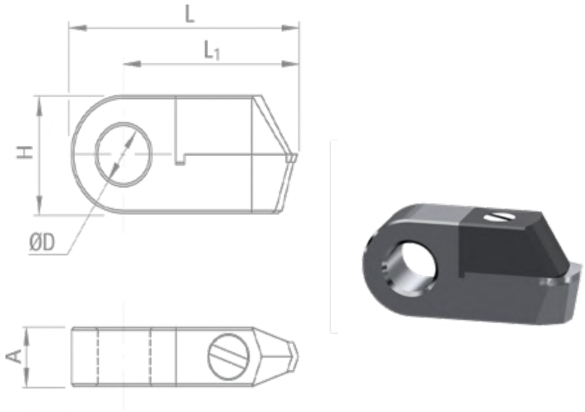
PLUNGING / TURNING

DIXI 26500 FT L PCD SP (BIMU 060LP)

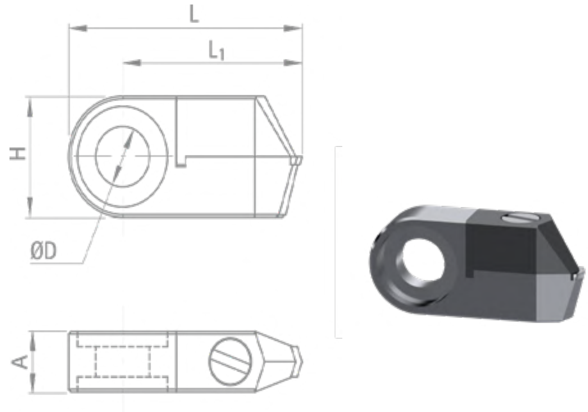
A	L_1
0.80	1.50
0.90	2.00
1.00	2.50
1.10	2.50
1.20	2.50
1.30	2.50



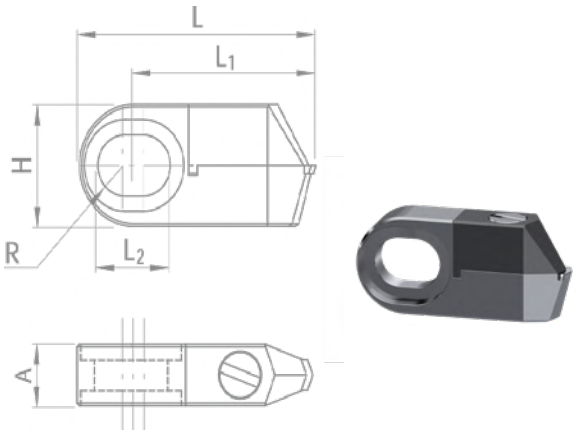
Ref. A



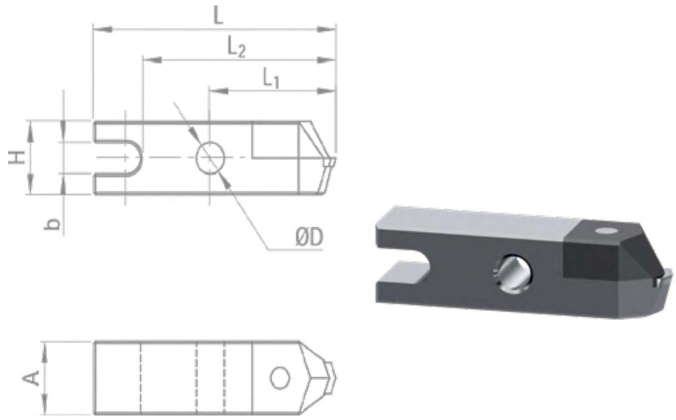
Ref. B



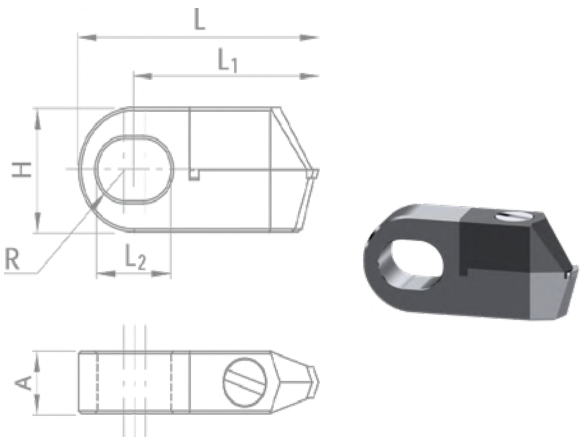
Ref. C



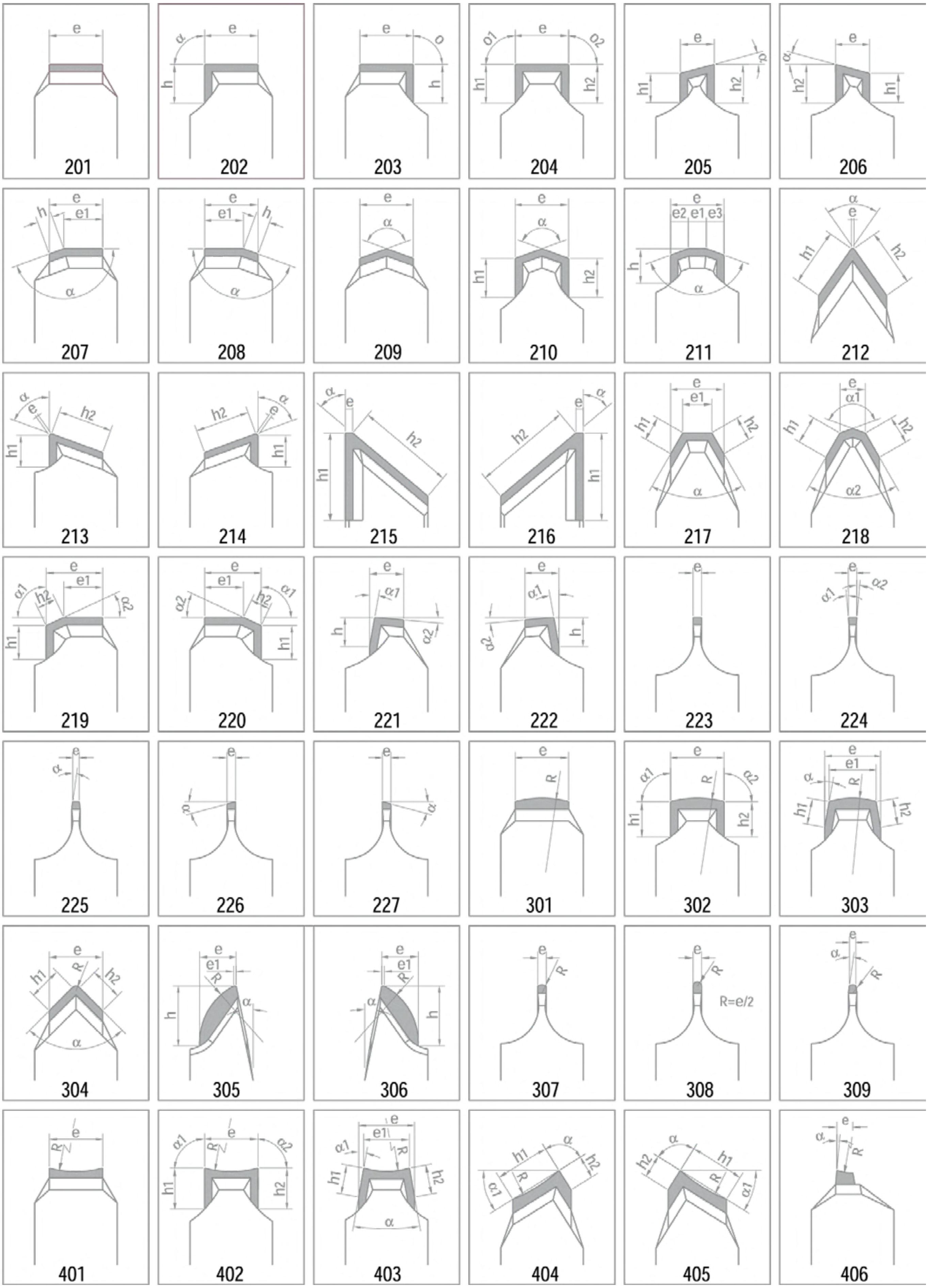
Ref. D



Ref. E



A large variety of diamond tools for turning and milling on request.
When ordering, please specify the cutting material (PCD - DIA - CVD)
and the material to be machined.
For a range of special shapes, see page 499.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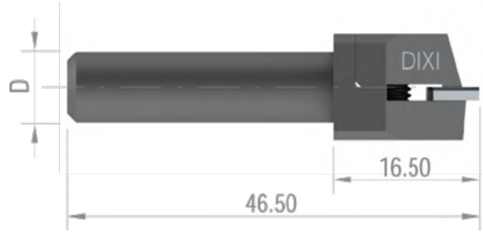
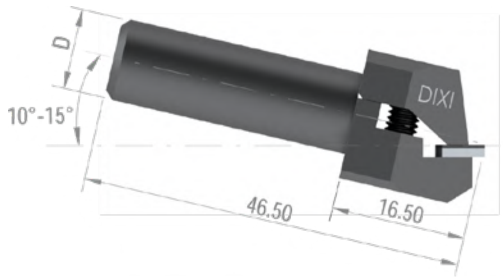
DIXI 1973

DIADIX® HOLDERS, DRESSING

Ref.	D	Art.
DIXI 1973.0823	8	19459
DIXI 1973.1023	10	18512
DIXI 1973.1223	12	19979

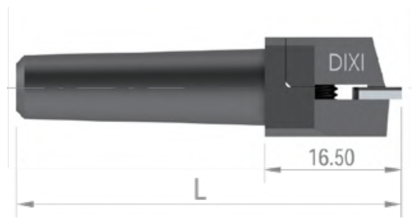


Ref.	D	Art.
DIXI 1973.1013	10	23707

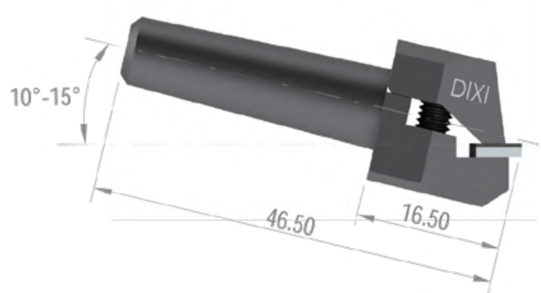


This wheel-dresser compensates the 10° - 15° negative angle of the diamond-holder on certain machines, which enables the desired 0° dressing angle to be maintained.

Ref.	Morse taper	L	Art.
DIXI 1973.0023	CM0	46.50	18737
DIXI 1973.0123	CM1	59.50	18514



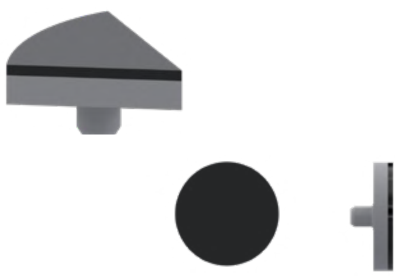
Ref.	Morse taper	Art.
DIXI 1973.0013	CM0	23850
DIXI 1973.0113	CM1	23727



This wheel-dresser compensates the 10° - 15° negative angle of the diamond-holder on certain machines, which enables the desired 0° dressing angle to be maintained.

DIXI 1978

INSERTS FOR ROUGH WHEEL DRESSING



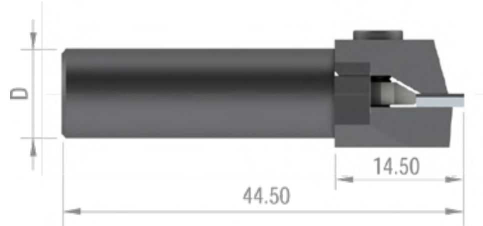
Ref.	PCD
DIXI 1978.360°	23829

Ref.	PCD
DIXI 1978.23	18814

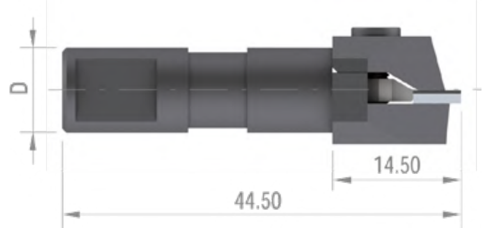
DIXI 1973

DIADIX® HOLDERS, PROFILING

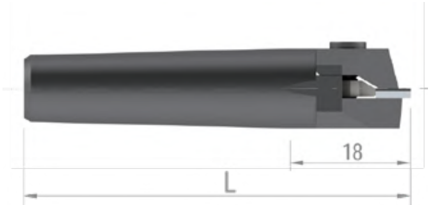
Ref.	D	Art.
DIXI 1973.1025	10	24550



Ref.	D	Art.
DIXI 1973.0925-1	9.525 (3/8’’)	24549



Ref.	Morse taper	L	Art.
DIXI 1973.0125	CM1	36.50	26549
DIXI 1973.0125	CM1	58.50	24551



Tool holder for profile dressing with automatic centering of the insert.

On request, DIXI can develop special holders for various machines such as: Agathon, Kellenberger, Studer, Tripet, Tschudin (HTT), Voumard, etc...

DIXI 1978

INSERTS FOR PROFILING DEVICES

Ref.	PCD	CVD
DIXI 1978.2500	24623	973739

Ref.	R	PCD	CVD
DIXI 1978.2512	0.125	24624	973736
DIXI 1978.2520	0.200	24625	973732
DIXI 1978.2525	0.250	24626	973737
DIXI 1978.2550	0.500	24627	973738

DIADIX®, APPLICATION

DIADIX® WHEEL-DRESSERS

CHARACTERISTICS

Bonded to a tungsten CARBIDE pin, the diamond layer enables a significant cost saving through the combination of the three cutting points and circular segment. The polycristalline diamond retains its sharpness and efficiency until it has been completely used. The DIADIX® wheel-dresser breaks the crystals of the grinding wheel instead of planishing them, thereby revealing a greater number of cutting points on the grinding wheel.

ADVANTAGES

The grinding wheels redressed with a DIADIX® tool produce more work-pieces with a better finish and greater accuracy. The redressing intervals are longer, thus reducing down time. These advantages mean a significant improvement of productivity.

CONDITIONS OF USE

Wheels : Aluminium oxide (Al203)

and in certain cases silicon carbide (SiC)

Hardness : up to L, possibly M (see table)

Structure : from 3 to 20, depending on the cases (see table)

Grit size: 46 - 220

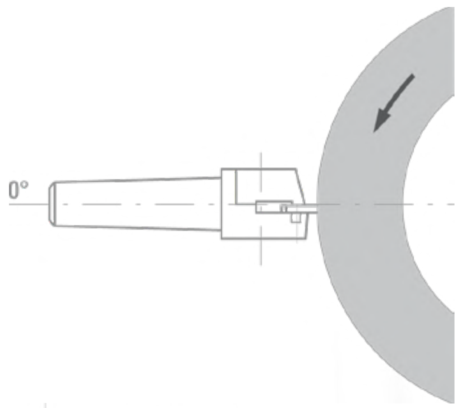
Rectifieuses : planer type, internal and external

cylindrical type, from any manufacturer

I 1	J 1	K 1	L 1	M 1
I 2	J 2	K 2	L 2	M 2
I 3	J 3	K 3	L 3	M 3
I 4	**J 4**	**K 4**	L 4	M 4
I 5	**J 5**	**K 5**	L 5	M 5
I 6	**J 6**	**K 6**	**L 6**	M 6
I 7	**J 7**	**K 7**	**L 7**	M 7
I 8	**J 8**	**K 8**	**L 8**	M 8
I 9	**J 9**	**K 9**	**L 9**	M 9
I 10	**J 10**	**K 10**	**L 10**	M 10
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●

Light letters = Uncertain area

Heavy letters = Certain area



DIADIX® WHEEL-DRESSERS

WORKING CONDITIONS

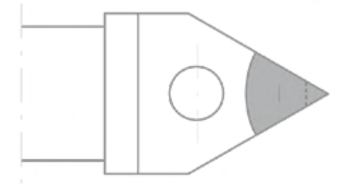
The wheel-dresser must be leveled with the wheel axis.

Dressing angle : 0°

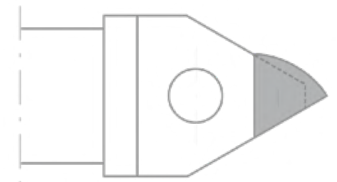
Feed rate : faster than with a single crystal natural diamond

Cutting depth : possible up to 0.50 mm

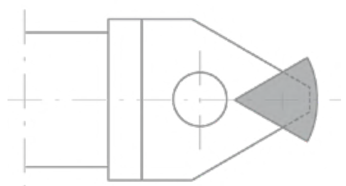
Lubrification : necessary



Examples of insert positioning



For **roughing** operations.
The wheel becomes more efficient when using the appropriate feed.

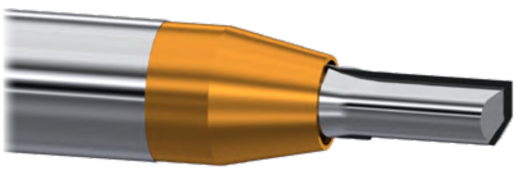


For **finishing** operations.
In employing the whole or part of the insert's radius, the grinding wheel gives an impeccable finish.

