GÜHRING

德國鈷領 小徑Diver高效率銑刀

MICRO RF 100 diver

Diver 銑刀特色說明

SYMMETRICAL DRILLING FACE
optimised for drilling and ramping operations
excellent cutting edge stability

往下鑽銑與斜向進刀
有優越的性能表現與穩定性

THE HIPIMS COATING DUROX®
achieves a very high surface quality
for an optimal chip removal
as well as perfect protection against wear
and oxidation in dry and wet machining

非常高的表面質量要求，可以有效地幫助切屑，
在乾式和濕式加工中具有出色的抗磨損和抗氧化性能

DIMENSIONS
Ø 0.790 – 3.175

尺寸從 Ø0.79 ~ Ø3.175

LENGTHS
2.5xD and 5xD

長度有 2.5xD 及 5xD

innovative flute form
very high tool stability
low-vibration cutting
創新的溝槽形狀
切削時呈現高穩定性與低震動

new transition geometry
improves overall stability
新的幾何形狀設計 提高了整體穩定性

GühroJet coolant ducts
guided cooling & lubrication
directly in the cutting area
effective chip removal
鈷領特有的冷卻出水設計
直接在切削區域冷卻和潤滑
達到最佳排屑效果

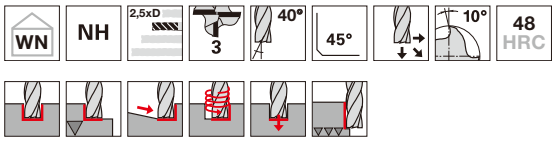
new ultra fine carbide
optimum balance between
hardness and toughness
for micromachining applications
採用新的超細鎢鋼棒材，在精細的加工
應用中使硬度和韌性達到最佳的平衡

MICRO EVOLUTION 2020

Plunging and milling with only one tool.
Universal, in every application, in every material.
Extreme cutting values and very high cutting depths,
which were previously not possible for micro-precision tools.
僅使用這支刀具即可進行插銑和一般銑削，可廣泛應用於各種材料加工應用。
高的切削參數和高的切削深度，是一般的精密刀具無法做到的。

Ratio end mills RF 100 Microdiver 高效率RF 100 Microdiver 銑刀

2.5D刃長



Tool material	Solid carbide
Surface	X
Type	NH
Shank form	cyl.

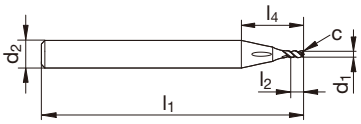
P	•
M	•
K	•
N	•
S	•
H	○

GÜHRINGNAVIGATOR

NEW

- for extreme cutting values and cutting performance
- with internal cooling: GühroJet peripheral cooling with 6 or 4 exits
- centre cutting
- with special drill face

- 高切削參數與高性能
- 鉆領特有4～6道平行中心出水
- 切刃過中心
- 端刃面可以鑽銑



編號 6808

d1 h8	d2 h5	l1	l2	l4	c	刃數	價格
mm	mm	mm	mm	mm	mm x 45°		
0.790	4.00	38.10	1.97	9.5	0.016	3	2,800
0.800	4.00	38.00	2.00	9.5	0.016	3	2,800
1.000	4.00	38.00	2.50	9.3	0.020	3	2,800
1.190	4.00	38.10	2.97	9.4	0.024	3	2,800
1.200	4.00	38.00	3.00	9.4	0.024	3	2,800
1.500	4.00	45.00	3.75	9.7	0.030	3	2,800
1.590	4.00	44.45	3.97	9.9	0.032	3	2,800
1.800	4.00	45.00	4.50	10.2	0.036	3	2,800
1.980	6.00	50.80	4.95	14.7	0.040	3	2,900
2.000	6.00	50.00	5.00	14.6	0.040	3	2,900
2.200	6.00	50.00	5.50	14.9	0.044	3	2,900
2.380	6.00	50.80	5.95	15.2	0.048	3	2,900
2.500	6.00	50.00	6.25	15.3	0.050	3	2,900
2.780	6.00	50.80	6.95	15.8	0.056	3	2,900
2.800	6.00	50.00	7.00	15.9	0.056	3	2,900
3.000	6.00	50.00	7.50	16.2	0.060	3	2,900
3.175	6.00	50.80	7.93	17.0	0.064	3	2,900

