INFORMATIONS

INFORMATIONEN

INFORMATION

INFORMAZIONI

INFORMÁCIÓK

INFORMACIONES

swiss made since 1946

PICTROGRAMS


How to use

Cutting conditions


All directions possible


Only contouring


Contouring and angular plunging


Contouring and plunging

DIN norms

ISO norms

DIXI norms

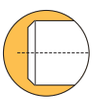

Parting off


Slotting

Different helix angles


Irregular teeth


With flat clamping


With chamfer


Chamfer


Radius


Sharp corner

Radius tolerance

Profile form tolerance


Web thinning


Centre cutting

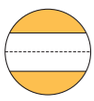
Centre cutting for Ø > …

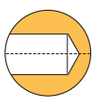

No centre cutting


No cooling


TC cooling


FC cooling


For a through hole


For a blind hole

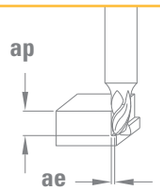
P M H K S N Materials groups

>1500 N/mm² Hardness of material

INFORMATION

Cutting material

	□	Carbide
PCD	●	Polycrystalline diamond
CVD	▮	CVD Polycrystalline diamond
DIA	◆	Monocristalline diamond



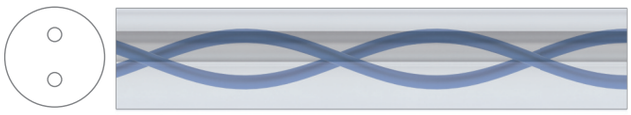
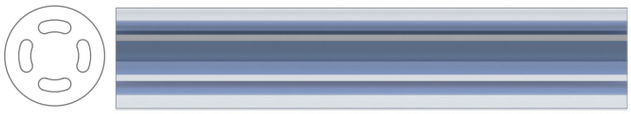
ap	Depth of cut
ae	Width of cut

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 diamond coating
DINAC	With DINAC coating
DI-TOP	With DI-TOP coating

Z	Number of teeth
Vc	Cutting speed [m/min]
f	Feed / revolution [mm/rev.]
Vf	Feed in [mm/min]
n	Rotation speed [rpm]
Rm	Tensile strength [N/mm²]
fz	Feed per tooth [mm]
R	Right-hand cutting
L	Left-hand cutting
P.	Page

COOLANT STYLES

	Symbol	Description	Typical use	Example
	**-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

TOLERANCE CHART

DIN 7160

[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 + 6	+ 49 + 6	+ 11 0	+ 18 0	+ 27 0	+ 43 0	+ 70 0	+110 0	+180 0	+270 0	± 9	±21.5	+ 2 - 9	+ 6 - 12	- 4 - 15	0 - 18	- 5 - 23	0 - 43	- 11 - 29	- 18 - 61
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 - 68	- 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]