TOOLS ON REQUEST

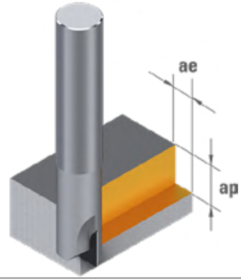
DIXI Polytool designs and manufactures customized PCD, CVD and DIA tools in order to meet your needs within short deadlines. From milling to turning, from matt machining to superfinishing, every options are feasible.

COOL+ TOOLS ON REQUEST

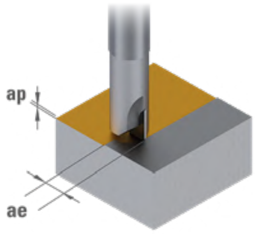


DIXI 70600 PCD

ROUTING

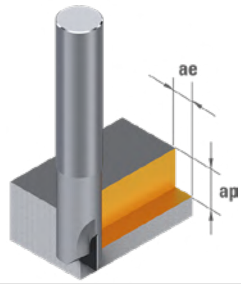
		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22		**35** - 60'000	0.05 - 0.20	<0.9×L1
	Cast aluminium alloy ≤8% Si	23		**30** - 60'000	0.05 - 0.20	<0.9×L1
	Copper alloy good machinability with Pb	26		**25** - 50'000	0.05 - 0.20	<0.9×L1
	Copper alloy with difficult machinability	27-28		**20** - 45'000	0.05 - 0.20	<0.9×L1
	Plastic, wood	29		**25** -50'000	0.05 - 0.20	<0.9×L1
	Gold, silver	-		**30** - 60'000	0.05 - 0.20	<0.9×L1

FACE MILLING

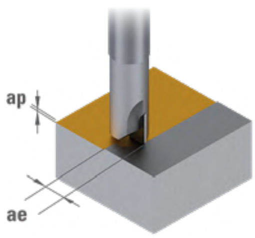
		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22		**35** - 60'000	<1×ØD1	0.05 - 0.20
	Cast aluminium alloy ≤8% Si	23		**30** - 60'000	<1×ØD1	0.05 - 0.20
	Copper alloy good machinability with Pb	26		**25** - 50'000	<1×ØD1	0.05 - 0.20
	Copper alloy with difficult machinability	27-28		**20** - 45'000	<1×ØD1	0.05 - 0.20
	Plastic, wood	29		**25** -50'000	<1×ØD1	0.05 - 0.20
	Gold, silver	-		**30** - 60'000	<1×ØD1	0.05 - 0.20

DIXI 70630 PCD

ROUTING

		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Plastic	29		**10** - 25'000	0.05 - 0.10	<1×ØD1

FACE MILLING

		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Plastic	29		**10** - 25'000	<1×ØD1	0.05 - 0.10

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.5 - 0.9	Ø D_1 1 - 1.5	Ø D_1 1.6 - 2	Ø D_1 2.5 - 3	Ø D_1 3 - 4	Ø D_1 4.5 - 6	Ø D_1 8 - 10
0.005 - 0.009	0.011 - 0.016	0.017 - 0.021	0.026 - 0.032	0.032 - 0.042	0.048 - 0.065	0.080 - 0.110
0.005 - 0.008	0.009 - 0.014	0.015 - 0.018	0.023 - 0.027	0.027 - 0.036	0.040 - 0.055	0.070 - 0.090
0.005 - 0.009	0.011 - 0.016	0.017 - 0.021	0.026 - 0.032	0.032 - 0.042	0.048 - 0.065	0.080 - 0.110
0.004 - 0.008	0.008 - 0.013	0.013 - 0.017	0.021 - 0.025	0.025 - 0.034	0.038 - 0.050	0.070 - 0.080
0.005 - 0.009	0.011 - 0.016	0.017 - 0.021	0.026 - 0.032	0.032 - 0.042	0.048 - 0.065	0.080 - 0.110
0.004 - 0.006	0.007 - 0.011	0.011 - 0.014	0.018 - 0.021	0.021 - 0.028	0.032 - 0.040	0.060 - 0.070

Feed per tooth fz [mm]

Ø D_1 0.5 - 0.9	Ø D_1 1 - 1.5	Ø D_1 1.6 - 2	Ø D_1 2.5 - 3	Ø D_1 3 - 4	Ø D_1 4.5 - 6	Ø D_1 8 - 10
0.004 - 0.008	0.009 - 0.014	0.014 - 0.016	0.022 - 0.027	0.024 - 0.032	0.036 - 0.050	0.060 - 0.080
0.004 - 0.007	0.008 - 0.012	0.013 - 0.014	0.020 - 0.023	0.020 - 0.027	0.030 - 0.040	0.050 - 0.070
0.004 - 0.008	0.009 - 0.014	0.014 - 0.016	0.022 - 0.027	0.024 - 0.032	0.036 - 0.050	0.060 - 0.080
0.003 - 0.007	0.007 - 0.011	0.011 - 0.013	0.018 - 0.021	0.019 - 0.026	0.029 - 0.040	0.050 - 0.060
0.004 - 0.008	0.009 - 0.014	0.014 - 0.016	0.022 - 0.027	0.024 - 0.032	0.036 - 0.050	0.060 - 0.080
0.003 - 0.005	0.006 - 0.009	0.009 - 0.011	0.015 - 0.018	0.016 - 0.021	0.024 - 0.030	0.045 - 0.050

Feed per tooth fz [mm]

Ø D_1 3 - 6	Ø D_1 8 - 12
0.027 - 0.045	0.060 - 0.090

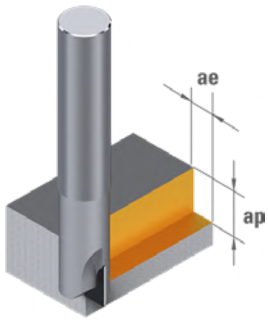
Ø D_1 3 - 6	Ø D_1 8 - 12
0.024 - 0.041	0.054 - 0.081

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 70600 DIA

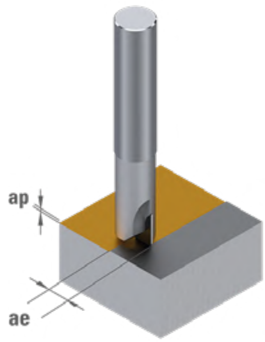
ROUTING

		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**35** - 60'000	0.03 - 0.08	<2.50
N	Cast aluminium alloy ≤8% Si	23	**35** - 60'000	0.03 - 0.08	<2.50
N	Copper alloy good machinability with Pb	26	**35** - 50'000	0.03 - 0.08	<2.50
N	Copper alloy with difficult machinability	27-28	**35** - 45'000	0.03 - 0.08	<2.50
N	Plastic, wood	29	**35** -50'000	0.03 - 0.08	<2.50
N	Gold, silver	-	**35** - 60'000	0.03 - 0.08	<2.50



FACE MILLING

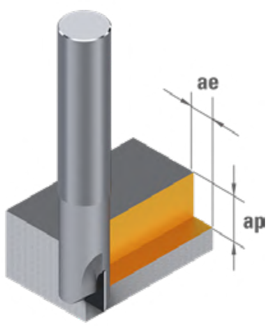
		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**35** - 60'000	<1×ØD1	0.03 - 0.08
N	Cast aluminium alloy ≤8% Si	23	**35** - 60'000	<1×ØD1	0.03 - 0.08
N	Copper alloy good machinability with Pb	26	**35** - 50'000	<1×ØD1	0.03 - 0.08
N	Copper alloy with difficult machinability	27-28	**35** - 45'000	<1×ØD1	0.03 - 0.08
N	Plastic, wood	29	**35** -50'000	<1×ØD1	0.03 - 0.08
N	Gold, silver	-	**35** - 60'000	<1×ØD1	0.03 - 0.08



DIXI 72310 DIA - 70330 DIA

ROUTING

		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**40** - 50'000	0.03 - 0.05	<0.8×L1
N	Cast aluminium alloy ≤8% Si	23	**40** - 50'000	0.03 - 0.05	<0.8×L1
N	Copper alloy good machinability with Pb	26	**30** - 50'000	0.03 - 0.05	<0.8×L1
N	Copper alloy with difficult machinability	27-28	**30** - 50'000	0.03 - 0.05	<0.8×L1
N	Plastic, wood	29	**35** - 50'000	0.03 - 0.05	<0.8×L1
N	Gold, silver	-	**40** - 50'000	0.03 - 0.05	<0.8×L1



$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 3 - 4	Ø D_1 4 - 6
0.008 - 0.009	0.009 - 0.012
0.007 - 0.008	0.008 - 0.010
0.008 - 0.009	0.009 - 0.012
0.006 - 0.007	0.007 - 0.010
0.008 - 0.009	0.009 - 0.012
0.005 - 0.006	0.006 - 0.008

Feed per tooth fz [mm]

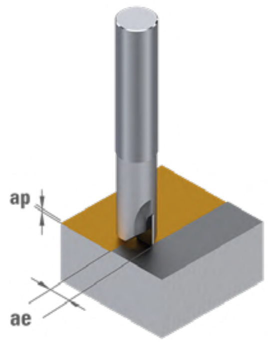
Ø D_1 3 - 4	Ø D_1 4 - 6
0.007 - 0.008	0.007 - 0.009
0.006 - 0.007	0.006 - 0.008
0.007 - 0.008	0.007 - 0.009
0.005 - 0.006	0.005 - 0.008
0.007 - 0.008	0.007 - 0.009
0.004 - 0.005	0.005 - 0.006

Feed per tooth fz [mm]

Ø D_1 0.4 - 0.9	Ø D_1 1 - 2
0.002 - 0.004	0.004 - 0.006
0.002 - 0.004	0.003 - 0.005
0.002 - 0.004	0.004 - 0.006
0.002 - 0.003	0.003 - 0.005
0.002 - 0.004	0.004 - 0.006
0.001 - 0.003	0.003 - 0.004

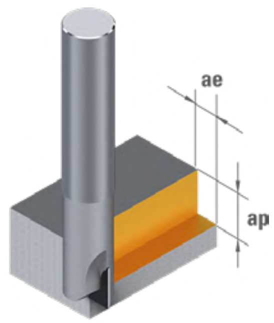
Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

FACE MILLING

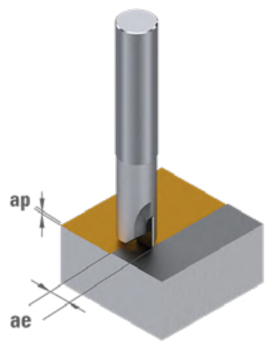
		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22		**25** - 50'000	<1×ØD1	0.03 - 0.05
	Cast aluminium alloy ≤8% Si	23		**20** - 50'000	<1×ØD1	0.03 - 0.05
	Copper alloy good machinability with Pb	26		**15** - 40'000	<1×ØD1	0.03 - 0.05
	Copper alloy with difficult machinability	27-28		**10** - 35'000	<1×ØD1	0.03 - 0.05
	Plastic, wood	29		**15** - 40'000	<1×ØD1	0.03 - 0.05
	Gold, silver	-		**20** - 50'000	<1×ØD1	0.03 - 0.05

DIXI 72421 SH DIA

ROUTING

		VDI 3323		n tr/min	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22		**20** - 30'000	0.02 - 0.08	<0.8×L1
	Cast aluminium alloy ≤8% Si	23		**15** - 30'000	0.02 - 0.08	<0.8×L1
	Copper alloy good machinability with Pb	26		**10** - 20'000	0.02 - 0.08	<0.8×L1
	Copper alloy with difficult machinability	27-28		**10** - 20'000	0.02 - 0.08	<0.8×L1
	Plastic, wood	29		**10** - 20'000	0.02 - 0.08	<0.8×L1
	Gold, silver	-		**15** - 30'000	0.02 - 0.08	<0.8×L1

FACE MILLING

		VDI 3323		n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22		**20** - 50'000	<1×ØD1	0.02 - 0.08
	Cast aluminium alloy ≤8% Si	23		**15** - 50'000	<1×ØD1	0.02 - 0.08
	Copper alloy good machinability with Pb	26		**10** - 40'000	<1×ØD1	0.02 - 0.08
	Copper alloy with difficult machinability	27-28		**5** - 35'000	<1×ØD1	0.02 - 0.08
	Plastic, wood	29		**10** -40'000	<1×ØD1	0.02 - 0.08
	Gold, silver	-		**15** - 50'000	<1×ØD1	0.02 - 0.08

Feed per tooth fz [mm]

Ø D_1 0.4 - 0.9	Ø D_1 1 - 2
0.002 - 0.003	0.003 - 0.005
0.002 - 0.003	0.003 - 0.004
0.002 - 0.003	0.003 - 0.005
0.002 - 0.003	0.003 - 0.004
0.002 - 0.003	0.003 - 0.005
0.001 - 0.003	0.003 - 0.003

Feed per tooth fz [mm]

Ø D_1 6 - 8	Ø D_1 10 - 12
0.011 - 0.024	0.018 - 0.036
0.009 - 0.021	0.016 - 0.031
0.011 - 0.024	0.018 - 0.036
0.009 - 0.019	0.014 - 0.029
0.011 - 0.024	0.018 - 0.036
0.007 - 0.016	0.012 - 0.024

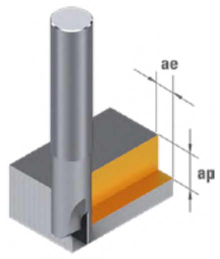
Feed per tooth fz [mm]

Ø D_1 6 - 8	Ø D_1 10 - 12
0.009 - 0.020	0.015 - 0.031
0.008 - 0.018	0.014 - 0.026
0.009 - 0.020	0.015 - 0.031
0.008 - 0.016	0.012 - 0.025
0.009 - 0.020	0.015 - 0.031
0.062 - 0.014	0.010 - 0.020

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

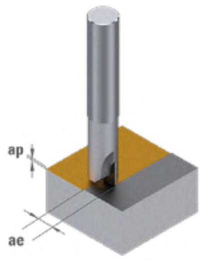
DIXI 72420 PCD - 70520 PCD

ROUTING



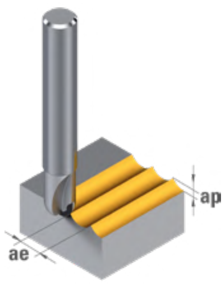
		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**25** - 40'000	**0.10** - 1.00	<0.9×L1
N	Cast aluminium alloy ≤8% Si	23	**20** - 40'000	**0.10** - 1.00	<0.9×L1
N	Copper alloy good machinability with Pb	26	**15** - 35'000	**0.10** - 1.00	<0.9×L1
N	Copper alloy with difficult machinability	27-28	**15** - 35'000	**0.10** - 1.00	<0.9×L1
N	Plastic, wood	29	**15** - 30'000	**0.10** - 1.00	<0.9×L1
N	Gold, silver	-	**20** - 40'000	**0.10** - 1.00	<0.9×L1

FACE MILLING



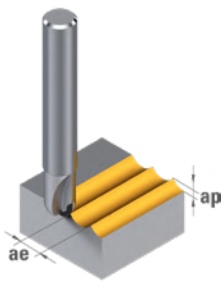
		VDI 3323	n tr/min	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**25** - 40'000	**0.10** - 1.00	<0.9×L1
N	Cast aluminium alloy ≤8% Si	23	**20** - 40'000	**0.10** - 1.00	<0.9×L1
N	Copper alloy good machinability with Pb	26	**15** - 35'000	**0.10** - 1.00	<0.9×L1
N	Copper alloy with difficult machinability	27-28	**15** - 35'000	**0.10** - 1.00	<0.9×L1
N	Plastic, wood	29	**15** - 30'000	**0.10** - 1.00	<0.9×L1
N	Gold, silver	-	**20** - 40'000	**0.10** - 1.00	<0.9×L1

DIXI 70320-SH PCD



		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**25** - 50'000	<0.10×ØD1	<0.10×ØD1
N	Cast aluminium alloy ≤8% Si	23	**20** - 50'000	<0.10×ØD1	<0.10×ØD1
N	Copper alloy good machinability with Pb	26	**15** - 40'000	<0.10×ØD1	<0.10×ØD1
N	Copper alloy with difficult machinability	27-28	**10** - 35'000	<0.10×ØD1	<0.10×ØD1
N	Plastic, wood	29	**15** - 40'000	<0.10×ØD1	<0.10×ØD1
N	Gold, silver	-	**20** - 50'000	<0.10×ØD1	<0.10×ØD1

