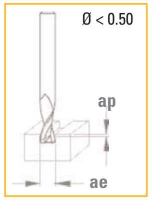
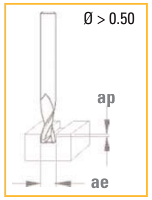
DIXI 7202 - 7237 - 7237-10 - 7240 - 7242

CUTTING CONDITIONS





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

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

	Materials to be machined		CARBIDE Vc [m/min]		TiAlN Vc [m/min]		Ø < 0.50 ap [mm]	Ø < 0.50 ae [mm]	Ø > 0.50 ap [mm]	Ø > 0.50 ae [mm]
P	Unalloyed steel / Low alloyed steel	< 600 N/mm²	70	100	90	110	< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	1 x ØD1
P	Unalloyed steel / Low alloyed steel	600 – 1500 N/mm²			70	90	< 0.3 x ØD1	1 x ØD1	< 0.6 x ØD1	1 x ØD1
P	Lead alloyed cutting steel		70	100			< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	1 x ØD1
P	High alloyed steel	700 – 1500 N/mm²			40	70	< 0.2 x ØD1	1 x ØD1	< 0.5 x ØD1	1 x ØD1
M	Stainless steel	400 – 700 N/mm²			70	90	< 0.5 x ØD1	1 x ØD1	< 0.8 x ØD1	1 x ØD1
M	DUPLEX stainless steel	> 800 N/mm²			40	70	< 0.5 x ØD1	1 x ØD1	< 0.8 x ØD1	1 x ØD1
K	Grey cast iron / Nodular pearlitic iron	< 250 HB	70	100	90	110	< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	1 x ØD1
K	Alloyed cast iron / Nodular pearlitic iron	> 250 HB	40	70	70	90	< 0.3 x ØD1	1 x ØD1	< 0.6 x ØD1	1 x ØD1
K	Nodular ferritic cast iron / Malleable cast iron		70	100	90	110	< 0.3 x ØD1	1 x ØD1	< 0.6 x ØD1	1 x ØD1
S	Special alloys / Heat resistant stainless steel	Inconel Nimonic Hastelloy			25	35			< 0.4 x ØD1	1 x ØD1
N	Titanium, titanium alloys		30	45			< 0.3 x ØD1	1 x ØD1	< 0.5 x ØD1	1 x ØD1
N	Copper alloys - easy to machine (brass - bronze)		140	160			< 0.5 x ØD1	1 x ØD1	< 1 x ØD1	1 x ØD1
N	Copper alloys - difficult to machine / Aluminium bronze	(CuAlFe) (Ampco)	120	140	170	190	< 0.3 x ØD1	1 x ØD1	< 0.7 x ØD1	1 x ØD1
N	Aluminium alloys	Si < 8%	180	260	230	340	< 0.6 x ØD1	1 x ØD1	< 1.2 x ØD1	1 x ØD1
N	Cast aluminium	Si > 8%	140	160	210	230	< 0.4 x ØD1	1 x ØD1	< 0.9 x ØD1	1 x ØD1
N	Plastic		240	260	300	340	< 0.6 x ØD1	1 x ØD1	< 1.2 x ØD1	1 x ØD1
N	Gold, silver		140	160	200	220	< 0.6 x ØD1	1 x ØD1	< 0.9 x ØD1	1 x ØD1

Feed per tooth fz [mm]

Materials to be machined	Ø D_1 0.04 - 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 - 5.00	Ø D_1 5.00 - 7.00	Ø D_1 7.00 - 10.00	Ø D_1 10.00 - 13.00	Ø D_1 13.00 - 16.00	Ø D_1 16.00 - 20.00
P Unalloyed steel / Low alloyed steel < 600 N/mm²	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
P Unalloyed steel / Low alloyed steel 600 – 1500 N/mm²	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
P Lead alloyed cutting steel	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.14	0.07 - 0.16	0.08 - 0.20
P High alloyed steel 700 – 1500 N/mm²	0.002 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
M Stainless steel 400 – 700 N/mm²	0.002 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
M DUPLEX stainless steel > 800 N/mm²	0.002 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
K Grey cast iron / Nodular pearlitic iron < 250 HB	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
K Alloyed cast iron / Nodular pearlitic iron > 250 HB	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
K Nodular ferritic cast iron / Malleable cast iron	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
S Special alloys / Heat resistant stainless steel			0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
N Titanium, titanium alloys	0.002 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
N Copper alloys - easy to machine (brass - bronze)	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.14	0.07 - 0.16	0.08 - 0.20
N Copper alloys - difficult to machine / Aluminium bronze	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.12	0.06 - 0.13	0.07 - 0.14
N Aluminium alloys Si < 8%	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.14	0.07 - 0.16	0.08 - 0.20
N Cast aluminium Si > 8%	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.14	0.07 - 0.16	0.08 - 0.20
N Plastic	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.21	0.10 - 0.24	0.11 - 0.30
N Gold, silver	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.06 - 0.14	0.07 - 0.16	0.08 - 0.20

The plunging feed (Vfp) of an end mill Z = 2 (drilling) must be reduced by 40 to 80 % depending on the material to be machined

DIXI 7202 DIAMANT

CUTTING CONDITIONS

	Materials to be machined	DIAMOND Vc [m/min]		ap [mm]	ae [mm]
N	Graphite	200	300	< 1 x ØD1	< 1 x ØD1

Feed per tooth

Materials to be machined	Ø D_1 0.04 - 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 - 5.00	Ø D_1 5.00 - 7.00	Ø D_1 7.00 - 10.00	Ø D_1 10.00 - 13.00	Ø D_1 13.00 - 16.00	Ø D_1 16.00 - 20.00
N Graphite	0.003 - 0.01	0.006 - 0.015	0.012 - 0.020	0.016 - 0.04	0.02 - 0.06	0.03 - 0.09	0.04 - 0.11	0.05 - 0.14	0.07 - 0.16	0.08 - 0.20