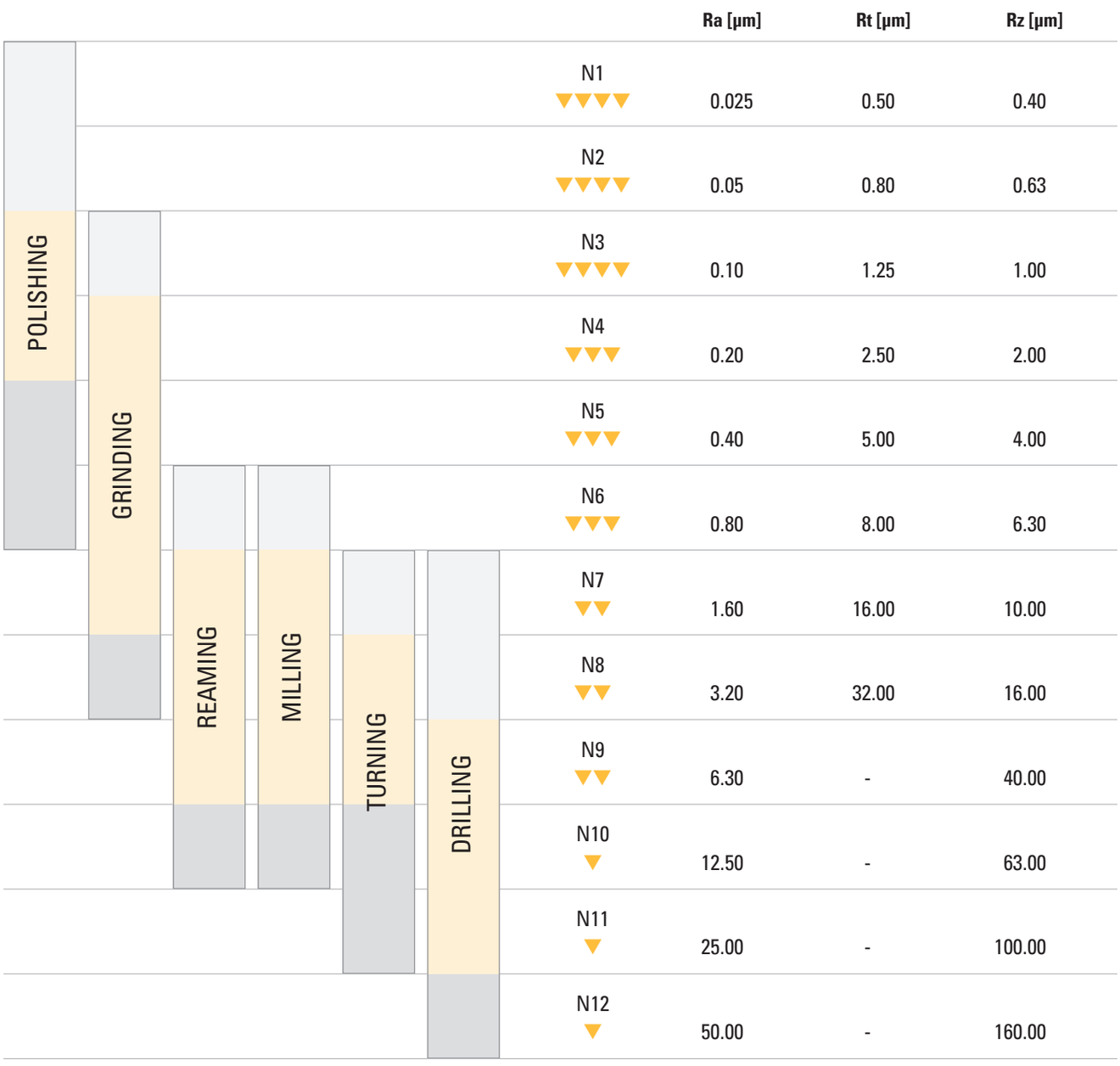
[mm]	d9	e8	f7	g6	h5	h6	h7	h8	h9	h10	h11	js5	js6	js12	js13	js14	k5	k6	m5	m6	n5	n6	p6
- 3	- 20 - 45	- 14 - 28	- 6 - 16	- 2 - 8	0 - 4	0 - 6	0 - 10	0 - 14	0 - 25	0 - 40	0 - 60	± 2	± 3	± 50	± 70	± 125	+ 4 0	+ 6 0	+ 6 + 2	+ 8 + 2	+ 8 + 4	+ 10 + 4	+ 12 + 6
3 > Ø ≥ 6	- 30 - 60	- 20 - 38	- 10 - 22	- 4 - 12	0 - 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 + 12	+ 29 + 18
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 + 15	+ 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	
465	138	145		
480	143	150	78.7	
495	147	155		
510	152	160	81.7	
530	156	165		
545	162	170	85	
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	
705	209	220	95	
720	214	225	96	
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
850	252	265		24.8
865	257	270	102	25.6
880	261	275		26.4
900	266	280	104	27.1
915	271	285		27.8
930	276	290	105	28.5

Rm	Brinell	Vickers	Rockwell
[N/mm²]	[HB]	[HV 30]	[HRC]
950	280	295	29.2
965	285	300	29.8
995	295	310	31
1030	304	320	32.2
1060	314	330	33.3
1095	323	340	34.4
1125	333	350	35.5
1155	342	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
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
		740	61.8
		760	62.5
		780	63.3
		800	64