DIXI 70320 DIA



		VDI 3323	n tr/min	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**25** - 50'000	0.03 - 0.08	0.03 - 0.08
N	Cast aluminium alloy ≤8% Si	23 - 25	**20** - 50'000	0.03 - 0.08	0.03 - 0.08
N	Copper alloy good machinability with Pb	26	**15** - 40'000	0.03 - 0.08	0.03 - 0.08
N	Copper alloy with difficult machinability	27-28	**10** - 35'000	0.03 - 0.08	0.03 - 0.08
N	Plastic, wood	29 - 30	**15** - 40'000	0.03 - 0.08	0.03 - 0.08
N	Gold, silver	-	**20** - 50'000	0.03 - 0.08	0.03 - 0.08

$$n\,[rpm] = \frac{Vc\,[m/min] \times 1000}{\pi \times D_1\,[mm]}$$

$$Vf\,[mm/min] = n\,[rpm] \times fz\,[mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 1 - 2	Ø D_1 3 - 6	Ø D_1 7- 12	Ø D_1 13 - 20
0.009 - 0.018	0.027 - 0.054	0.063 - 0.108	0.098 - 0.150
0.008 - 0.016	0.023 - 0.047	0.055 - 0.064	0.085 - 0.130
0.009 - 0.018	0.027 - 0.054	0.063 - 0.108	0.098 - 0.150
0.007 - 0.014	0.022 - 0.043	0.050 - 0.086	0.078 - 0.120
0.009 - 0.018	0.027 - 0.054	0.063 - 0.108	0.098 - 0.150
0.006 - 0.012	0.018 - 0.036	0.042 - 0.072	0.065 - 0.100

Feed per tooth fz [mm]

Ø D_1 1 - 2	Ø D_1 3 - 6	Ø D_1 7- 12	Ø D_1 13 - 20
0.008 - 0.016	0.023 - 0.047	0.055 - 0.094	0.085 - 0.130
0.007 - 0.013	0.020 - 0.040	0.046 - 0.079	0.072 - 0.110
0.008 - 0.016	0.023 - 0.047	0.055 - 0.094	0.085 - 0.130
0.006 - 0.012	0.018 - 0.036	0.042 - 0.072	0.065 - 0.100
0.008 - 0.016	0.023 - 0.047	0.055 - 0.094	0.085 - 0.130
0.005 - 0.010	0.014 - 0.029	0.034 - 0.058	0.052 - 0.080

Feed per tooth fz [mm]

Ø D_1 2 - 4	Ø D_1 5 - 8	Ø D_1 10 - 20
0.014 - 0.027	0.034 - 0.054	0.060 - 0.120
0.012 - 0.023	0.029 - 0.047	0.052 - 0.104
0.014 - 0.027	0.034 - 0.054	0.060 - 0.120
0.011 - 0.022	0.027 - 0.043	0.048 - 0.096
0.014 - 0.027	0.034 - 0.054	0.060 - 0.120
0.009 - 0.018	0.023 - 0.036	0.040 - 0.080

Feed per tooth fz [mm]

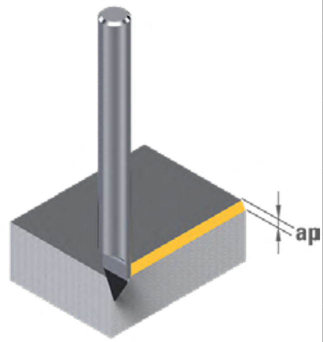
Ø D_1 2 - 4	Ø D_1 6 - 10
0.005 - 0.044	0.012 - 0.015
0.005 - 0.009	0.010 - 0.013
0.005 - 0.011	0.012 - 0.015
0.004 - 0.009	0.009 - 0.012
0.005 - 0.011	0.012 - 0.015
0.004 - 0.007	0.008 - 0.010

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 76230 DIA - 76231 DIA

CHAMFERING

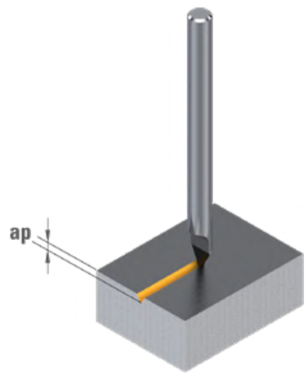
		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**35** - 60'000	0.03 - 0.08	< 0.8 × L1
	Cast aluminium alloy ≤8% Si	23	**35** - 60'000	0.03 - 0.08	< 0.8 × L1
	Copper alloy good machinability with Pb	26	**35** - 60'000	0.03 - 0.08	< 0.8 × L1
	Copper alloy with difficult machinability	27-28	**35** - 60'000	0.03 - 0.08	< 0.8 × L1
	Plastic, wood	29	**35** - 60'000	0.03 - 0.08	< 0.8 × L1
	Gold, silver	-	**35** - 60'000	0.03 - 0.08	< 0.8 × L1



DIXI 70170 DIA

ENGRAVING

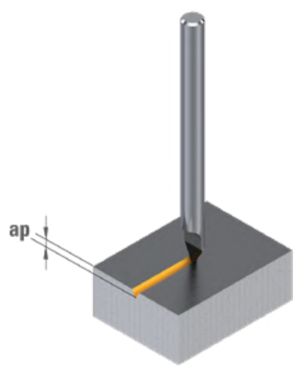
		VDI 3323	n rpm	ae (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**30** - 60'000	0.03 - 0.08
	Cast aluminium alloy ≤8% Si	23	**30** - 60'000	0.03 - 0.08
	Copper alloy good machinability with Pb	26	**30** - 60'000	0.03 - 0.08
	Copper alloy with difficult machinability	27-28	**30** - 60'000	0.03 - 0.08
	Plastic, wood	29	**30** - 60'000	0.03 - 0.08
	Gold, silver	-	**30** - 60'000	0.03 - 0.08



DIXI 70070 PCD - 70170 PCD

ENGRAVING

		VDI 3323	n rpm	ae (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**25** - 45'000	0.05 - 0.10
	Cast aluminium alloy ≤8% Si	23	**20** - 45'000	0.05 - 0.10
	Copper alloy good machinability with Pb	26	**15** - 35'000	0.05 - 0.10
	Copper alloy with difficult machinability	27-28	**10** - 30'000	0.05 - 0.10
	Plastic, wood	29	**15** - 35'000	0.05 - 0.10
	Gold, silver	-	**20** - 45'000	0.05 - 0.10



$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 0.1 -0.9	Ø D_1 1 - 3.9	Ø D_1 4 - 16
0.003 - 0.007	0.008 - 0.012	0.011 - 0.019
0.003 - 0.006	0.007 - 0.010	0.009 - 0.017
0.003 - 0.007	0.008 - 0.012	0.011 - 0.019
0.002 - 0.005	0.006 - 0.009	0.009 - 0.015
0.003 - 0.007	0.008 - 0.012	0.011 - 0.019
0.002 - 0.005	0.005 - 0.008	0.007 - 0.013

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

Feed per tooth fz [mm]

Ø D_1 0.05 - 0.10
0.004 - 0.007
0.003 - 0.006
0.004 - 0.007
0.003 - 0.006
0.004 - 0.007
0.002 - 0.005

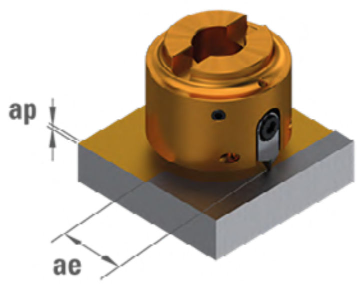
Feed per tooth fz [mm]

Ø D_1 0.05 - 0.10	Ø D_1 0.10 - 0.20
0.003 - 0.006	0.007 - 0.011
0.003 - 0.005	0.006 - 0.009
0.003 - 0.006	0.007 - 0.011
0.002 - 0.005	0.006 - 0.009
0.003 - 0.006	0.007 - 0.011
0.002 - 0.004	0.005 - 0.007

The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !

DIXI 81000

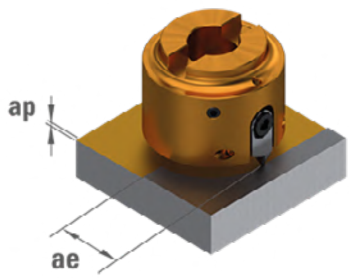
FACE MILLING



		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**2** - 7'000	<1×ØD1	0.10 - 0.50
	Cast aluminium alloy≤8% Si	23	**2** - 7'000	<1×ØD1	0.10 - 0.50
	Copper alloy good machinability with Pb	26	**2** - 6'000	<1×ØD1	0.10 - 0.50
	Copper alloy with difficult machinability	27-28	**2** - 5'000	<1×ØD1	0.10 - 0.50
	Plastic, wood	29	**2** -5'000	<1×ØD1	0.10 - 0.50
	Gold, silver	-	**2** - 7'000	<1×ØD1	0.10 - 0.50

DIXI 82000

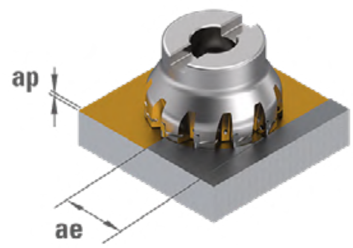
FACE MILLING



		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**5** - 7'000	<1×ØD1	0.10 - 0.50
	Cast aluminium alloy ≤8% Si	23	**5** - 7'000	<1×ØD1	0.10 - 0.50
	Copper alloy good machinability with Pb	26	**4** - 6'000	<1×ØD1	0.10 - 0.50
	Copper alloy with difficult machinability	27-28	**4** - 5'000	<1×ØD1	0.10 - 0.50
	Plastic, wood	29	**4** - 5'000	<1×ØD1	0.10 - 0.50
	Gold, silver	-	**5** - 7'000	<1×ØD1	0.10 - 0.50

DIXI 80000

FACE MILLING



		VDI 3323	n rpm	ae (mm)	ap (mm)
N	Wrought aluminium alloy < 12% Si	21 - 22	**2** - 7'000	<1×ØD1	0.10 - 1.00
	Cast aluminium alloy ≤8% Si	23	**2** - 7'000	<1×ØD1	0.10 - 1.00
	Copper alloy good machinability with Pb	26	**2** - 6'000	<1×ØD1	0.10 - 1.00
	Copper alloy with difficult machinability	27-28	**2** - 5'000	<1×ØD1	0.10 - 1.00
	Plastic, wood	29	**2** - 5'000	<1×ØD1	0.10 - 1.00
	Gold, silver	-	**2** - 7'000	<1×ØD1	0.10 - 1.00

$$n\ [rpm] = \frac{Vc\ [m/min] \times 1000}{\pi \times D_1\ [mm]}$$

$$Vf\ [mm/min] = n\ [rpm] \times fz\ [mm] \times Z$$

Feed per tooth fz [mm]

Ø D_1 40 - 60	Ø D_1 85 - 125
0.018 - 0.027	0.032 - 0.056
0.016 - 0.023	0.028 - 0.049
0.018 - 0.027	0.032 - 0.056
0.014 - 0.022	0.026 - 0.045
0.018 - 0.027	0.032 - 0.056
0.012 - 0.018	0.021 - 0.038

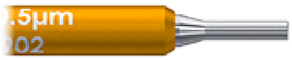
Feed per tooth fz [mm]

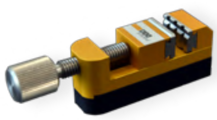
Ø D_1 18 - 30
0.008 - 0.014
0.007 - 0.012
0.008 - 0.014
0.006 - 0.011
0.008 - 0.014
0.005 - 0.009

Feed per tooth fz [mm]

Ø D_1 40 - 63	Ø D_1 80 -125
0.024 - 0.189	0.060 - 0.244
0.021 - 0.164	0.052 - 0.211
0.024 - 0.189	0.060 - 0.244
0.019 - 0.151	0.048 - 0.195
0.024 - 0.189	0.060 - 0.244
0.016 - 0.126	0.040 - 0.163

Values based on use of cutting oil. The cutting parameters are very strongly influenced by external parameters, such as tool and workpiece stability, etc.
The cutting conditions must be adapted to the operating conditions !





TUNGSTEN CARBIDE
GROUND RODS

D_{h5}	L		CARBIDE
0.30	30		201016
0.35	30		200825
0.40	30		200968
0.45	30		200851
0.50	30		200912
0.50	38		200917
0.55	30		200861
0.55	38		200869
0.60	30		201064
0.60	38		200976
0.65	30		200969
0.65	38		201069
0.70	30	✓	200913
0.70	38	✓	200918
0.75	30	✓	200970
0.75	38		200865
0.80	30	✓	200862
0.80	38	✓	200977
0.80	102		200950
0.85	30	✓	201065
0.85	38	✓	200978
0.90	30		200914
0.90	38	✓	200919
0.95	30	✓	200971
0.95	38	✓	201070
1.00	30	✓	201066
1.00	30		323054
1.00	32	✓	981529
1.00	38		200979
1.00	70		391314
1.00	102		200907
1.05	30		200972
1.05	38		200866
1.10	30		200915
1.10	38		200920
1.10	102		200902
1.15	30		200863
1.15	38		201071
1.20	30		200973
1.20	38		200980
1.20	102		200947
1.25	30		201067
1.25	38		201072
1.30	30		200916
1.30	102	✓	200949
1.40	102	✓	201055
1.45	38		200982
1.50	30		200975
1.50	30	✓	323055
1.50	32		981528
1.50	40	✓	963071
1.50	102		200961
1.55	102		38577
1.60	102		201076
1.70	43		200884
1.70	102		201032
1.80	46		201050
1.80	102		200870
1.85	102		46203
1.90	46		200948
1.90	102		200852
2.00	25		201058
2.00	32		200988
2.00	38		200986
2.00	38	✓	323064
2.00	102		201057
2.10	102		200925
2.15	40		201013
2.20	53		200954
2.20	102		201077
2.30	53		200856
2.30	102		200871
2.35	102		47709
2.40	57		201075
2.40	102		200899
2.45	102		46772
2.50	32		201078
2.50	43	✓	323057
2.50	102		200906
2.60	57		200959
2.60	102		200991
2.65	102		38733
2.70	61		200987
2.70	102		200992
2.75	102		201096
2.80	102		200872
2.85	102		201015
2.90	61		200885
2.90	102		200926
2.95	102		201097
3.00	32		962285
3.00	38,5		960503
3.00	46	✓	301757
3.00	50	✓	977075
3.00	61	✓	201011
3.00	102	✓	200960
3.05	102	✓	200824
3.10	65		201053
3.10	102		201079
3.15	102		201019
3.175	30		303056
3.175	38		201010
3.175	102	✓	966109
3.20	65	✓	200854
3.20	102		200993
3.25	102		200956
3.30	65		200897
3.30	102		200927
3.35	102		200887
3.40	52		200836
3.40	70		200924
3.40	102		201080
3.45	52		200941
3.50	40		200859
3.50	52		201025
3.50	70		201060
3.50	102		200873
3.55	52		200837
3.60	52		201034
3.60	70		200908
3.60	102		200994
3.65	52		201103
3.70	52		200890
3.70	70		200964
3.70	102		200879
3.75	52		200838
3.80	55		201022
3.80	75		201040
3.80	102		201005
3.85	55		201044
3.90	55		201026
3.90	75		200818
3.90	102		200804
3.95	55		200835
4.00	35		200938
4.00	38,5		335046
4.00	42		201054
4.00	51	✓	332349
4.00	55	✓	200833
4.00	62	✓	201017
4.00	75	✓	200817
4.00	102		200857
4.05	55	✓	200889
4.10	55		201024
4.10	75		201094
4.10	102		200874
4.15	55		201104
4.20	55		201085
4.20	75		200830
4.20	102		201098
4.25	55		201100
4.25	102		973861
4.30	58		201001
4.30	80		201062
4.30	102		200827
4.35	58		200939
4.40	58		201036
4.40	102		201018
4.45	58		200831
4.50	50	✓	312849
4.50	58		200798
4.50	80		200900
4.50	102		200909

TUNGSTEN CARBIDE GROUND RODS

D_{h5}	L		CARBIDE
4.55	58		201027
4.60	58		200877
4.60	80		201059
4.60	102		200828
4.65	58		200839
4.70	58		201086
4.70	102		201099
4.75	58		201020
4.80	62		200799
4.80	86		200819
4.80	102		201042
4.85	62		200840
4.90	62		200928
4.90	86		201041
4.90	102		200829
4.95	62		200891
5.00	62		201002
5.00	75		200996
5.00	86		200850
5.00	102		200962
5.10	62		200931
5.10	86		201012
5.10	102		200844
5.20	62		200800
5.20	86		200963
5.20	102		200952
5.30	62		201087
5.30	86		200858
5.30	102		200878
5.40	66		200942
5.40	93		200953
5.40	102		200955
5.50	66		200801
5.50	102		200848
5.60	66		201043
5.60	102		200932
5.70	66		201003
5.70	102		200802
5.80	66		201004
5.80	102		201088
5.90	66		200803
5.90	102	✓	201037
6.00	32	✓	994215
6.00	42	✓	962222
6.00	50,5	✓	960544
6.00	55	✓	332354
6.00	57		960545

D_{h5}	L		CARBIDE
6.00	66	✓	10665
6.00	66	✓	200832
6.00	75		201082
6.00	81		975718
6.00	93		200883
6.00	102		200958
6.10	70		200898
6.10	102		200892
6.20	70		200911
6.20	102		201048
6.30	70		201051
6.30	102		200845
6.35	63		201056
6.35	76		200933
6.40	70		200967
6.40	102		201047
6.50	70		200943
6.50	102		200944
6.60	70		201081
6.60	102		201052
6.70	70		201063
6.70	102		201030
6.80	74		200997
6.80	109		966959
6.90	75		201061
6.90	109		200951
7.00	60		200805
7.00	75		200929
7.00	109		200895
7.20	75		200881
7.50	74		201031
7.50	109		200811
7.80	79	✓	200806
8.00	63,5	✓	960546
8.00	75		396289
8.00	79	✓	201007
8.00	102		200893
8.00	117		200934
8.50	79		200965
8.50	117		967426
8.80	84		201038
9.00	67		201008
9.00	84		200995
9.00	102		201046
9.00	125		200946
9.50	84		200826
9.50	125	✓	201091