OPEN SLOTS AND HELIX 開放式槽與螺旋下刀銑削

Art. no. 6808

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø			v_c	f_z/Ø		v_c	f_z/Ø			v_c	f_z/Ø	
					0.8	1.0	1.2		1.5	1.8		2.0	2.2	2.5		2.8	3.0
P	Unalloyed steel	1.00xD	1.00xD	140	0.0072	0.0090	0.0108	168	0.0135	0.0162	182	0.0180	0.0198	0.0225	196	0.0252	0.0270
P	Low-alloyed steel	1.00xD	1.00xD	140	0.0064	0.0080	0.0096	168	0.0120	0.0144	182	0.0160	0.0176	0.0200	196	0.0224	0.0240
P	High-alloyed steel and tool steel	1.00xD	0.75xD	140	0.0048	0.0060	0.0072	168	0.0090	0.0108	182	0.0120	0.0132	0.0150	196	0.0168	0.0180
M	Stainless steel, ferritic, martensitic	1.00xD	1.00xD	140	0.0064	0.0080	0.0096	168	0.0120	0.0144	182	0.0160	0.0176	0.0200	196	0.0224	0.0240
M	Stainless steel, austenitic	1.00xD	1.00xD	120	0.0056	0.0070	0.0084	144	0.0105	0.0126	156	0.0140	0.0154	0.0175	168	0.0196	0.0210
M	Duplex steel, high strength stainless steels	1.00xD	0.75xD	90	0.0049	0.0061	0.0073	108	0.0092	0.0110	117	0.0122	0.0135	0.0153	126	0.0171	0.0184
K	Grey cast iron Cast iron with spheroidal graphite iron	1.00xD	1.00xD	120	0.0056	0.0070	0.0084	144	0.0105	0.0126	156	0.0140	0.0154	0.0175	168	0.0196	0.0210
K	Malleable cast iron GJV & ADI	1.00xD	1.00xD	100	0.0050	0.0062	0.0075	120	0.0093	0.0112	130	0.0124	0.0137	0.0156	140	0.0174	0.0187
N	Aluminium-wrought alloys Aluminium-cast alloys	1.00xD	1.00xD	170	0.0096	0.0120	0.0144	204	0.0180	0.0216	221	0.0240	0.0264	0.0300	238	0.0336	0.0360
N	Copper and copper alloys	1.00xD	1.00xD	125	0.0088	0.0110	0.0133	150	0.0166	0.0199	162.5	0.0221	0.0243	0.0276	175	0.0309	0.0331
S	Heat-resistant alloys, Fe-based	1.00xD	0.50xD	100	0.0036	0.0045	0.0054	120	0.0068	0.0081	130	0.0090	0.0099	0.0113	140	0.0126	0.0135
S	Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.50xD	60	0.0029	0.0037	0.0044	72	0.0055	0.0066	78	0.0073	0.0080	0.0091	84	0.0102	0.0110
S	Titanium alloys & pure titanium	1.00xD	0.75xD	100	0.0060	0.0075	0.0090	120	0.0113	0.0135	130	0.0150	0.0165	0.0188	140	0.0210	0.0225
H	Hardened steel, hardened and tempered, < 55 HRC	1.00xD	0.25xD	35	0.0032	0.0040	0.0048	42	0.0060	0.0072	46	0.0080	0.0088	0.0100	49	0.0112	0.0120