ROUGHNESS CHART



	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

MATERIAL GROUPS AND EXAMPLES

	Groups		W.Nr.	DIN	AISI/ATSM	AFNOR	Commercial name
P	Lead alloyed steel	Steel + Pb	1.0715	9 SMn 28	1213	S250Pb	
			1.0718	9 SMnPb 28	12 L 13	S 250 Pb	
			1.0722	10 SPb 20	11 L 08	10 PbF 2	
			1.0727	11SmPb30	12L13	S250Pb	
			1.0736	9 SMn 36	1215	S 300	
			1.0737	9 SMnPb 36	12 L14	S 300 Pb	
			1.4197	X22CrNiMo13 1 1	420F		4C27A FINEMAC
P	Unalloyed steel / Low alloyed < 600N/mm²	Steel < 600MPa	1.0201	St36	1006	Fd 5	
			1.0401	C 15	M 1015	AF 37 C 12	
			1.0402	C 22	M1020	AF 42 C 20	
			1.0406	C 25	(M) 1025	C 25	
P	Unalloyed steel / Low alloyed >600 N/mm²	Low alloyed steel	1.0473	19 Mn 6	A 537 Cl. 1	A 52 CP ; AP	
			1.0481	17 Mn 4	A 516 Gr. 70	A 48 CP ; AP	
			1.0501	C 35	1035	1 C 35	
			1.0503	C 45	1045	1 C 45	
			1.0511	C 40	1040	1 C 40	
			1.0535	C 55	1055	1 C 55	
			1.0562	StE 355	A 633 Gr. C	FeE 355 KG N	
			1.0601	C 60	1060	1 C 60	
			1.1121	Ck 10	1010	XC 10	
			1.0605	C 75	1074		
			1.1133	20 Mn 5	1022	20 M 5	
			1.1141	Ck 15	1015	XC 12	
			1.1151	Ck 22	1020	2 C 22	
			1.1158	Ck 25	1025	2 C 25	
			1.1181	Ck 35	1035	2 C 35	
			1.1186	Ck 40	1040	2 C 40	
			1.1191	Ck 45	1045	2 C 45	V945
			1.1167	36 Mn 5	1335	35 M 5	
			1.1203	Ck 55	1055	2 C 55	
			1.1221	Ck 60	1060	2 C 60	
			1.1248	Ck 75	1074	XC 75	
			1.1274	Ck 101	1095	XC 100	
			1.2067	100 Cr 6	L1 L 3	Y 100 C 6	
			1.2162	21 MnCr 5	~ P 2	20 MC 5	
			1.2311	40 CrMnMo 7	~ P 20	40 CMD 8	
			1.251	100 MnCrW 4	O 1	90 MWCV 5	
			1.2516	120 WV 4		120 WV 10	
			1.2542	45 WCrV 7	S 1	55 WC 20	
			1.255	60 WCrV 7	S 1	55 WCS 20	
			1.2711	54 NiCrMo V6		55 NCDV 6	
			1.2718	55 NiCr 10	~ 6 F 5	55 NC 10	
			1.2738	40 CrMnNiMo 8			
			1.2744	57 NiCrMoV 7 7			
			1.2762	75 CrMoNiW 6 7			
			1.2826	60 MnSiCr 4	~ S 4		
			1.2842	90 MnCrV 8	~ O 2	90 MCV 8	
			1.5415	15 Mo 3	A 204 Gr. A	15 D 3	
			1.5419	22 Mo 4	4419		
			1.5637	10 Ni 14	A 350-LF 3	12 N 14	
			1.5752	15 NiCr 13	3310	12 NC 15	E200
			1.5919	15 CrNi 6	3115	16 NC 6	
			1.6523	21 NiCrMo 2	8620	20 NCD 2	
			1.6582	34 CrNiMo 6	4337	34 CrNiMo 8	
			1.6587	17 CrNiMo 6		18 NCD 6	
			1.6657	14 NiCrMo 13 4	9310	16 NCD 13	
			1.7103	67 SiCr 5	5115	16MC 4	
			1.7147	20 MnCr 5	5120		