D_{h5}	L		CARBIDE
10.00	67		335048
10.00	72	✓	49215
10.00	73		332053
10.00	75		201083
10.00	90		200807
10.00	102		200945
10.00	133		200812
10.20	89		968835
10.20	133		200808
10.50	89		200810
10.50	133		201009
11.00	75		200998
11.00	102		200849
11.00	142		200813
11.50	102		201035
11.50	142	✓	201092
12.00	74	✓	333502
12.00	84		960550
12.00	102		200894
12.00	110		200905
12.00	151		201039
12.50	102		201090
12.50	151		200814
12.70	76		200999
13.00	75		201006
13.00	102		200876
13.00	151		200882
13.50	107		201028
14.00	75	✓	200930
14.00	76	✓	960552
14.00	84		960551
14.00	107		200888
14.00	152		201045
14.00	160		201093
15.00	75		200880
15.00	111	✓	200935
16.00	83	✓	335049
16.00	92		49217
16.00	102		201000
16.00	120		201105
16.00	152	✓	201029
18.00	93		960557
18.00	125		200842
18.00	152	✓	200843
20.00	105		960558
20.00	130		200816
20.00	152	✓	201106
25.00	105		955903

DIXI 6820

POLISHED CARBIDE BALLS

[mm]	inches	CARBIDE
0.500		11330
0.600		12684
0.700		11331
0.7938	1/32"	13962
0.800		11332
1.000		11333
1.100		14065
1.1906	3/64"	12735
1.200		12739
1.500		11336
1.5875	1/16"	13617
1.750		11337
2.000		11338
2.3815	3/32"	13963
2.500		11339
2.750		12786
2.7781	7/64"	12788
3.000		11340
3.175	1/8"	11328
3.200		12602
3.500		11341
3.750		12825

[mm]	inches	CARBIDE
5.500		12226
3.9685	5/32"	13964
4.000		11342
4.500		11343
4.762	3/16"	13586
5.000		11344
5.500		12226
5.5565	7/32"	13965
6.000		11345
6.350	1/4"	13957
6.500		10496
7.000		11346
7.1438	9/32"	13966
7.500		11347
7.9370	5/16"	13535
8.000		11348
8.500		13956
8.7315	11/32"	12920
9.000		11349
9.525	3/8"	13959
10.000		11350
11.000		11351

[mm]	inches	CARBIDE
11.112	7/16"	13536
15.000		12226
12.000		12671
12.700	1/2"	13550
14.000		12673
14.287	9/16"	12985
15.000		11352
15.081	19/32"	13983
15.875	5/8"	13960
16.000		12674
16.6688	21/32"	22063
17.000		12675
17.462	11/16"	13961
18.000		12676
19.050	3/4"	13958
20.000		12678
21.431	27/32"	28751
22.000		14179
23.000		13038
24.000		13012
25.000		13639
25.400	1"	11017

DIXI 6961

POLISHED AL_2 0_3 - SIC BALLS

[mm]	inches	CERAMIC
1.50		19035
3.00		19036
3.175	1/8"	21267
4.00		19037
4.50		15864
5.00		22280

[mm]	inches	CERAMIC
7.00		28995
8.00		28994
10.00		29401
11.00		59670
12.00		37932

RUBY / SAPPHIRE POLISHED BALLS

[mm]	inches	RUBY
0.50		31368
0.70		19603
0.7931	1/32''	23153
0.80		17774
1.00		13996
1.1906	3/64''	30249
1.20		29360
1.50		13997
1.585	1/16"	19626
1.75		21380

[mm]	inches	RUBY
2.00		13998
2.381	3/32"	19023
3.00		14048
3.175	1/8"	16644
4.00		14063
5.00		14811
6.00		16320
6.35	1/4"	17706
7.00		17211
8.00		15716

[mm]	inches	RUBY
1.00		13859
1.50		19024
1.5875	1/16''	60423
2.00		15144
2.50		19025
3.00		13282
3.175	1/8"	17052
4.00		16962

BALLS

PROPERTIES OF MATERIALS

	Tungstene carbide	Ruby / Sapphire	CERAMIC	Silicon carbide
Compound	94 WC+6 Co	$Al_2 0_3$	$Al_2 0_3$	SiC
Specific weight	14.90	3.98	3.90	3.1
Hardness HV 50	1700	-	-	2500
Knoop hardness	-	1800/2200	2000	-
Modulus of elasticity E (kN/mm²)	640	420	350	400
Compression resistance (kN/mm²)	5.7	2.1	2.4	4.1
Tensile strength (kN/mm²)	1.7	0.019	0.025	0.4
Softening point (°C)	600	1800	1725	1400
Melting or dissociation point (°C)	2600	2050	2050	1900
Thermic dilatation (10-6/°C)	5	5.3-6.2	6.6	4.3
Specific heat (j/g/°C)	0.20	0.043	0.06	0.8
Porosity	porous	resistant	porous	porous
Resistance to acid attacks	relative	total	total	excellent
Resistance to alkaline attacks	relative	total	total	excellent

DIXI 0420 (± 0.5µm)

D_1 ±0.0005	L_1
0.100 - 0.199	1.50
0.200 - 0.299	2.00
0.300 - 0.499	3.50
0.500 - 1.499	5.00
1.500 - 1.950	6.00
1.951 - 3.499	8.00
3.500 - 3.999	10.00

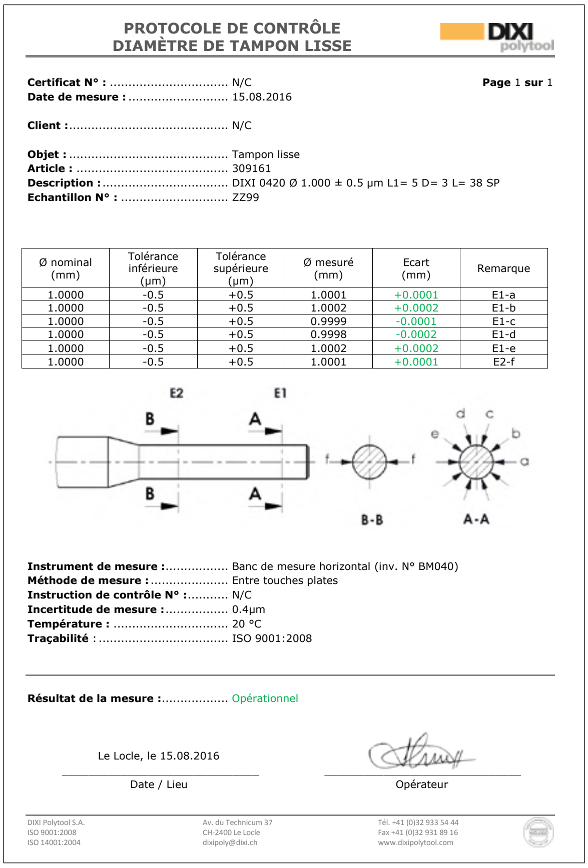
Standard each 0.001mm
Available in 72h.

DIXI 0421 (± 1.0µm)

D_1 ±0.0005	L_1
0.10 - 0.19	1.50
0.20 - 0.29	2.00
0.30 - 0.49	3.50
0.50 - 1.49	5.00
1.50 - 1.95	6.00
1.96 - 3.49	8.00
3.50 - 3.99	10.00

From stock each 0.01mm

Products available with an internal control protocol or made by an external laboratory



PROTOCOLE DE CONTRÔLE
DIAMÈTRE DE TAMPON LISSE

DIXI polytool

Certificat N° : .... N/C
Date de mesure : 15.08.2016

Page 1 **sur** 1

Client : .... N/C

Objet : .... Tampon lisse
Article : 309161
Description : .... DIXI 0420 Ø 1.000 ± 0.5 µm L1= 5 D= 3 L= 38 SP
Echantillon N° : ZZ99

Ø nominal (mm)	Tolérance inférieure (µm)	Tolérance supérieure (µm)	Ø mesuré (mm)	Ecart (mm)	Remarque
1.0000	-0.5	+0.5	1.0001	+0.0001	E1-a
1.0000	-0.5	+0.5	1.0002	+0.0002	E1-b
1.0000	-0.5	+0.5	0.9999	-0.0001	E1-c
1.0000	-0.5	+0.5	0.9998	-0.0002	E1-d
1.0000	-0.5	+0.5	1.0002	+0.0002	E1-e
1.0000	-0.5	+0.5	1.0001	+0.0001	E2-f

E2 E1
B A
B A
B-B A-A
a b c d e f

Instrument de mesure : .... Banc de mesure horizontal (inv. N° BM040)
Méthode de mesure : .... Entre touches plates
Instruction de contrôle N° : .... N/C
Incertitude de mesure : 0.4µm
Température : .... 20 °C
Traçabilité : .... ISO 9001:2008

Résultat de la mesure : .... Opérationnel

Le Locle, le 15.08.2016
Date / Lieu

Opérateur

DIXI Polytool S.A.
ISO 9001:2008
ISO 14001:2004

Av. du Technicum 37
CH-2400 Le Locle
dixipoly@dixi.ch

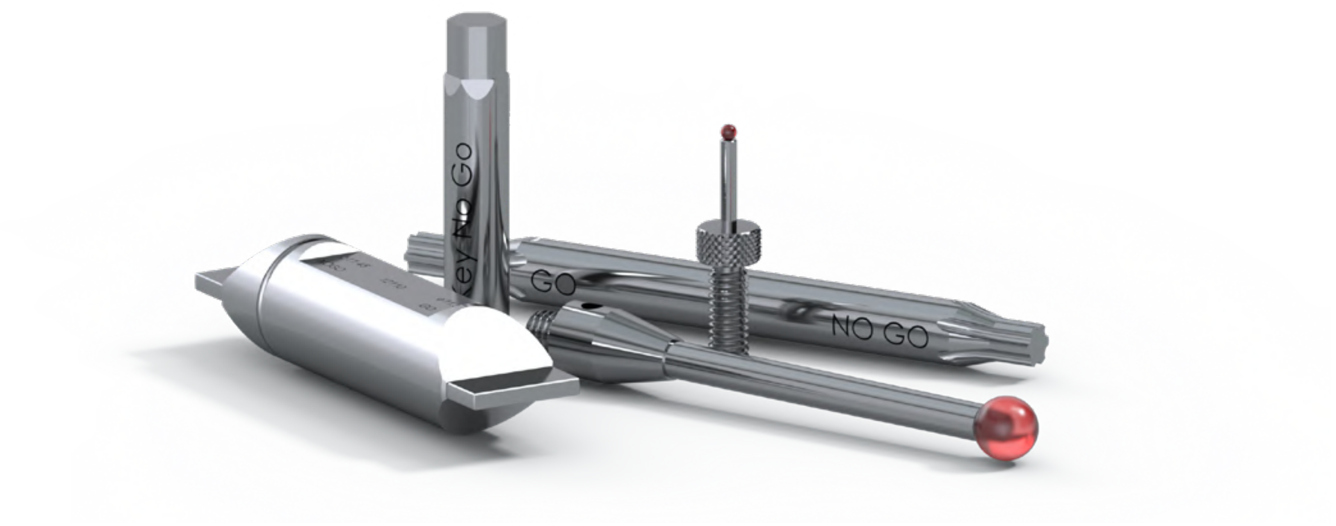
Tél. +41 (0)32 933 54 44
Fax +41 (0)32 931 89 16
www.dixipolytool.com

Contact us for any other set composition

SET 50 PIECES

SET 100 PIECES

NOTICE



The materials used for DIXI probes are in accordance
with their intended application and geometrical specifications:
- Minimal inertia
- Minimal bending
- Wear and/or environment resistance
- Specific geometry
- Precision

Dimensions and materials must be indicated when ordering.

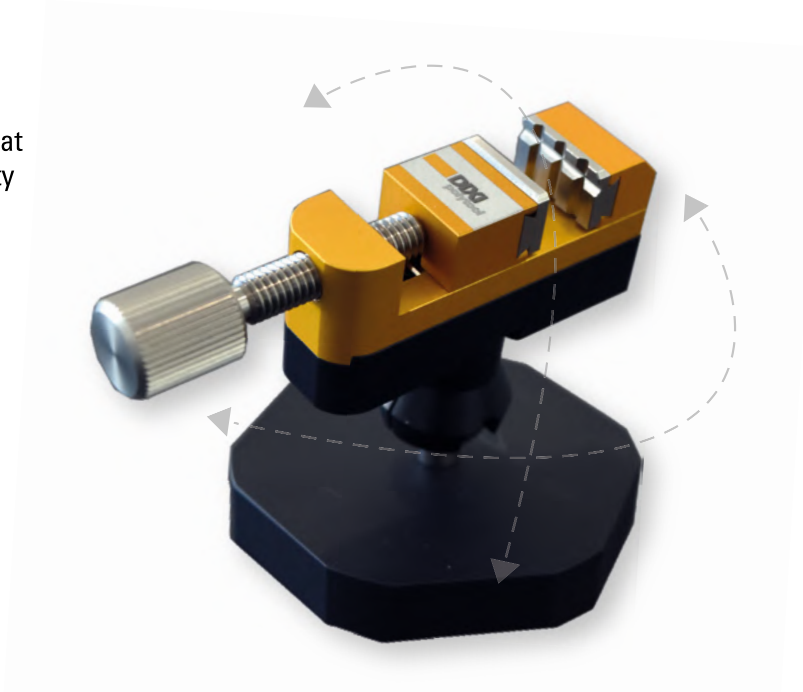
SOLID CARBIDE ANVILS

Absolutely necessary as a reference basis, DIXI anvils are perfectly polished and manufactured to very fine flatness limits. PCD and CBN anvils are also available on request.

Dimensions and diameters must be indicated when ordering.

SMALL-SIZE PRECISION VICE

This mini vice concentrates all the requirements that we put into our daily work to ensure extreme quality and perfect consistency in our products.



- compact, very handy and easy to use
- can be used on all measuring instruments
- can be rotated 360°

ANODIZED ALUMINUM VICE WITH STAINLESS STEEL SUPPORT

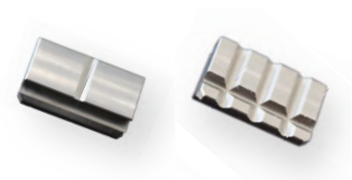
art : 369645

- dimensions 15 × 15 × 76
- gripping capacity 15.5 mm

Set of two clip-on jaws in stainless steel

art : 381484

- Set of smooth jaw and notched jaw
- dimensions 15 × 3 × 8



Set of two clip-on jaws in Delrin

art : 381485

- Set of smooth jaw and notched jaw
- dimensions 15 × 3

Adjustable clip-on support

art : 367295

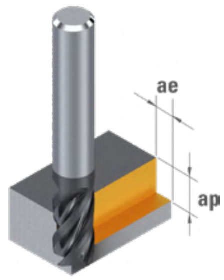
- dimensions 50×37 mm

	How to use
	Cutting conditions
	All directions possible
	Only contouring
	Contouring and angular plunging
	Contouring and plunging
DIN	DIN standards
ISO	ISO standards
DIXI NORM	DIXI standards
	Parting off
	Slotting
	Different helix angles
	Irregular teeth
	With clamping flat
	With chamfer
	Chamfer
	Radius
	Sharp corner
R = $D_1/2$	Radius tolerance
0.006	Profile form tolerance
	Web thinning
	Centre cutting
D_1>...	Centre cutting for Ø > …
	No centre cutting
	No cooling
	TC cooling
	FC cooling
	For a through hole
	For a blind hole
P M H K S N	Material groups
>1500 N/mm2	Hardness of material

INFORMATION

Cutting material

	□	Carbide
PCD	●	Polycrystalline diamond
CVD	▮	CVD Polycrystalline diamond
DIA	◆	Monocristalline diamond
CBN	▲	CBN Polycrystalline diamond

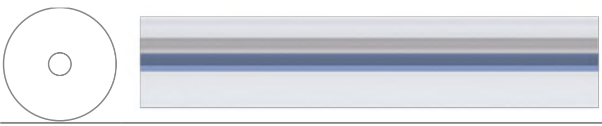
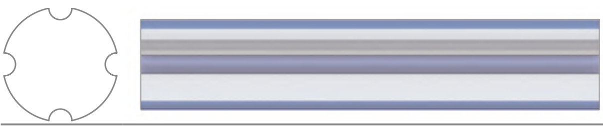


Coatings

TIAIN	With TiAIN coating
DICUT	With DICUT coating
XIDUR	With XIDUR coating
C-TOP	With C-TOP coating
CUTINOX	With CUTINOX coating
DAC	With DAC coating
DIXAL	With DIXAL coating
DLC	With DLC coating
DIAMANT	With DIAMANT coating
DINAC	With DINAC coating
DI-TOP	With DI-TOP coating
DRYCUT	With DRYCUT coating
POLYCUT	With POLYCUT coating

Z	Number of teeth
Vc	Cutting speed [m/min]
f	Feed / revolution [mm/rev.]
Vf	Feed in [mm/min]
n	Rotation speed [rpm]
ap	Depth of cut
ae	Width of cut
Rm	Tensile strength [N/mm^2]
fz	Feed per tooth [mm]
R	Right-hand cutting
L	Left-hand cutting
P.	Page

COOLANT STYLES

	**-HH**	Helicoidal holes	Twist drills Twist mills	DIXI 1145-HH
	**-SH**	Straight holes	Straight flute slot drills	DIXI 72420-SH
	**-TC**	Through hole	Solid carbide reamers	POLY 4001-TC
	**-FC**	Straight holes - radial outlet	End mills with flute coolant	DIXI 7563-FC
	**-PH**	Peripheral holes	Micro-mills	DIXI 1738-PH
	**-SC**	Slot coolant	Straight flute slot drills Solid carbide reamers	POLY 4005-SC

DIN 7160 ISO 286

[μm]

[mm]		D10	E9	F7	F8	G7	G9	H6	H7	H8	H9	H10	H11	H12	H13	JS7	JS9	K6	K7	M6	M7	N7	N9	P7	P9
-	3	+60 +20	+39 +14	+16 +6	+20 +6	+12 +2	+27 +2	+6 0	+10 0	+14 0	+25 0	+40 0	+60 0	+100 0	+140 0	±5	±12.5	0 -6	0 -10	-2 -8	-2 -12	-4 -14	-4 -29	-6 -16	-6 -31
3 > Ø	≥ 6	+78 +30	+50 +20	+22 +10	+28 +10	+16 +4	+34 +4	+8 0	+12 0	+18 0	+30 0	+48 0	+75 0	+120 0	+180 0	± 6	± 15	+2 -6	+3 -9	-1 -9	0 -12	-4 -16	0 -30	-8 -20	-12 -42
6	10	+98 +40	+61 +25	+28 +13	+35 +13	+20 +5	+41 +5	+9 0	+15 0	+22 0	+36 0	+58 0	+90 0	+150 0	+220 0	±7.5	± 18	+2 -7	+5 -10	-3 -12	-0 -15	-4 -19	0 -36	-9 -24	-15 -51
10	18	+120 +50	+75 +32	+34 +16	+43 +16	+24 +16	+49 +6	+11 0	+18 0	+27 0	+43 0	+70 0	+110 0	+180 0	+270 0	±9	±21.5	+2 -9	+6 -15	-4 -17	0 -21	-7 -28	0 -52	-14 -35	-22 -74
18	30	+149 +65	+92 +40	+41 +20	+53 +20	+28 +7	+59 +7	+13 0	+21 0	+33 0	+52 0	+84 0	+130 0	+210 0	+330 0	±10.5	±26	+2 -11	+6 -15	-4 -17	0 -21	-7 -28	0 -52	-14 -35	-22 -74
30	50	+180 +80	+112 +50	+50 +25	+64 +25	+34 +9	+71 +9	+16 0	+25 0	+39 0	+62 0	+100 0	+160 0	+250 0	+390 0	±12.5	±31	+3 -13	+7 -18	-4 -20	0 -25	-8 -33	0 -62	-17 -42	-26 -88
50	80	+220 +100	+134 +60	+60 +30	+76 +30	+40 +10		+19 0	+30 0	+46 0	+74 0	+120 0	+190 0	+300 0	+460 0	±15	±37	+4 -15	+9 -21	-5 -24	0 -30	-9 -39	0 -74	-21 -51	-32 -106
80	120	+260 +120	+159 +72	+71 +36	+90 +36	+47 +12		+22 0	+35 0	+54 0	+87 0	+140 0	+220 0	+350 0	+540 0	±17.5	±43.5	+4 -18	+10 -15	-6 -28	0 -35	-10 -45	0 -87	-24 -59	-37 -124
120	180	+305 +145	+185 +85	+83 +43	+106 +43	+54 +14		+25 0	+40 0	+63 0	+100 0	+160 0	+250 0	+400 0	+630 0	±20	±50	+4 -21	+12 -28	-8 -33	0 -40	-12 -52	0 -100	-28 -62	-43 -143
180	250	+355 +170	+215 +110	+96 +50	+122 +50	+61 +15		+29 0	+46 0	+72 0	+115 0	+185 0	+290 0	+460 0	+720 0	±23	±57.5	+5 -24	+13 -33	-8 -37	0 -46	-14 -60	0 -115	-33 -79	-50 -165
250	315	+400 +190	+240 +110	+108 +56	+137 +56	+69 +17		+32 0	+52 0	+81 0	+130 0	+210 0	+320 0	+520 0	+810 0	±26	±65	+5 -27	+16 -36	-9 -41	0 -52	-14 -66	0 -130	-36 -88	-56 -186
315	400	+440 +210	+265 +125	+119 +62	+151 +62	+75 +18		+36 0	+57 0	+89 0	+140 0	+230 0	+360 0	+570 0	+890 0	±28.5	±70	+7 -29	+17 -40	-10 -46	0 -57	-16 -73	0 -140	-41 -98	-62 -202

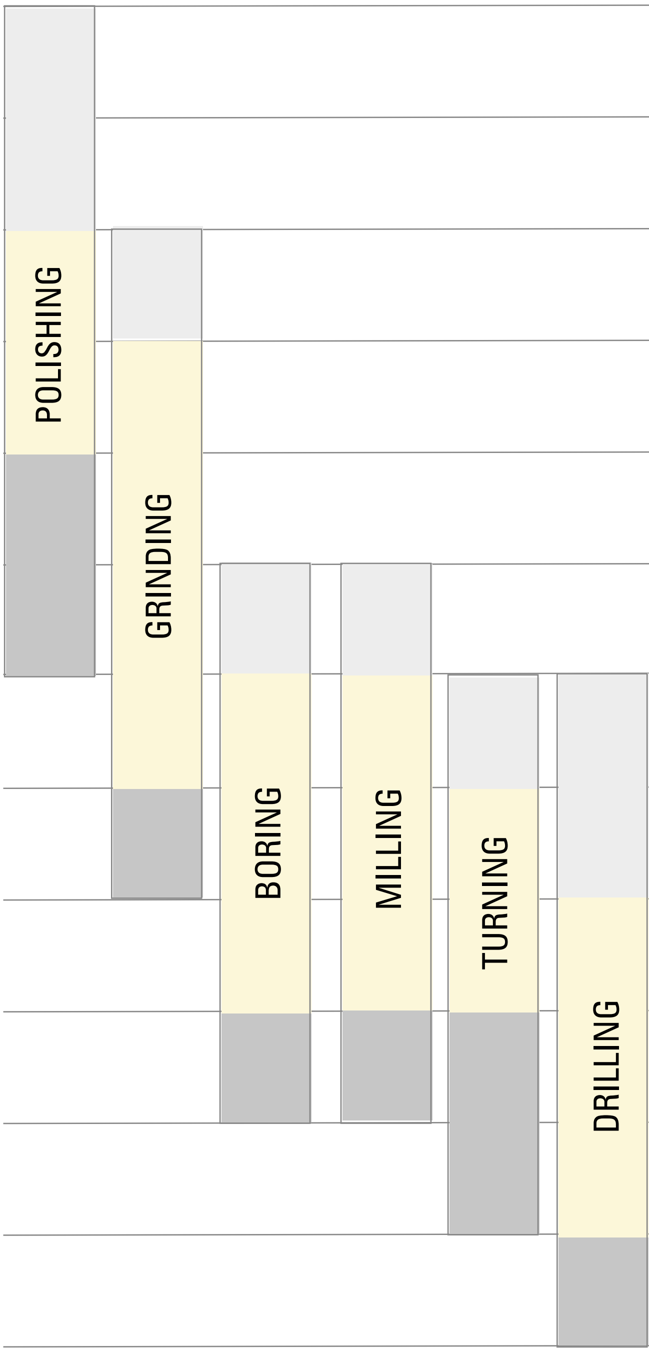
[μm]

[mm]		d9	e8	f7	g6	h5	h6	h7	h8	h9	h10	h11	js5	js6	js12	js13	js14	k5	k6	m5	m6	n5	n6	p6
-	3	-20 -45	-14 -28	-6 -16	-2 -8	0 -4	0 -6	0 -10	0 -14	0 -25	0 -40	0 -60	± 2	± 3	± 50	± 70	± 125	+4 0	+6 0	+6 +2	+8 +2	+8 +4	+10 +4	+12 +6
3 > Ø	≥ 6	-30 -60	-20 -38	-10 -22	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	0 -48	0 -75	± 2.5	± 4	± 60	± 90	± 150	+6 +1	+9 +1	+9 +4	+12 +4	+13 +8	+16 +8	+20 +12
6	10	-40 -76	-25 -47	-13 -28	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	0 -58	0 -90	± 3	± 4.5	± 75	± 110	± 180	+7 +1	+10 +1	+12 +6	+15 +6	+16 +10	+19 +10	+24 +15
10	18	-50 -93	-32 -59	-16 -34	-6 -17	0 -8	0 -11	0 -18	0 -27	0 -43	0 -70	0 -110	± 4	± 5.5	± 90	± 135	± 215	+9 +1	+12 +1	+15 +7	+18 +7	+20 +12	+23 +15	+35 +22
18	30	-65 -117	-40 -73	-20 -41	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	0 -84	0 -130	± 4.5	± 6.5	± 105	± 165	± 260	+11 +2	+15 +2	+17 +8	+21 +8	+24 +15	+28 +17	+35 +22
30	50	-80 -142	-50 -89	-25 -50	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	0 -100	0 -160	± 5.5	± 8	± 125	± 195	± 310	+13 +2	+18 +2	+20 +9	+25 +9	+28 +17	+33 +17	+42 +26
50	80	-100 -174	-60 -106	-30 -60	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	0 -120	0 -190	± 6.5	± 9.5	± 150	± 230	± 370	+15 +2	+21 +2	+24 +11	+30 +11	+33 +20	+39 +20	+51 +32
80	120	-120 -207	-72 -126	-36 -71	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	0 -140	0 -220	± 7.5	± 11	± 175	± 270	± 435	+18 +3	+25 +3	+28 +13	+35 +13	+38 +23	+45 +23	+59 +37
120	180	-145 -245	-85 -148	-43 -83	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	0 -160	0 -250	± 9	±12.5	± 200	± 315	± 500	+21 +3	+28 +3	+33 +15	+40 +15	+45 +27	+52 +27	+68 +43
180	250	-170 -285	-100 -172	-50 -96	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	0 -185	0 -290	± 10	±14.5	± 230	± 360	± 575	+24 +4	+33 +4	+37 +17	+46 +17	+51 +31	+50 +31	+79 +50
250	315	-190 -320	-110 -191	-56 -108	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	0 -210	0 -320	±11.5	± 16	± 260	± 405	± 650	+27 +4	+36 +4	+43 +20	+52 +20	+57 +34	+66 +34	+88 +56
315	400	-210 -350	-125 -214	-62 -119	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	0 -230	0 -360	±12.5	± 18	± 285	± 445	± 700	+29 +4	+40 +4	+46 +21	+57 +21	+62 +37	+73 +37	+98 +62

HARDNESS CHART

Rm	Brinell	Vickers	Rockwell	
[N/mm2]	[HB]	[HV 30]	[HRB]	[HRC]
370	109	115		
385	114	120	66.7	
400	119	125		
415	124	130	71.2	
430	128	135		
450	133	140	75.0	
465	138	145		
480	143	150	78.7	
495	147	155		
510	152	160	81.7	
530	156	165		
545	162	170	85.0	
560	166	175		
575	171	180	87.1	
595	176	185		
610	181	190	89.5	
625	185	195		
640	190	200	91.5	
660	195	205	92.5	
675	199	210	93.5	
690	204	215	94.0	
705	209	220	95.0	
720	214	225	96.0	
740	219	230	96.7	
755	223	235		
770	228	240	98.1	20.3
785	233	245		21.3
800	238	250	99.5	22.2
820	242	255		23.1
835	247	260	101	24.0
850	252	265		24.8
865	257	270	102	25.6
880	261	275		26.4
900	266	280	104	
915	271	285		
930	276	290	105	

Rm	Brinell	Vickers	Rockwell
[N/mm2]	[HB]	[HV 30]	[HRC]
950	280	295	29.2
965	285	300	29.8
995	295	310	31.0
1030	304	320	32.2
1060	314	330	33.3
1095	323	340	34.4
1125	333	350	35.5
1155	345	360	36.6
1190	352	370	37.7
1220	361	380	38.8
1255	371	390	39.8
1290	380	400	40.8
1320	390	410	41.8
1350	399	420	42.7
1385	409	430	43.6
1420	418	440	44.5
1455	428	450	45.3
1485	437	460	46.1
1520	447	470	46.9
1555	456	480	47.7
1630	475	500	49.1
1700	494	520	50.5
1775	513	540	51.7
1845	532	560	53.0
1920	551	580	54.1
1995	570	600	55.2
2070	589	620	56.3
2145	608	640	57.3
		660	58.3
		680	58.3
		700	60.1
		720	61.0
		740	61.8
		760	62.5
		780	63.3
		800	64.0

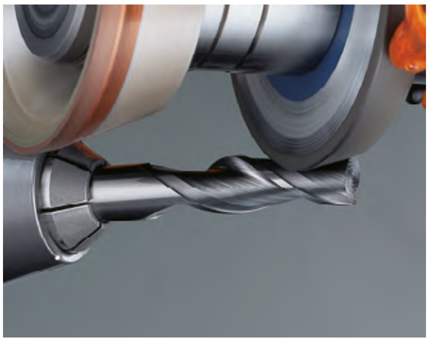


	Ra [µm]	Rt [µm]	Rz [µm]
N1 ▼▼▼▼	0.025	0.50	0.40
N2 ▼▼▼▼	0.05	0.80	0.63
N3 ▼▼▼▼	0.10	1.25	1.00
N4 ▼▼▼	0.20	2.50	2.00
N5 ▼▼▼	0.40	5.00	4.00
N6 ▼▼▼	0.80	8.00	6.30
N7 ▼▼	1.60	16.00	10.00
N8 ▼▼	3.20	32.00	16.00
N9 ▼▼	6.30	-	40.00
N10 ▼	12.50	-	63.00
N11 ▼	25.00	-	100.00
N12 ▼	50.00	-	160.00

Machining

fine normal rough

REGRINDING



DIXI Polytool offers its clients a complete regrinding service for all types of carbide, HSS, PCD and natural diamond tools.

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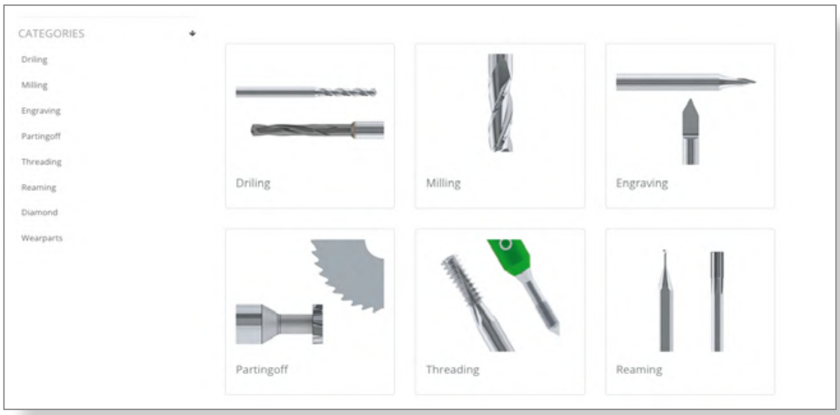

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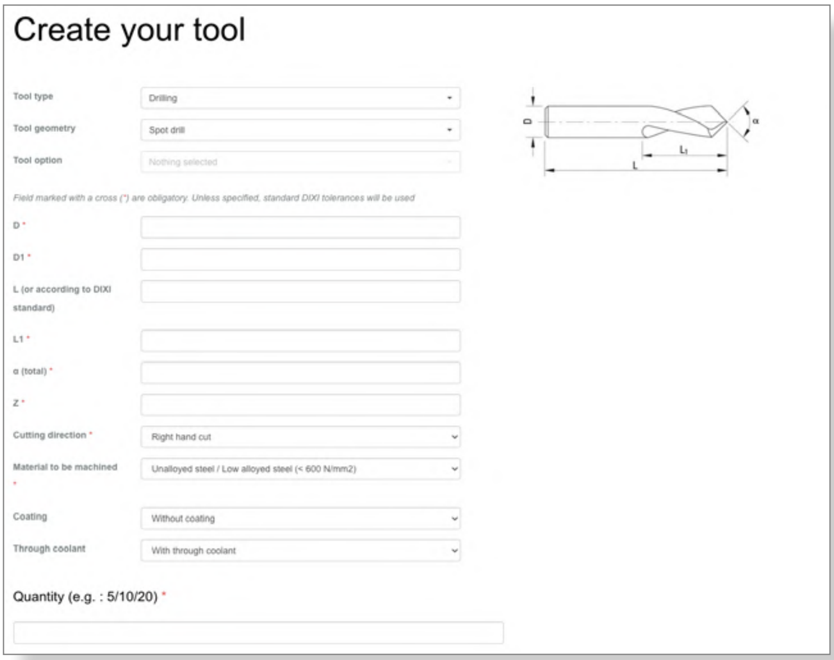