MATERIAL GROUPS AND EXAMPLES

	Groups		W.Nr.	DIN	AISI/ATSM	AFNOR	Commercial name
		Low alloyed steel	1.7218	25 CrMo 4	4130	25 CD 4	
			1.7225	42 CrMo 4	4140	42 CD 4	
			1.7228	50 CrMo 4	4150	50 CrMo 4	
			1.7258	24 CrMo 5			
			1.7335	13 CrMo 4 4	A 182-F11 ; F12	15 CD 3.5	
			1.7361	32 CrMo 12		30 CD 12	
			1.738	10 CrMo 9 10	A 182 F22	12 CD 9.10	
			1.7709	21CrMoV5 7			
			1.7715	14 MoV 6 3			
			1.8159	50 CrV 4	6145	50 CV 4	
			1.8507	34 CrAlMo 5	A 355 Cl.D	30 CAD 6.12	
			1.8515	31 CrMo 12		30 CD 12	
			1.8519	31CrMoV9			
			1.8550	34CrAlNi7			
P	High alloyed steel	High alloyed steel	1.2080	X 210 Cr 12	~ D 3	Z 200 C 12	K100
			1.2083	X 42 Cr 13	420	Z 40 C 14	
			1.2341	X 6 CrMo 4	~ P 4		
			1.2343	X 38 CrMoV 5 1	~ H 11	Z 38 CDV 5	
			1.2344	X 40 CrMoV 5 1	~ H 13	Z 40 CDV 5	W300
			1.2363	X 100 CrMoV 5 1	A 2	Z 100 CDV 5	
			1.2365	X 32 CrMoV 3 3	~ H 10	30 CDV 12-28	
			1.2367	~ X 40 CrMoV 5 3		Z 38 CDV 5-3	
			1.2379	X 155 CrVMo 12 1	~ D 2	Z 210 CW 12	K110
			1.2581	X 30 WCrV 9 3	~ H 21	Z 30 WCV 9-3	
			1.2709	X 3 NiCoMoTi 18 9 5		Z 2 NKDT 18-10-5	
			1.2764	X 19 NiCrMo 4	~ P 21		M130
			1.2767	X 45 NiCrMo 4	6 F 7	- 45 NCD 17	
			1.2885	X 32 CrMoCoV 3 3 3	(H 10 A)	30 CKDV 28	
			1.3343				S600
			1.3351				S690PM
			1.4000	X 6 Cr 13	403	Z 8 C 12	
			1.4001	X 7 Cr 14	410 S	Z 8 C 13 FF	
			1.4016	X 6 Cr 17	430	Z 8 C 17	
			1.4021	X 20 Cr 13	420	Z 20 C 13	
			1.4028	X 30 Cr 13	420 F	Z29CF13	
			1.4115	X90 CrMoV 18			
			1.4510	X 6 CrTi 17	XM 8	Z 4 CT 17	
			1.4718	X 45 CrSi 9 3	HNV 3	Z 45 CS 9	
			1.4724	X 10 CrAl 13		Z 10 C 13	
			1.4731	X 40 CrSiMo 10 2		Z 40 CSD 10	
			1.4742	X 10 CrAl 18		Z 10 CAS 18	
			1.4762	X 10 CrAl 24	-446	Z 10 CAS 24	
			1.6358	X2 NiCoMo18 9 5			DURNICO
			1.6908	X2NiCrMoTi10 10 5			ULTRAFORT
M	DUPLEX stainless steel	Aust. stainless steel	1.4301	X 5 CrNi 18 10	304	Z 6 CN 18-09	
			1.4305	X 10 CrNiS 18 9	303		
			1.4306	X 2 CrNi 1911	304 L	Z 1 CN 18-12	
			1.4308	G-X 6 CrNi 18 9	CF-8	Z 6 CN 18-10 M	
			1.4310	X 12 CrNi17 7	301		
			1.4372				
			1.4401	X 5 CrNiMo 17 12 2	316	Z 3 CND 17-11-01	
			1.4404	X 2 CrNiMo 17 13 2	316 L	Z 2 CND 17-2	
			1.4408	G-X 6 CrNiMo 18 10	CF-8M		
			1.4418	X4CrNiMo16-5-1		Z6CND16-05-01	
			1.4429	X 2 CrNiMo 17 13 3	316 LN	Z 3 CND 17-12 Az	
			1.4435	X 2 CrNiMo 18 14 3	316 L	Z 3 CND 17-12-03	
			1.4438	X 2 CrNiMo 18 16 4	317 L	Z 2 CND 19-15-04	
			1.4441	X 2 CrNiMo 18 15 3	316 VLM	Z2 CN 18-14-3	
			1.4529	X1 NiCrMoCuN 25 20 7	904		
			1.4539	X1NiCrMoCu 25 20 5	904-L		