Create your tool

Tool type: Drilling
Tool geometry: Spot drill
Tool option: Nothing selected

Field marked with a cross (*) are obligatory. Unless specified, standard DIXI tolerances will be used

D *
D1 *
L (or according to DIXI standard)
L1 *
α (total) *
Z *
Cutting direction *: Right hand cut
Material to be machined *: Unalloyed steel / Low alloyed steel (< 600 N/mm2)
Coating: Without coating
Through coolant: With through coolant

Quantity (e.g. : 5/10/20) *

Material to be machined

	Material	VDI 3323	TiAIN Hardness (HV0.05) 3'100 Temp. max 800°C	DICUT Hardness (HV0.05) 3'000 Temp. max 800°C	XIDUR Hardness (HV0.05) 3'100 Temp. max 900°C	C-TOP Hardness (HV0.05) 3'400 Temp. max 1'100°C
P	Unalloyed steel, leaded steel	1 - 5	○	○	○	◎
P	Low alloyed steel < 800 N/mm²	6 - 9	○	○	○	◎
P	High-alloy steel > 800 N/mm2, stainless steel ferr.- marten.	10 - 13	○	○		◎
M	Austenitic stainless steel < 700 N/mm²	14.1 - 14.2	○	◎	○	◎
M	Nickel-free stainless steel / DUPLEX > 700 N/mm²	14.3 - 14.4	○	○	○	◎
K	Grey cast iron < 250 HB	15 - 16	○	○		○
K	Ductile, malleable, nodular cast iron > 250 HB	17 - 20	○	○		○
N	Wrought aluminium alloy < 12% Si	21 - 22				
N	Cast aluminium alloy >12% Si	23 - 25				
N	Copper alloy good machinability with Pb	26				
N	Copper alloy with difficult machinability	27 - 28				
N	Plastic, wood	29 - 30				
N	Graphite	-				
N	CRFP	-				
N	Gold, silver	-				
N	Platinum	-				
S	Refractory alloy, Fe, Ni, Co base	31 - 35		○	◎	◎
S	Titanium, titanium alloy	36 - 37		○		○
H	Hardened steel >45 HRC, hard cast iron	38 - 41			◎	○

✖ Inapplicable
○ Good
◎ Excellent

CUTINOX	DAC	DIXAL	DLC	DRYCUT	DIAMANT	Engraving DINAC	Tapping DI-TOP	Reaming POLYCUT
Hardness (HV0.05) 3'200 Temp. max 1'000°C	Hardness (HV0.05) 1'900 Temp. max 700°C	Hardness (HV0.05) 2'100 Temp. max 550°C	Hardness (HV0.05) 4'800 Temp. max 500°C	Hardness (HV0.05) 7'000 Temp. max 500°C	Hardness (HV0.05) 10'000 Temp. max 500°C	Hardness (HV0.05) 3'250 Temp. max 450°C	Hardness (HV0.05) 3'200 Temp. max 450°C	Hardness (HV0.05) 3'700 Temp. max 1'100°C
◎			✗	✗	✗	◎	◎	◎
◎			✗	✗	✗	◎	○	◎
○			✗	✗	✗	◎	○	◎
◎			✗	✗	✗	◎	◎	◎
◎			✗	✗	✗	◎	◎	◎
			✗	✗	✗	○		○
			✗	✗	✗	○		○
	◎	◎	◎	◎		○	◎	
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			○	○				
			○	◎	◎			
			○	○	○	○		
○			✗	✗	✗	○		◎
			✗	✗	✗			
			✗	✗	✗			○

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
	1	0.0030	A 366 (1012); 1008	C10	040 A 10; 045 M 10; 1449 10 CS	AF 34 C 10; XC 10	S 10C
	1	1.0028		Ust 34-2 (S250G1T)		A 34-2	SS 330
	1	1.0034		RSt 34-2 (S250G2T)	1449 34/20 HR, HS, CR, CS	A 34-2 NE	
	1	1.0035		St185 (Fe 310-0); St 33	Fe 310-0; 1449 15 HR, HS	A 33	
	1	1.0036	A 570; Gr. 33,36	S235JRG1 (Fe 360 B) Ust 37-2	Fe 360 B; 4360-40 B		
	1	1.0037		S235JR (Fe 360 B) St 37-2	Fe 360 B; 4360-40 B	E 24-2	STKM 12A;C
	1	1.0038	1115	GS-CK16	030A04		SS 330
	1	1.0044	A 570 Gr. 40	S275JR (Fe 430 B) St44-2	Fe 430 B FN; 1449 43/25 HR, HS 4360-43 B	E 28-2	SM 400 A;B;C
	1	1.0045		S355JR	4360-50 B	E 36-2	
	1	1.0050	A 570 Gr.50; A 572 Gr.50	E295 (Fe 490-2); St 50-2	Fe 490-2 FN; 4360-50 B	A 50-2	SS 490
	1	1.0060	A 572 Gr. 65	E335 (Fe 590-2); St 60-2	Fe 60-2; 4360-55 E; 55 C	A 60-2	SM 570
	1	1.0070		E360 (Fe 690-2); St 70-2	Fe 690-2 FN	E 28-2	
	1	1.0112		P235S	1501-164-360B LT20	E 36-2	
	1	1.0114		S235JU;St 37-3 U	4360-40C	A 50-2	
	1	1.0116	A 284 Gr.D; A 573 Gr.58; A 570 Gr 36;C A 611 Gr. C	S235J2G3 (Fe 360 D 1); St 37-3	Fe 360 D1 FF 1449 37/23 CR 4360-40 D	A 60-2	
	1	1.0130		P265S	1501-164-400B LT 20	A 42 AP	
	1	1.0143		S275J0; St 44-3 U	4360-43C	E 28-3	
	1	1.0144	A 573 Gr. 70; A 611 Gr.D	S275J2G3 (Fe 430 D 1); St 44-3	Fe 430 D1 FF; 4360-43 C; 43 D	E 28-3; E 28-4	SM 400 A;B;C
	1	1.0149		S275JOH; RoSt 44-2	4360-43C		
	1	1.0226		DX51D; St 02 Z			
	1	1.0301	M 1010	C10	040 A 10; 045 M 10; 1449 10 CS	AF 34 C 10; XC 10	S 10C
	1	1.033	A 621 (1008)	DC 01; St 2; St 12	1449 4 CR; 1449 3 CS	TE	SPHD
P	1	1.0333	A 619 (1008)	Ust 3 (DC03G1); Ust 13	1449 2 CR;3 CR	E	SPCD
	1	1.0334	A 621 (1008)	UStW 23 (DD12G1)		SC	SPHE
	1	1.0335	A 622 (1008)	DD13; StW 24	1449 1 HR	3C	SPHE
	1	1.0338	A 620 (1008)	DC04; St4; St 14	1449 1 CR;2 CR	ES	SPCE
	1	1.0345	A 516 Gr. 65; 55; A 515 Gr. 65;55 A 414 Gr. C; A 442 Gr.55	P235GH HI	1501 Gr. 141-360 1501 Gr. 161-360; 151-360 1501 Gr. 161-400; 154-360 1501 Gr. 164-360; 161-360	A 37 CP;AP	SGV 410, SGV 450, SGV 48, SPV 450;SPV 480
	1	1.0402	(M) 1020; M 1023	C22	055 M 15, 070 M 20 2C/2D 1499 22 HS, CS	AF 42 C 20; XC 25;1 C 22	S20C
	1	1.0402	1020	C22	050A20 2C/2D	CC20	S22C
	1	1.0402	1020;1023	C22	055 M 15, 070 M 20 2C	AF 42 C 20; XC 25;1 C 22	S 20 C;S 22 C
	1	1.0425		P265GH H II	1501 Gr. 161-400;151-400 1501 Gr. 164-360; 161-400 1501 Gr. 164-400;154-400	A 42 CP; AP	SPV 315; SPV 355 SG 295; SGV 410 SGV 450; SGV 480
	1	1.0443	A27 65-35	GS-45	A1	E 23-45 M	
	1	1.0539		S355NH;StE 335		TSE 355-4	
	1	1.0545		S355N; StE 355	4360-50E	E 355 R	
	1	1.0546		S355NL;TStE 355	4360-50EE	E 355 FP	
	1	1.0547		S355JOH	4360-50C	TSE 355-3	
	1	1.0549		S355 NLH;TStE 355			
	1	1.0533		S355JO;St 52-3U	4360-50C	E 36-3	
	1	1.0562	A 633 Gr.C; A 588	P355N; StE 355	1501 Gr.225-490A LT 20	FeE 355 KG N E 355 R/FP; A 510 AP	SM 490 A;B;C; YA;YB
	1	1.0565		P355NH; WStE 355	1501-225-490B LT 20	A 510 AP	S20C
	1	1.0566	A 366 (1012); 1008	P355NL1; TStE 355	1501-225-490A LT 50	A 510 FP	
	1	1.0570	1213	S355J2G3 St 52-3	Fe 510 D1 FF ;1449 50/35 HR>HS ; 4360-50 D	E 36-3; E 36-4	SM 490 A;B;C; YA;YB
	1	1.0715	1213	9 SMn 28 (1SMn30)	230 M 07	S 250	SUM 22
	1	1.0715	12 L 13	9 SMn 28	230 M 07	S 250	SUM 22
	1	1.0718	1108; 1109	9 SMnPb 28 (11SMnPb30)	Fe 360 B; 4360-40 B	S 250 Pb	SUM 22 L ;SUM 23 L, SUM 24 L

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
P	1	1.0721	11 L 08	10 S 20	(210 M 15)	10 S 20; 10 F 2	
	1	1.0722	11 L 08	10 SPb 20		10 Pb F 2	
	1	1.0736	1215	10 SPb 20		10 Pb F 2	SUM25
	1	1.0737	12 L 14	9 SMn 36 11SMn37)			
	1	1.0972	A 570 Gr.50; A 572 Gr.50	9 SMnPb 36 (11SMnPb37)	1501-40F30	E 315 D	
	1	1.0976	A 572 Gr. 65	S315MC; QStE 300 TM	1501-43F35	E 355 D	
	1	1.0982		S355MC; QStE 360 TM	1501-50F45		
	1	1.0984		S460MC; QStE 460 TM		E 490 D	
	1	1.0986		S500MC; QStE 500 TM	1501 - 60F55	E 560 D	
	1	1.1121	1010	CK 10 (C10E)	040 A 10	XC 10	S 9 CK; S 10 C
	1	1.1121		St 37-1	4360 40 A		
	1	1.1141	1015	CK 15 (C15E)	040 A 15; 080 M 15	XC 12 XC15; XC 18	S 15; S 15 CK
	1	1.1151	1020 ; 1023	C22E CK 22		2 C 22 XC18; XC 25	S 20 C, S 20 CK; S 22 C
	1	1.2080	D 3	X 210 Cr 12	BD 3	Z 200 C 12	
	1		A36	St 44-2	4360 43 A	NFA 35-501 E 28	
	1		A 621 (1008)	StE 320-3Z	1 501 160		
	1	1.8900	A572-60	StE 380	4360 55 E		S 25C
	1	1.0406	(M) 1025	C 25	070 M 26	1 C 25	
	1	1.0416	A 622 (1008)	GS-38		20-400 M	
	1	1.0473	A 537 Cl.1 A 414 Gr. G A 612	P355GH	19 Mn 6	A 52 CP	SGV 410; SGV 450 SGV 480
	1	1.0501	1035	C 35	080 A 32, 080 A 35 ;080 M 36, 1449 40 CS	1 C 35 AF 55 C 35 XC 38	S35C
	2	1.0503	1045	CF 45 (C45G)	060 A 47 ;080 M 46	XC 42 H 1 TS	S 45 C
	2	1.0511	1040	C 40	080 M 40	1 C 40; AF 60 C 40	S 40 C
	2	1.0540		C 50			
	2	1.0551	A27 70-36	GS-52	A2	280-480 M	
	2	1.0553	A148 80-40	GS-60	A3	320-560 M	
	2	1.0577	A738	S355J2G4 (Fe 510 D 2)	Fe 510 D2 FF 1501 Gr.224-460 1501 Gr. 224-490	A 52 FP	
	2	1.0726	1140	35 S 20	212 M 36	35MF 6	
	2	1.0727	1146	45 S 20 (46S20)		45 MF 4	
	2	1.1157	1035; 1041	40Mn4	150 M 36	35 M 5; 40 M 5	S 09CK; S 25 C
	2	1.1158	1025	C25E; CK 25	(070 M 25)	2 C 25; XC 25	
	2	1.1166	1536	34Mn5	4360-50C		
	2	1.1170	1330	28Mn6	(150 M 28), (150 M 18)	20 M 5, 28 Mn 6	SCMn 1
	2	1.1170	1330	28Mn6	150 M 5	20 M 5	
	2	1.1170	1330	28Mn6		20 M 5	SCMn 1
	2	1.1178		C30E; CK 30	080M30	XC 32	
	2	1.1170	1330	28Mn6	(150 M 28), (150 M 18)	20 M 5, 28 Mn 6	SCMn 1
	2	1.1170	1330	28Mn6	150 M 5	20 M 5	
	2	1.1170	1330	28Mn6		20 M 5	SCMn 1
	2	1.1178		C30E; CK 30	080M30	XC 32	
	2	1.1180	1035	C35R; Cm 35	080 A 35	3 C 35; XC 32	
	2	1.1181	1035; 1038	C35E CK 35	080 A 35; (080 M 36)	2 C 35, XC 32; XC 38 H 1	S 35 C
	2	1.1181	1035	C35E; CK 35	080 A 35; (080 M 36)		S 35 C
	2	1.1191	1042	GS- Ck 45	080 A 46	XC 45	
	2	1.1206	1049; 1050	C50E CK 50	080 M 50	2 C 50; XC 48 H 1; XC 50 H 1	
	2	1.1213	1050; 1055	Cf 53 (C53G)	070 M 55	XC 48 H TS	S 50 C
	2	1.5423	4520	22Mo4	1503-245-420		SB 450 M

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
P	2	1.0481	A 516 Gr.70; A 515 Gr. 70 A 414 Gr.F; G	P295GH 17 Mn 4	1501 Gr. 224	A 48 Cp;AP	SG 365, SGV 410; SGV 450 SGV 480
	2	1.0503	1043	C35	060 A 47; 080 M 46; 1449 50 HS, CS	1 C 45; AF 65 C 45	S 45 C
	2	1.0614	1074	C 76 D; D 75-2		XC 75	
	2	1.0616	1086	C 86 D; D 85-2		XC 80	SMn 433 H; SCMn 2
	2	1.0618	1095	C 92 D;D 95-2		XC 90	SMn 438 (H); SCMn 3
	2	1.1165	1036; 1330	30Mn5	120 M 36; (150 M 28)	35 M 5	S 40 C
	2	1.1167	1335	30Mn5	150 M 36	40 M 5	S 45 C; S 48 C
	3	1.1186	1040	C40E CK 40	060 A 40, 080 A 40; 080 M 40	2 C 40; XC 42 H 1	S 50 C
	3	1.1191	1045	C45E CK 45	080 M 46; 060 A 47	2 C 45; XC 42 H 1; XC 45; XC 48 H 1	
	3	1.1201	1049	C45R; Cm 45	080 M 46	3 C 45; XC 42 H 1; XC 48 H 1	SM 400 A;B;C
	3	1.7242		18 CrMo 4			
	3	1.7337	A 387 Gr. 12 Cl	16 CrMo 4 4			
	3	1.7362		12 CrMo 19 5		Z 10 CD 5.05	
	3		A572-60	17 MnV 6	3606-625	NFA 35-501 E 36	
	3	1.0535	1055	C55	436055 E	1 C 55; AF 70 C 55	S 55 C
	3	1.0601	1060	C60	070 M 55	1 C 60; AF 70 C 55	S 58 C
	3	1.0603	1070	C67	060 A 62; 1449 HS,CS	XC 65	
	3	1.0605	1074; 1075	C75	080 A 67; 1449 70HS		
	3	1.1203	1055	C55E CK 55	1449 80 HS	2 C 5; XC 55 H 1	S 55 C
	3	1.1209	1055	C55R Cm 55	060 A 57; 070 M 55	3 C 55; XC 55 H 1	
	3	1.1221	1060; 1064	C60E CK 60	070 M 55	2 C 60; XC 60 H 1	S 58 C
	3	1.1231	1070	CK 67 (C67E)	060 A 62	XC 68	
	3	1.1248	1074; 1075; 1078	CK 75 (C75E)	060 A 67	XC 75	
	4	1.1269	1086	CK 85 (C85E)		XC 90	
	4	1.1274	1095	Ck 101 (C101E); C 125 W		XC 100	SUP 4
	4	1.1663	W 112	C 125 W		Y2 120	
	4	1.0070		St70-2			
	4	1.7238		49 CrMo 4			
	4	1.7701		51 CrMoV 4			
	4	1.0116	A573-81 65	St 37-3	4360 40 B		
	4	1.0345	A515 65	H1	1 501 161		
	4	1.0841	5120	St 52-3	150 M 19		
	4	1.0904	9255	55 Si 7	250A53		
	4	1.0904	9254	55 Si 7	250 A 53		
	5	1.0961	9262	60SiCr7	1 501 161	60 SC 6	
	5	1.2067	L3	100Cr6	BL3	100 C6	
	5	1.2108	L1	90 CrSi 5			
	6	1.2210	L2	115CrV3		100 C 3	
	6	1.2241		51CrV4			
	6	1.2311		40 CrMnMo 7			
	6	1.2330	4135	35 CrMo 4	708 A 37	34 CD 4	SCM435TK
	6	1.2419		105WCr6	BO1	105 WC 13	
	6	1.2510	1	100 MnCrW 4	BS1	8 MO 8	SKS 31
	6	1.2542	S1	45 WCrV7			
	6	1.2550	S1	60WCrV7		55 WC 20	
	6	1.2713	L6	55NiCrMoV6		55 NCDV 7	SKT 4
	6	1.2721	L6	50NiCr13		55 NCV 6	
	6	1.2842	O2	90MnCrV8	BO2	90 MV8	
	6	1.3501	E 50100	100 Cr 2		55 WC 20	
	6	1.3505	52100	100Cr6	2 S 135; 535 A 99	100 C 6	SUJ2