MATERIAL GROUPS AND EXAMPLES

	Groups		W.Nr.	DIN	AISI/ATSM	AFNOR	Commercial name
M		Aust. stainless steel	1.4571	X 6 CrNiMoTi 17 12 2	316 Ti	Z 6 CNDT 17-12	
			1.4162	X2CrMnNiN22-5-2			
			1.4362	X 2 CrNiN 23.4			
			1.4410	G-X10CrNiMo 18 9			
			1.4452	X8 CrMnMoN 23 21 1			Biodur 108
			1.4462	X2CrNiMoN22 5 3		Z3CND22-05Az	
K	Grey cast iron	Cast iron	0.601	GG 10	A48-20 B	Ft 10 D	
			0.6015	GG 15	A48-25 B	Ft 15 D	
			0.602	GG 20	A48-30 B	Ft 20 D	
			0.6025	GG 25	A48-35 B	Ft 25 D	
			0.6030	GG 30	A48-45 B	Ft 30 D	
			0.6035	GG 35	A48-50 B	Ft 35 D	
			0.6040	GG40	A48-55 B	Ft 40 D	
K	Nodular ferritic cast iron	Cast iron	0.6652	GGL-NiMn 13 7		L-NM 13 7	
			0.6655	GGL-NiCuCr 15 6 2	A436 Type 1	L-NUC 15 6 2	
			0.6656	GGL-NiCuCr 15 6 3	A436 Type 1b	L-NUC 15 6 3	
			0.6660	GGL-NiCr 20 2	A436 Type 2	L-NC 20 2	
			0.6661	GGL-NiCr 20 3	A436 Type 2b	L-NC 20 3	
			0.6667	GGL-NiSiCr 20 5 3		L-NSC 20 5 3	
			0.6680	GGL-NiSiCr 30 5 5	A436 Type 4	L-NSC 30 5 5	
			0.7033	GGG-35.3			
			0.7040	GGG-40	60-40-18	FGS 400-12	
			0.7043	GGG 40.3		FGS 370-17	
K	Nodular pearlitic cast iron	Cast iron	0.7050	GGG-50	65-45-12	FGS 500-7	
			0.7060	GGG 60	80-55-06	FGS 600-3	
			0.7070	GGG-70	100-70-03	FGS 700-2	
			0.7080	GGG-80	120-90-02	FGS 800-2	
K	Alloyed cast iron (with graphite spheroidal austenitic)	Cast iron	0.7652	GGG-NiMn 13 7		S-NM 13 7	
			0.7659	GGG-NiCrNb 20 2			
			0.7660	GGG-NiCr 20 2	A 439 Type D-2	S-NC 20 2	
			0.7661	GGG-NiCr 20 3	A 439 Type D-2B	S-NC 20 3	
			0.7665	GGG-NiSiCr 20 5 2		S-NSC 20 5 2	
			0.7670	GGG-Ni 22	A 439 Type D-2C	S-N 22	
			0.7673	GGG-NiMn 23 4	A 571 Type D-2M	S-NM 23 4	
			0.7676	GGG-NiCr 30 3	A 439 Type D-3	S-NC 30 3	
			0.7677	GGG-NiCr 30 1	A 439 Type D-3A	S-NC 30 1	
			0.7679	GGG-NiSiCr 30 5 2			
			0.7680	GGG-NiSiCr 30 5 5	A 439 Type D-4	S-NSC 30 5 5	
			0.7683	GGG-Ni 35	A 439 Type D-5	S-N 35	
			0.7685	GGG-NiCr 35 3	A 439 Type D-5B	S-NC 35 3	
			0.7688	GGG-NiSiCr 35 5 2			
K	Malleable cast iron	Cast iron	0.8035	GTW-35-04			
			0.8038	GTW-35-04			
			0.8040	GTW-40-05			
			0.8045	GTW-45-07			
			0.8170	GTS-70-02	A220-80002	Mn700-2	
			0.8135	GTS-35-10	32510	MN 35-10	
			0.8165	GTS-65-02	70003	MP 60-3	
K	High alloyed cast iron	Cast iron	0.9610	G-X 300 NiMo 3 Mg			
			0.9620	G-X 260 NiCr 4 2			
			0.9625	G-X 330 NiCr 4 2			
			0.9630	G-X 300 CrNiSi 9 5 2			
			0.9635	G-X 300 CrMo 15 3			
			0.9640	G-X 300 CrMoNi 15 2 1			
			0.9645	G-X 260 CrMoNi 20 2 1			
			0.9650	G-X 260 Cr 27			
			0.9655	G-X 300 CrMo 27 1			
S	Stainless and heat resistant stain	Special alloys	1.4718	X 45 CrSi 9 3	HNV 3	Z 45 CS 9	
			1.4724	X 10 CrAl 13		Z 10 C 13	
			1.4731	X 40 CrSiMo 10 2		Z 40 CSD 10	