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
	6	1.5024		46Si7		45 S 7; 46 SI 7	
	6	1.5025	9255	51Si7		51 S 7; 51 Si 7	
	6	1.5026	9255	55Si7	251 a 58	55 S 7	
	6	1.5027	9260	60Si7	251 A 60; 251 H 60	60 S 7	
	6	1.5028	9260 H	65Si7		60 S 7	50 P 7 SUP 6
	6	1.5120		38 MnSi 4			
	6	1.5415	A 204 Gr.A; 4017	16Mo3; 15 Mo 3	1503-243 B	15 D 3	
	6	1.5419	4419	20Mo4	1503-243-430		SCPH 11
	6	1.5622	A 350-LF 5	14Ni6		16 N 6	
	6	1.5732	3415	1 NilCr10		14 NC 11	
	6	1.5752	3310; 3314	14NilCr14	655M13	12 NC 15	
	6	1.6587		17CrNiMo6	820A16	18 NCD 6	
	6	1.6657		14NiCrMo134			
	6	1.7015	5515	15 Cr 3	523 M 15	12 C 3	SCr415(H)
	6	1.7033	5132	34Cr4	530A32	32 C 4	SCr430(H)
	6	1.7035	5140	41C r4	530M40	42 C 4	SCr440(H)
	6	1.7045	5140	42Cr41	530 A 40	42 C 4 TS	SCr440
	6	1.7131	5115	16MnCr5	527 M 17	16 MC 5	
	6	1.7139		16MnCr5			
	6	1.7176	5515	55Cr3	527 A 60	55 C 3	SUP9(A)
	6	1.7220	4135; 4137	34CrMo4	708 Aa 37	35 CD 4	
	6	1.7223	4142	41CrMo4			SNB 22-1
P	6	1.7225	4140	42CrMo4	708 M 0	42 CD 4	
	6	1.7176	5515	55Cr3	527 A 60	55 C 3	SUP9(A)
	6	1.7220	4135; 4137	34CrMo4	708 Aa 37	35 CD 4	
	6	1.7223	4142	41CrMo4			SNB 22-1
	6	1.7225	4140	42CrMo4	708 M 0	42 CD 4	
	6	1.7228		55NiCrMoV6G	823M30		
	6	1.7262		15CrMo5	28Mn6	12 CD 4	
	6	1.7321		20 mOcR 4	C30E; CK 30		
	6	1.7335	ASTM A182 F-12	13CrMo4 4	1501-620Gr27		
	6	1.7335	A 182-F11;12	13 CrMo 4 4	1 501 620 Gr. 27	15 CD 4.5	SCM415(H)
	6	1.7380	ASTM A 182 F.22	10CrMo9 10	1501-622gR31; 45		
	6	1.7380	A182 F-22	10 CrMo 9 10	1501-622	12 CD 9.10	
	6	1.7715		14MoV6 3	1503-660-440		
	6	1.8509	A355A	41CrAlMo 7	905 M 39	40 CAD 6.12	
	7	1.0038	A570.36	S235JRG2 (Fe 360 B) RSt 37-2	Fe 360 B FU 1449 27/23 CR; 4360-40 B	E 24-2NE	
	7	1.5710	3135	36NiCr6	640A35	35 NC 6	
	7	1.5755		31 NiCr 14	653 M 31	18 NC 13	
	7	1.6523	8620	2 NiCrMo2	805M20	20 NCD 2	
	7	1.6546	8740	40 NiCrMo 22	311-Tyre 7		
	7	1.7218	4130	25CrMo4	CDS 110	25 CD 4	
	7	1.7733		24 CrMoV 5 5		20 CDV 6	
	7	1.7755		GS-45 CrMOV 10 4			
	7	1.8070		21 CrMoV 5 11			
	8	1.2332	4142	47 CrMo 4	708 M 40	42 CD 4	SCM (440)
	8	1.3401	A128 (A)	G-X120 Mn 12		Z 120 M 12	SCMnH 1, SCMn; H 11
	8	1.5736	3435	36 NiCr 10		30 NC 11	

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
P	8	1.6511	9840	36CrNiMo4	816M40	40 NCD 3	SUP 10
	8	1.6582	4340	35CrNiM 6	817 M 40	35 NCD 6	SNCM 447
	8	1.7361		32 CeMo12	722 M 24	30 CD 12	
	8	1.8159	6150	50 CrV 4	735 A 50	50 CV 4	
	8	1.8161		58 CrV 4			
	8	1.8515		32 CrMo 12	722 M 24	30 CD 12	
	8	1.8523		39CrMoV13 9	897M39		
	9	1.4882		X 50 CrMnNiNbN 21 9		Z 50 CMNNb 21.09	
	9	1.5710	3135	36NiCr6	640A35	35 NC 6	SNC236
	9	1.5864		35 niCr 18			
	9			31 NiCrMo 13 4	830 M 31		
	10	1.0144	A573-81	ST 44-3	4360 43 C	E 28-3	SM 400A;B;C
	10	1.0347	A 619	DC03; RSt;RRSt 13	1449 3 CR; 1449 2 CR	E	
	10	1.0401	M 1015; M 1016; M 1017	C15	080 M 15	AF 37 C12; XC 18	S 15 C
	10	1.0570		ST 52-3	4360 50 B	E 36-3	SM490A;B;C;YA;YB
	10	1.0718	12L13	9 SMnPb 28		S 250 Pb	SUM 22L
	10	1.0723		15 S 22; 15 S 20	210 A 15; 210 M 15		SUM 32
	10	1.2083					
	10	1.2343	H 11	X 38 CrMoV 5 1	BH 11	Z 38 CDV 5	
	10	1.2344	H 13	X 40 CrMoV 5 1	BH 13	Z 40 CDV 5	SKD61
	10	1.2363	A 2	X100 CrMoV 5 1	BA 2	Z 100 CDV 5	SKD12
	10	1.2379	D 2	X 155 CrVMo 12 1	BD2	Z 160 CDV 12	
	10	1.2379	HNV3	X210Cr12G	BD2	Z 160 CDV 12	
	10	1.2436	D 4 (D 6)	X 210 CrW 12	BD6	Z 200 CD 12	
	10	1.2581	H 21	X 30 WCrV 9 3	BH 21	Z 30 WCV 9	SKD5
	10	1.2601		X 165 CrMoV 12			
	10	1.2606	H 12	X 37 CrMoW 5 1	BH 12	Z 35 CWDV 5	
	10	1.3343	D3	S 6-5-2	BM2	Z 200 C12	SUH3
	10	1.2436	D 4 (D 6)	X 210 CrW 12	BD6	Z 200 CD 12	
	10	1.2581	H 21	X 30 WCrV 9 3	BH 21	Z 30 WCV 9	SKD5
	10	1.2601		X 165 CrMoV 12			
	10	1.2606	H 12	X 37 CrMoW 5 1	BH 12	Z 35 CWDV 5	
	10	1.3343	D3	S 6-5-2	BM2	Z 200 C12	SUH3
	10	1.4563	N08028			Z 1 NCDU 31-27-03	
	10	1.5662	ASTM A353	X8Ni9	1501-509;510		SL9N60(53)
	10	1.5662	ASM A353	X8Ni9	502-650	9 Ni	
	10	1.5680	2517	12Ni19	12Ni19	Z 18 N 5	
	11	1.3202		S 12-1-4-5	BT 15		SKS 31
	11	1.3207		S 10-4-3-10	BT 42	Z 130 WKCDV	
	11	1.3243	T15	S 6-5-2-5		KCV 06-05-05-04-02	SKH55
	11	1.3246		S 7-4-2-5		Z 110 WKCDV 07-05-04	
	11	1.3247		S 2-10-1-8	BM 42	Z 110 DKCWV 09-08-04	
	11	1.3249	M 42	S 2-9-2-8	BM 34		
	11	1.3255	T 4	S 18-1-2-5	BT 4	Z80 WKCV 18-05-04-0	
	11	1.3343	M 2	S6-5-2	BM2	Z 85 WDCV	SKH 51
	11	1.3348	M 7	S2-9-2		Z 100 DCWV 09-04-02	
	11	1.3355	T 1	S 18-0-1	BT 1	Z 80 WCV 18-4-01	
	11	1.4548	630			Z 7 CNU 17-04	
	11	1.4718	HNV 3	X45CrSi 9 3	401S45	Z 45 CS 9	SUH1
	11	1.4935	422	X20 CrMoWV 12 1			
	12	1.4000	403	X6Cr13	403 S 17	Z 6 C 13	SUS403
	12	1.4001		X6Cr14			
	12	1.4001	(410S)	X7 Cr 13	(403 S 7)	Z 8 C 13	SCPH 11
	12	1.4002	405	X6CrA12	405S17	Z 8 CA 12	
	12	1.4002	405	X6 CrAl 13	405 S 17	Z6 CA 13	
	12	1.4005	416	X12CrS 13	416 S 21	Z 11 CF 13	SUS403

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
	12	1.4006	410; CA-15	(G-)X10 Cr 13	410S21	Z 10 C 13	SUS403
	12	1.4016	430	X8Cr17	Z8C17	430 S15	
	12	1.4016		X6 Cr 17	430 S 15	Z 8 C 17	SUS 430
	12	1.4027		G-X20Cr14	420 C 29	Z 20 C 13M	
	12	1.4027	5140	G-X 20 Cr 14	420 C 29	Z20 C 13M	
	12	1.4028	420	X30 Cr 13	420 S 45	Z 30 C 13	
	12	1.4086		G-X120Cr29	452C11		
	12	1.4104	430 F	X12CrMoS17	420 S 37	Z 10 CF 17	SUS430F
	12	1.4112	440B	X90 CrMoV 18			
	12	1.4113	434	X6CrMo 17	434 S 17	Z 8 CD 17.01	SUS434
	12	1.4340		G-X40CrNi27 4			
	12	1.4417	S31500	X2CrNiM0Si19 5			
	12	1.4418		X2 CrNoMoSi 18 5 3		Z 6 CND 16-04-01	
	12	1.4510	XM 8; 430 Ti; 439	X4 CrNiMo16 5		Z 4 CT 17	SUS 430 LK
	12	1.4511	XM 8; 430 Ti; 439	X 6 CrNb 17(X 6 CrNb 17		Z 4 CNb 17	SUS 430 LK
	12	1.4512	409	X 6 CrTi 12 (X2CrTi12)	LW 19; 409 S 19	Z 3 CT 12	SUH 409
	12	1.4418		X2 CrNoMoSi 18 5 3		Z 6 CND 16-04-01	
	12	1.4510	XM 8; 430 Ti; 439	X4 CrNiMo16 5		Z 4 CT 17	SUS 430 LK
	12	1.4511	XM 8; 430 Ti; 439	X 6 CrNb 17(X 6 CrNb 17		Z 4 CNb 17	SUS 430 LK
	12	1.4512	409	X 6 CrTi 12 (X2CrTi12)	LW 19; 409 S 19	Z 3 CT 12	SUH 409
	12	1.4720		X20CrMo13			
	12	1.4724	405	X10CrA113	403S17	Z 10 C 13	
	12	1.4742	430	X10CrA118	439S15	Z 10 CAS 18	SUS430
	12	1.4747	HNV6	X80CrNiSi20	443S65	Z 80 CSN 20.02	SUH4
	12	1.4749	446	X18 CrN 28			
	12	1.4762	446	X10CrA124		Z 10 CAS 24	SUH446
	12	1.4871	EV 8	X 53 CrMnNiN 21 9	349 S 54	Z 52 CMN 21.09	SUH35,SUH36
	12		302	X12 CrNi 18 9	302 S 31	Z 10 CN 18-09	
	12		429	X10 CrNi 15			
	12	1.4521	443; 444	X2CrMoTi18-2	317 S 16		SUS 444
	13	1.4021	420	X20Cr13	420S37	Z 20 C 13	
	13	1.4031	420	X40 Cr 13		Z 40 C 14	
	13	1.4034		X46Cr13	420 S 45	Z 40 C 14	SUS420J2
	13	1.4057	431	X20CrNi172	431 S 29	Z 15 CN 16.02	SUS431
	13	1.4125		X 105 CrMo 17		Z 100 CD 17	
	13	1.4313	8620	2 NiCrMo2	805M20	20 NCD 2	
	13	1.4544			S. 524; S. 526		
	13	1.4546	348	X5CrNiNb 18-10	347 S 31; 2 S. 130; 2 S. 143/144/145; S.525/527		
	13	1.4922		X20CrMoV12-1			
	13	1.4923		X22 CrMoV12 1			
	14.1	1.4305	303	X10 CrNiS 18 9	303 S 21	Z 8 CNF 18-09	
	14.1	1.4306	304L	X2CrNi18 9	304S12	Z 2 CN 18 10	SCM (440)
	14.1	1.4305	303	X10 CrNiS 18 9	303 S 21	Z 8 CNF 18-09	
	14.1	1.4306	304L	X2CrNi18 9	304S12	Z 2 CN 18 10	SCM (440)
	14.2	1.4301	304	X 5 CrNi 18 9	304 S 15	Z 5 CN 18.09	SCMnH 1, SCMn; H 11
M	14.2	1.4306	304L	X2 CrNi 18 10	304 S 11	Z 3 CN 19-11	
	14.2	1.4308	CF-8	X6 CrNi 18 9	304 C 15	Z 6 CN 18-10 M	SUP 10
	14.2	1.4310	301	X12CrN i17 7	301 S 21	Z 12 CN 17.07	SNCM 447
	14.2	1.4311	304 LN	X2 CrNiN 18 10	304 S 62	Z 2 CN18.10	
	14.2	1.4312		G-X10CrNi18 8	302C25	Z 10 CN 18.9M	
	14.2	1.4312	305	X8 CrNi 18 12	305 S 19		