MATERIAL GROUPS AND EXAMPLES

	Groups		W.Nr.	DIN	AISI/ATSM	AFNOR	Commercial name
		Special alloys	1.4742	X 10 CrAl 18		Z 10 CAS 18	
			1.4762	X 10 CrAl 24	-446	Z 10 CAS 24	
			1.4828	X 15 CrNiSi 20 12	309	Z 15 CNS 20-12	
			1.4828 (2)	X18CrNiSi20-12		Z 17 CNS 20-12	
			1.4833	X 7 CrNi 23 14	309 S	Z 15 CN 24-13	
			1.4837	G-X 40 CrNiSi 25 12			
			1.4841	X 15 CrNiSi 25 20	314	Z 12 CNS 25-20	
			1.4845	X 12 CrNi 25 21	310 S	Z 8 CN 25-20	
			1.4848	G-X 40 CrNiSi 25 20	HK		
			1.4864	X 12 NiCrSi 36 16	330	Z 12 NCS 37-18	
			1.4865	G-X 40 NiCrSi 38 18			
			1.4871	X 53 CrMnNiN 21 9	EV 8	Z 52 CMN 21-09	
			1.4873	X 45 CrNiW 18 9		Z 35 CNWS 14-14	
			1.4876	X 10 NiCrAlTi 32 20	B 163	Z 8 NC 32-21	
			1.4878	X 12 CrNiTi 18 9	321	Z 6 CNT 18-12 (B)	
			1.4922	X 20 CrMoV 12 1		Z 20 CDV 12	
			1.4980	X 5 NiCrTi 26 5			A286
			2.4375	NiCu30Al	4676		MONEL K500
S	Ni alloy	Special alloys	2.4603		5390A	NC22FeD	HASTELLOY G30
			2.4631	NiCr20TiAl		NC20TA	NIMONIC 80 A
			2.4066				NICKEL 200
			2.4654				WASPALLOY
			2.4663	NiFe35Cr14MoTi	5660	ZSNCDT42	INCONEL 617
			2.4668	NiCr19Fe19NbMo	5383	NC19eNB	INCONEL 718
			2.4669		N 07750		INCONEL X470
			2.4816	NiCr 15 Fe	AMS 5540		INCONEL 600
			2.4856	NiCr22Mo9Nb	5666	NC22FeDNB	INCONEL625
			2.4969	NiCr 20 Co 18 Ti			NIMONIC 90
				NiCr16Co10WAlTi	5712, 5713		MAR-M 421
				NiCo15Cr15MoAlTi	687		UDIMET 700
				NiCr19Fe19NbMo	5583		UDIMET 720
S	Co cobalt	Special alloys<<		CoCrW10TaZrB			MAR-M 302
				CoCr24Ni10WtaZrB			MAR M-509
				CoCr20W15Ni	670		HS 25
					F75		STELLITE 21
							STELLITE 30
				CoCr20Ni16Mo7			PHYNOX
			2.4964	CoCr20W15Ni	5537C	KC20WN	HAYNES 25
S	Titanium, titanium alloy	Titanium, titanium alloy	3.7025	Ti99.2	Grade1		
			3.7035	Ti99.4	Grade2		
			3.7055	Ti99.4	Grade3		
			3.7065		Grade4		
			3.7025 Pd				
			3.7035 Pd				
			3.7105		Grade12		
			3.7165	TiAl6V4	Grade5	T-A6V	
			3.7145.7	TiAl6Sn2Zr4Mo2Si			
			3.7175	TiAl6V6Sn2			
N	Copper alloy - easy to machine	Cu alloy Silver Gold	2.0331	Cu Zn 36 Pb 1.5		Cu Zn 35 Pb 2	
			2.0331	Cu Zn 36 Pb 1.5			
			2.0332	Cu Zn 37 Pb 0.5			
			2.0371	Cu Zn 38 Pb 1.5		Cu Zn 38 Pb 2	
			2.0371	Cu Zn 38 Pb 1.5		Cu Zn 36 Pb 3	
			2.0375	Cu Zn 36 Pb 3		Cu Zn 39 Pb 2	
			2.0380	Cu Zn 39 Pb 2		Cu Zn 40 Pb 3	
			2.0401	Cu Zn 39 Pb 3		Cu Zn 39 Pb 2	
			2.0402	Cu Zn 40 Pb 2			

MATERIAL GROUPS AND EXAMPLES

	Groups		W.Nr.	DIN	AISI/ATSM	AFNOR	Commercial name
		Cu alloy Silver Gold	2.058	Cu Zn 40 Mn Pb 1		Cu Ni 18 Zn 2	
			2.0740	Cu Ni 18 Zn 20			
			2.0771	Cu Ni Zn 39			
			2.0771	Cu Ni 7 Zn 39			
			2.0780	Cu Ni 12 Zn 30 Pb 1			
			2.0790	Cu Ni 18 Zn 19 Pb 1			
			2.1546	Cu Te P		C 109	
			2.1016	CuSn4Pb4Zn4			
N	Non alloyed copper, Copper alloy - difficult to machine	Cu alloy difficult to machine	2.0040	OF-Cu			
			2.0060	E-Cu57			
			2.0065	E-Cu58			
			2.0321	CuZn37			
			2.0920	Cu Al8			
				CuZn42			
			2.1247	CuBe2			
				CuNi7.5Sn5Te			DECLAFOR 1015
N	Aluminium < 8% Si	Al < 8% Si	3.0205	Al 99.5	A5		
			3.0257	E-AL	1350		
			3.0515	AlMn1	3103		
			3.3315	AlMg1	5005		
			3.3525	AlMg2Mn0.3	5251		
			3.3535	AlMg3	5754		
			3.3537	AlMg2.7Mn	5454		
			3.3545	AlMg4Mn	5086		
			3.3547	AlMg4.5Mn	5083		
			3.3211	AlMg1SiCu	6061		
			3.2315	AlMgSi1	6082		
			3.1355	AlCuMg2	2024		
			3.4335	AlZn4.5Mg1	7020		
			3.4365	AlZnMgCu1.5	7075		
N	Aluminium > 8% Si	Al > 8% Si	3.2373	AlSi9Mg	A-S9G		
			3.2381	AlSi10Mg	A-S10G		
			3.2581	AlSi12CuFe	A-S13G		
			3.2291	AlSi20	A-S20		