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
	14.2	1.4332		X2 CrNi 18-8		Z 6CN18.09	
	14.2	1.4350	304	X5CrNi18 9	304S15	Z 8 CMN 18- 08-05	
	14.2	1.4371	202	X3 CrMnNiN 188 8 7	284 S 16	Z 3 CND 17 -11-01;Z 6 CND 17-11; Z 6 CND 17-11-02; Z 7 CND 17-11-02; Z 7 CND 17-12-02	
	14.2	1.4401	316	X 5 CrNiMo 17 12 2; (X4 CrNiMo 17 -12-2)	316 S 13; 316 S 17; 316 S 19; 316 S 31 ;316 S 33	Z 2 CND 17-12; Z 2 CND 18-13; Z 3 CND 17-11-02; Z 3 CND 17-12-02 FF; Z 3 CND 18-12-03; Z 3 CND 19.10 M	SNC236
	14.2	1.4404	316L	X2 CrNiMo 17 13 2; (X2 CrNiMo 17-12-2) GX 2 CrNiMoN 18-10	316 S 11, 316 S 13; 316 S 14, 316 S 31; 316 S 42, S.537;316;C 12, T.75, S. 161	Z2 CND 17-12 AZ	
	14.2	1.4406	316LN	X2 CrNiMoN 17 12 2; (X2CrNiMoN 18-10)	316 S 61; 316 S 63		
	14.2	1.4408	CF-8M	GX 5 CrNiMoN 7 12 2; G-X 6 CrNiMo 18 10	316 C 16 (LT 196);ANC 4 B"		SM 400A;B;C
	14.2	1.4429	316 Ln	X2 CrNiMo 17 -13-3	316 S 62	Z 2 CND 17-13 Az	
	14.2	1.4435	316L	X2 CrNiMo18 14 3	316 S 11;316 S 13; 316 S 14;316 S 31; LW 22; LWCF 22	Z 3 CND 17-12-03; Z 3 CND 18-14-03	S 15 C
	14.2	1.4436	316	X 5 CrNiMo 17 13 3; (X4CRNIMO 17-13-3	316 S 19; 316 S 31; 316 S 33; LW 23; LWCF 23	Z 6 CND 18-12-03; Z 7 CND 18-12-03	SM490A;B;C;YA;YB
	14.2	1.4438	317L	X2 CrNiMo 18 16 4; (X2CrNiMo 18-15-4)	317 S 12	Z 2 CND 19-15-04; Z 3 CND 19-15-04	SUM 22L
	14.2	1.4439	(s31726)	X 2 CrNiMo 18 13		Z 3 CND 18-14-06 AZ	SUM 32
	14.2	1.4440		X5 CrNiMo 17 13 3			
	14.2	1.4449	317	X 4 CrNiMo 27 5 2 (X3CrNiMo27-5-2)	317 S 16	(Z 3 CND 25-07 Az); Z 5 CND 27-05 Az	
	14.2	1.4449; 1.4460	329	G-X7NiCrMoCuNb25 20		23 NCDU 25.20M	SKD61
	14.2	1.4500		X1NiCrMoCuN25-20-5		Z 2 NCDU 25-20	SKD12
	14.2	1.4539		X1NiCrMoCuN25-20-5		Z 1 NCDU 25-02 M	
	14.2	1.4539	904L	(G-)X1 NiCrMoCu 25 20 5		Z 6 CNT 18-10	
	14.2	1.4541	CN-7M	X1 CrNiMoN 20 18 7	321 S 31; 321 S 51 (1010;1105); LW 24; LWCF 24	Z 200 CD 12	
	14.2	1.4547	321	X6 CrNiMoTi 17 12 2			SKD5
M	14.2	1.4571	S31254	G-X 5 CrNiMoNb	320 S 31	Z 6 CNDT 17-12002	
	14.2	1.4581		X 10CrNiMoNb 18 12	318 C 17	Z 4 CNDNb 18.12 M	
	14.2	1.4583	318	G-X7CrNiMoCuNb18 18	303 S 21	Z 15 CNS 20.12	SUH3
	14.2	1.4585		X5 CrNiNb 18 10			
	14.2	1.4891	Ss30415	X 30 WCrV 9 3		Z 20 CNS 25.04	SKD5
	14.2	1.4893	S30815	X8 CrNiNb 11			
	14.2	1.4948	304H	X6 CrNi 18 11	304 S 51	Z 5 CN 18-09	
	14.3	1.4362	S32304	X2 CrNiN 23 4		Z 2 CN 23-04 AZ	SUH3
	14.3	1.4410		G-X10CrNiMo18 9		Z 5 CNaD 20.12M	
	14.3	1.4460	329	X8CrNiMo27 5			SL9N60(53)
	14.3	1.4462		X2CrNiMoN22 5 3	318 S 13	Z 3 CND 22-05 Az; (Z 2 CND 24 -08 Az) (Z 3 CND 25-06-03 Az)	
	14.3	1.4823	310	G-X40CrNiSi27 4		Z 30 CN 26-05	
	14.4	1.4542	630	X 5 CrNiCuNb 17 4; (X5CrNiCuNb 16-4)		Z 7 CNU 15-05; Z 7 CNU 17-04	SKS 31
	14.4	1.4542	17-4PH			Z 7 CNU 17-04	
	14.4	1.4550	347	X6 CrNiNb 18 10	347 S 17	Z 6 CNNb 18.10	SKH55
	14.4		17-7PH		316 S 111		
	14.4	1.4821		X20CrNiSi25 4		Z 20 CNS 25.04	
	14.4	1.4828	309	X15CrNiSi20 12	309 S 24	Z 15 CNS 20.12	SCS17
	14.4	1.4833	309S	X6 CrNi 22 13	309 S 13	Z 15 CN 24-13	
	14.4	1.4845	310 S	X12 CrNi 25 21	310 S 24	Z 12 CN 25-20	SUH310
	14.4	1.4878	321	X6 CrNiTi 18 9	32 1 S 20	Z 6 CNT 18-12 (B)	SUS321
	14.4	1.4980	660	X6 NiCrTiMoVB25–15–2		E-Z6 NCT 25	
	15	0.6010	A48-20B	GG 10		Ft 10 D	
	15	0.6015	NO 25 B	GG 15	Grade 150	Ft 15 D	FC150
	15	0.6015	CLASS25	GG 15	Grade 150	Ft 15D	
K	15	0.6015	A48 25 B	GG 15	Grade 150	Ft 15 D	
	15	0.6020	A48-30B	GG 20	Grade 220	Ft 20 D	
	15	0.6020	NO 30 B	GG 20	Grade 220	Ft 20 D	FC200
	15	0.6660	A436 Type 2	GGL-NiCr202	L-NiCuCr202	L-NC 202	
	15	0.7040	60-40-18	GGG 40	SNG 420/12	FCS 400-12	FCD400

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
K	15	0.6660	A436 Type 2	GGL-NiCr202	L-NiCuCr202	L-NC 202	
K	15	0.7040	60-40-18	GGG 40	SNG 420/12	FCS 400-12	FCD400
K	15		No 20 B	GG 10		Ft 10 D	FC100
K	16	0.6020	CLASS30	GG 20	Grade 220	Ft 20D	
K	16	0.6030	CLASS45	GG 30	Grade 300	Ft 30D	FC300
K	16	0.6030	A48-45 B		Grade 350	Ft 30D	
K	16	0.6035	A48-50	GG 35	Grade 350	Ft 35 D	FC350
K	16	0.6040	A48-60 B	GG 40	Grade 400	Ft 40 D	
K	16	0.7070	100/70/03	GGG 70	SNG700/2	FGS 700-2	FCD700
K	17	0.7033		GGG35.3			
K	17		434	GGG-35.3	350/22 L 40	FGS 370/17	
K	17	0.7040	60-40-18	GGG-40	SNG 420/12	FGS 400-12	
K	17	0.7043	60/40/18	GGG-40.3	370/7	FGS 370/17	
K	17	0.7050	80-55-06	GGG50	SNG500/7	FGS 500/7	
K	17		65-45-12	GGG-50	SNG 500/7	FGS 500-7	FCD 500
K	17	0.7652		GGG-NiMn 13 7	S-NiMn 137	S-Mn 137	
K	17	0.7660	A43D2	GGG-NiCr 20 2	Grade S6	S-NC 202	
K	17				SNG 370/17	FGS 370-17	
K	18	0.6025	A48-40 B	GG25	Grade260	Ft 25 D	
K	18	0.7060		GGG60	SNG600/3	FGS600-3	FC250
K	18		80/55/06	GGG-60	600/3	FGS 600/3	
K	18		A48 40 B				FCD600
K	19	0.8055		GTW55			
K	19	0.8135	32510	GTS-35-10	B 340/12	MN35-10	
K	19		A47-32510	GTS-35-10	B 340/2	MN 35-10	
K	19	0.8145	A220-40010	GTS-45-06	P 440/7	MN 450-6	
K	19			GTS-35	B 340/12		
K	19				8 290/6	MN 32-8	
K	19		32510	GTS-35	B340/12	MN 35-10	
K	20	0.8035		GTM-35	W340/3	MB35-7	AC4A
K	20	0.8040		GTW-40	W410/4	MB40-10	FCMW330
K	20	0.8045					
K	20	0.8065		GTMW-65			
K	20	0.8155	A220-50005	GTS-55-04	P 510/4	MN 550-4	
K	20		50005	GTS-55-04	P 510/4	MP 50-5	
K	20	0.8165	70003	GTS-65-02	P 570/3	MN 650-3	
K	20	0.8170	90001	GTS-70-02	P 690/2	MN 700-2	FCMP490
K	20		A220-90001	GTS-70-02		MN 700-2	FCMP590
K	20	0.8170		GTS-70-02	IP 70-2		FCMP690
K	20	1.1133	1022; 1518	20Mn5	120 M 19	20 M 5	
K	20	1.1183	1035	Cf 35 (C35G)	080 A 35	XC 38 H 1 TS	
K	20		40 010	GTS-45	P440/7		SMnC 420
K	20		70003	GTS-65	P 570/3	MP 60-3	S 35 C
N	21	3.0205	Al99				
N	21	3.0255	1000	Al99.5	L31/34/36	A59050C	FCMP540
N	21	3.3315		AlMg1			
N	22	3.1325		AlCuMg 1			
N	22	3.1655		AlCuSiPb			
N	22	3.2315		AlMgSi1			
N	21	3.4345	7050	AlZnMgCu0,5	L 86	AZ 4 GU/9051	
N	23	3.2381		G-AlSi 10 Mg			

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
N	23	3.2382		GD-AlSi10Mg			
	23	3.2581		G-AlSi12			
	23	3.3561		G-AlMg 5			
	23	3.5101	ZE 41	G-MgZn4sE1Zr1	MAG 5		
	23	3.5103	EZ 33	MgSE3Zn27r1	MAG 6	G-TR3Z2	
	23	3.5812	AZ 81	G-MgAl8Zn1	NMAG 1		
	23	3.5912	AZ 91	G-MgAl9Zn1	MAG 7		
	24	2.1871		G-AlCu 4 TiMg			
	24	3.1754		G-AlCu5Ni1,5			
	24	3.2163		G-AlSi9Cu3			
	24	3.2371	4218 B	G-AlSi 7 Mg			
	24	3.2373	SC64D	G-AlSI9MGWA		A-S7G	C4BS
	24	3.2373		G-AlSi 9 Mg			
	24	3.5106	QE 22	G-MgAg3SE2Zr1	mag 12		
	24		GD-AlSI12	G-ALMG5	LM5	A-SU12	
	23-24	3.2383	A360.2	G-AlSi0Mg(Cu)	LM9		
	23-24		A356-72		2789;1973	NF A32-201	
	23-24		356,1		LM25		A5052
	23-24		A413.2	G-AlSi12	LM6		
	23-24		A413.1	G-AlSi 12 (Cu)	LM20		ADC12
	23-24		A413.0	GD-AlSi12			A6061
	23-24		A380.1	GD-AlSi8Cu3	LM24		A7075
	26	2.1090	C93200	G-CuSn 7 5 pb		U-E 7 Z 5 pb 4	
	26	2.1096	C83600	G-CuSn5ZnPb	LG 2		
	26	2.1098	C83600	G-CuSn 2 Znpb			
	26	2.1182	C23000	G-CuPb15Sn	LB1	U-pb 15 E 8	
	26	2.1182	C93800	G-CuPb15Sn		Uu-PB 15e 8	
	27	2.0240		CuZn 15			
	27	2.0321	C27200	CuZn 37	cz 108	CuZn 36, CuZn 37	
	27	2.0590		G-CuZn40Fe			
	27	2.0592	C 86500	G-CuZn 35 Al 1	U-Z 36 N 3	HTB 1	
	27	2.0596	C 86200	G-CuZn 34 Al 2	HTB 1	U-Z 36 N 3	
	27	2.1293	C 18200	CuCrZr	CC 102	U-Cr 0.8 Zr	
	28	2.0060		E-Cu57			
	28	2.0375		CuZn36Pb3			
	28	2.0596	C 94100	G-CuZn 34 Al 2	HTB 1	U-Z 36 N 3	
	28	2.0966	C 63000	CuAl 10 Ni 5 Fe 4	Ca 104	U-A 10 N	
	28	2.0975	B-148-52	G-CuAl 10 Ni			
	28	2.1050	C 90700	G-CuSn 10	CT1		
	28	2.1052	C 90800	G-CuSn 12	pb 2		
	28	2.1292	C 81500	G-CuCrF 35	CC1-FF		
	28	2.4764					
S	31	1.4558	N 08800	X 2 NiCrAlTi 32 20	NA 15		
	31	1.4562	N 08031	X 1 NiCrMoCu 32 28 7			
	31	1.4563	N 08028	X 1 NiCrMoCuN 32 27 4			
	31	1.4564	N 08330	X 12 NiCrSi 36 16	NA 17	Z 12 NCS 35.16	
	31	1.4564	330	X12 NiCrSi 36 16	NA 17	Z 12 NCS 37.18	SUH330
	31	1.4865		G-X40NiCrSi38 18	330 C 40		SCH15
	31	1.4958		X 5 NiCrAlTi			
	31	2.4668	AMS 5544	NiCr19NbMo		NC 20 K14	
	32	1.4977		X 40 CoCrNi 20 20		Z 42 CNKDWNb	
	33	2.4360	Monel 400	NiCu30Fe	NA 13	NU 30	
	33	2.4603	5390A			NC 22 FeD	
	33	2.4610	Hastelloy C-4	NiMo16cR16Ti			
	33	2.4630	Nimonic 75	NiCr20Ti	HR 5,203-4	NC 20 T	

MATERIAL GROUPS

	VDI 3323	W.-Nr.	AISI/SAE	DIN	BS	AFNOR	JIS
S	33	2.4642	Inconel 690	NiC29Fe		NC 30 Fe	
S	33	2.4856	Inconel 625	NiCr22Mo9Nb	NA 21	NC 22 FeDNb	
S	33	2.4858	Incoloy 825	NiCr21Mo	NA 16	NC 21 Fe DU	
S	34	2.4375	Monel k-500	NiCu30 Al	NA 18	NU 30 AT	
S	34	2.4375	4676	NiCu30Al	3072-76		
S	34	2.4631		NiCr20TiAl	Hr40;601	NC20TA	
S	34	2.4668	Inconel 718	NiCr19FeNbMo		NC 19 Fe Nb	
S	34	2.4694	Inconel	NiCr16fE7TiAl		NC 19 Fe Nb	
S	34	2.4955		NiFe25Cr20NbTi			
S	34	2.4668	5383	NiCr19Fe19NbMo	HR8	NC 19 FeNB	
S	34	2.4670	5391	S-NiCr13A16MoNb	3146-3	NC 12 AD	
S	34	2.4662	5660	NiFe35Cr14MoTi		Z 8 NCDT 42	
S	34	2.4964	5537C	CoCr20W15Ni		KC20WN	
S	34		AMS 5772	COCr22W14Ni		KC22WN	
S	35	2.4669	Inconel X-750	NiCr15Fe7TiAl		NC 15 TNb A	
S	35	2.4685	Hastelloy B	G-NiMo28			
S	35	2.4810	Hastelloy C	G-NiMo30			
S	35	2.4973	AMS 5399	NiCr19Co11MoTi		NC 19 KDT	
S	35	3.7115		TiAl5Sn2			
S	36	3.7025	R 50250	Ti 1	2 TA 1		
S	36	3.7225	R 52250	Ti 1 pd	TP 1		
S	36	2.4674	AMS 5397	NiCo15Cr10MoAlTi			
S	37	3.7124		TiCu2	2 TA 21-24		
S	37	3.7145	R 54620	TiAl6Sn2Zr4Mo2Si			
S	37	3.7165		TiAl6V4	TA 10-13;TA 28	T-A 6 V	
S	37	3.7185		TiAl4Mo4Sn2	TA 45-51; TA 57		
S	37	3.7195		TiAl 3 V 2.5			
S	37			TiAl4Mo4Sn4Si0.5			
S	37		AMS R54520	TiAl5Sn2.5	TA14/17	T-A5E	
S	37		AMS R56400	TiAl6V4	TA10-13/TA28	T-A6V	
S	37		AMS R56401	TiAl6V4ELI	TA11		
H	38	1.1545	W 1	C105W1	BW 1A	Y1105	SK3
H	38	1.1545	W210	C105W1	BW2	Y120	SUP4
H	38	1.2762		75 CrMoNiW 6 7			
H	38	1.4125	440C	X105 CrMo 17		Z 100 CD 17	
H	38	1.6746		32 nlcRm0 14 5	832 M 31	35 NCD 14	
H	40	0.9620	Ni- Hard 2	G-X 260 NiCr 4 2	Grade 2 A		
H	40	0.9625	Ni- Hard 1	G-X 330 Ni Cr 4 2	Grade 2 B		
H	40	0.9630	Ni- Hard 4	G-X 300 CrNiSi 9 5 2			
H	40	0.9640		G-X 300 CrMoNi 15 2 1			
H	40	0.9650	A 532 III A 25% Cr	G-X 260 Cr 27	Grade 3 D		
H	40	0.9655	A 532 III A 25% Cr	G-X 300 CrNMo 27 1	Grade 3 E		
H	40	1.2419		105 WCr 6	105WC 13		
H	40	1.4841	310	X15 CrNiSi 25 20	314 S31	Z 15 CNS 25-20	
H	41	0.9635		G-X 300 CrMo 15 3			
H	41	0.9645		G-X 260 CrMoNi 20 2 1			
H	41	0.9655		G-X 300 CrNMo 27 1			

TOOLS INDEX

NOTICE

DIXI Polytool SAS
265 Rue de la Grange
74950 Scionzier
tel: +33(0)4 79 38 25 92
dixifrance@dixi.com

DIXI POLYTOOL GmbH
Carl-Benz-Str. 11
DE-75217 Birkenfeld
T +49 (0)7231-1 68 98-0
F +49 (0)7231-3 39 19
dixipolytool@dixi.com

DIXI POLYTOOL AUSTRIA GmbH
Am Gewerbepark 2/1
5111 Bürmoos
T +43 6274 93028
office-at@dixi.com

DIXI POLYTOOL B.V.
Granaatstraat 54
7554 TR Hengelo
T +31 (0)344 603 410
dixiholland@dixi.com

DIXI Polytool Spain S.L.
Bailen 141 Esc. Dr, Entl. 5a
ES-08037 Barcelona
T +34 678 917 351
dixispain@dixi.com

www.dixipolytool.com








DIXI polytool

DIXI POLYTOOL S.A.
Av. du Technicum 37
CH-2400 Le Locle

T +41 (0)32 933 54 44
F +41 (0)32 931 89 16

dixipoly@dixi.ch
www.dixipolytool.com