APPLICATION FIELDS OF COATINGS

	Material to be machined		TiAlN Hardness (HV0.05) 3'100	TiAlN Temp. max 800°C	DICUT Hardness (HV0.05) 3'000	DICUT Temp. max 800°C	XIDUR Hardness (HV0.05) 3'100	XIDUR Temp. max 900°C	C-TOP Hardness (HV0.05) 3'400	C-TOP Temp. max 1'100°C
P	Unalloyed steel / Low alloyed steel	< 600 N/mm²	○		○		○		◎	
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm²	○		○		○		◎	
P	Lead alloyed cutting steel		○		○					
P	High alloyed steel	700 – 1500 N/mm²	○		○		○		◎	
H	Hardened steel >50HRC		○				◎		◎	
M	Stainless steel	400 – 700 N/mm²	○		◎		○		◎	
M	DUPLEX stainless steel	> 800 N/mm²	○		○		○		◎	
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	○		○					
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	○		○					
K	Nodular ferritic cast iron / Malleable cast iron		○		○					
S	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy			○		◎		◎	
S	Titanium, titanium alloys								○	
N	Copper alloys - easy to machine (brass - bronze)									
N	Copper alloys - difficult to machine / Aluminium bronze	(CuAlFe) (Ampco)							○	
N	Aluminium alloys	Si < 8%								
N	Cast aluminium	Si > 8%								
N	Graphite									
N	Plastic									
N	CRFP									
N	Gold, silver								○	
N	Platinum									

✕ Inapplicable
○ Good
◎ Excellent

											Engraving		Tapping	
CUTINOX		**DAC**		**DIXAL**		**DLC**		**DIAMOND**		**DINAC**		**DI-TOP**		
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) 10'000	Temp. max 500°C	Hardness (HV0.05) 3'250	Temp. max 450°C	Hardness (HV0.05) 3'200	Temp. max 450°C	
◎						×		×		◎		◎		
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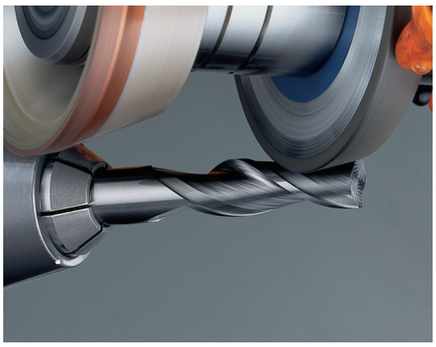
SERVICES

REGRINDING



DIXI Polytool offers its clients a complete regrinding service for all types of carbide, HSS, PCD and natural diamond tools.

The service is available for the DIXI range of tools as well as the assortments of the competition.
The regrinding is realized on 5 axes grinding machines, in order to guarantee perfect geometry and advanced methods are utilized in the controls department.

Rapid execution allows our clients to maintain flexible planning.

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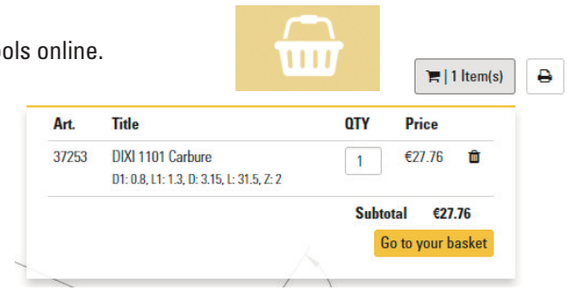

SPECIAL TOOLS QUOTATION REQUEST

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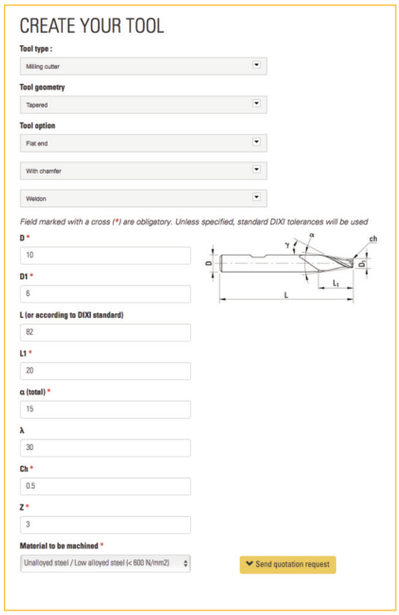

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DIXI POLYTOOL S.A.

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. In 2014, the premises have been completely renovated and enlarged.

With the introduction of the Lean Project, back in 2013, and the heavy investments in the production, our efforts are also focused on supporting our 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, since January 2015.

Our commitment for the sustainable development…

Areuse

TOOLS INDEX