RAMPING AND CLOSED SLOTS 開槽與斜向銑削

Art. no. 6808

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø			v_c	f_z/Ø		v_c	f_z/Ø			v_c	f_z/Ø	
					0.8	1.0	1.2		1.5	1.8		2.0	2.2	2.5		2.8	3.0
P	Unalloyed steel	1.00xD	1.00xD	100	0.0043	0.0054	0.0065	120	0.0081	0.0097	130	0.0108	0.0119	0.0135	140	0.0151	0.0162
P	Low-alloyed steel	1.00xD	1.00xD	100	0.0038	0.0048	0.0058	120	0.0072	0.0086	130	0.0096	0.0106	0.0120	140	0.0134	0.0144
P	High-alloyed steel and tool steel	1.00xD	0.75xD	100	0.0029	0.0036	0.0043	120	0.0054	0.0065	130	0.0072	0.0079	0.0090	140	0.0101	0.0108
M	Stainless steel, ferritic, martensitic	1.00xD	1.00xD	100	0.0038	0.0048	0.0058	120	0.0072	0.0086	130	0.0096	0.0106	0.0120	140	0.0134	0.0144
M	Stainless steel, austenitic	1.00xD	1.00xD	90	0.0034	0.0042	0.0050	108	0.0063	0.0076	117	0.0084	0.0092	0.0105	126	0.0118	0.0126
M	Duplex steel, high strength stainless steels	1.00xD	0.75xD	65	0.0029	0.0037	0.0044	78	0.0055	0.0066	85	0.0073	0.0081	0.0092	91	0.0103	0.0110
K	Grey cast iron Cast iron with spheroidal graphite iron	1.00xD	1.00xD	90	0.0034	0.0042	0.0050	108	0.0063	0.0076	117	0.0084	0.0092	0.0105	126	0.0118	0.0126
K	Malleable cast iron GJV & ADI	1.00xD	1.00xD	75	0.0030	0.0037	0.0045	90	0.0056	0.0067	98	0.0075	0.0082	0.0093	105	0.0105	0.0112
N	Aluminium-wrought alloys Aluminium-cast alloys	1.00xD	1.00xD	120	0.0058	0.0072	0.0086	144	0.0108	0.0130	156	0.0144	0.0158	0.0180	168	0.0202	0.0216
N	Copper and copper alloys	1.00xD	1.00xD	90	0.0053	0.0066	0.0080	108	0.0099	0.0119	117	0.0133	0.0146	0.0166	126	0.0186	0.0199
S	Heat-resistant alloys, Fe-based	1.00xD	0.50xD	75	0.0022	0.0027	0.0032	90	0.0041	0.0049	98	0.0054	0.0059	0.0068	105	0.0076	0.0081
S	Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.50xD	45	0.0018	0.0022	0.0026	54	0.0033	0.0039	59	0.0044	0.0048	0.0055	63	0.0061	0.0066
S	Titanium alloys & pure titanium	1.00xD	0.75xD	70	0.0036	0.0045	0.0054	84	0.0068	0.0081	91	0.0090	0.0099	0.0113	98	0.0126	0.0135
H	Hardened steel, hardened and tempered, < 55 HRC	1.00xD	0.25xD	25	0.0019	0.0024	0.0029	30	0.0036	0.0043	33	0.0048	0.0053	0.0060	35	0.0067	0.0072

ROUGHING 粗加工

Art. no. 6808

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø			v_c	f_z/Ø		v_c	f_z/Ø			v_c	f_z/Ø	
					0.8	1.0	1.2		1.5	1.8		2.0	2.2	2.5		2.8	3.0
P	Unalloyed steel	0.25xD	2.00xD	170	0.0113	0.0142	0.0170	204	0.0213	0.0255	221	0.0284	0.0312	0.0354	238	0.0397	0.0425
P	Low-alloyed steel	0.25xD	2.00xD	170	0.0101	0.0126	0.0151	204	0.0189	0.0227	221	0.0252	0.0277	0.0315	238	0.0353	0.0378
P	High-alloyed steel and tool steel	0.20xD	2.00xD	170	0.0076	0.0095	0.0113	204	0.0142	0.0170	221	0.0189	0.0208	0.0236	238	0.0265	0.0284
M	Stainless steel, ferritic, martensitic	0.25xD	2.00xD	170	0.0101	0.0126	0.0151	204	0.0189	0.0227	221	0.0252	0.0277	0.0315	238	0.0353	0.0378
M	Stainless steel, austenitic	0.20xD	2.00xD	145	0.0088	0.0110	0.0132	174	0.0165	0.0198	189	0.0221	0.0243	0.0276	203	0.0309	0.0331
M	Duplex steel, high strength stainless steels	0.20xD	2.00xD	105	0.0077	0.0096	0.0116	126	0.0145	0.0174	137	0.0193	0.0212	0.0241	147	0.0270	0.0289
K	Grey cast iron Cast iron with spheroidal graphite iron	0.25xD	2.00xD	145	0.0088	0.0110	0.0132	174	0.0165	0.0198	189	0.0221	0.0243	0.0276	203	0.0309	0.0331
K	Malleable cast iron GJV & ADI	0.25xD	2.00xD	120	0.0078	0.0098	0.0118	144	0.0147	0.0176	156	0.0196	0.0216	0.0245	168	0.0274	0.0294
N	Aluminium-wrought alloys Aluminium-cast alloys	0.25xD	2.00xD	200	0.0151	0.0189	0.0227	240	0.0284	0.0340	260	0.0378	0.0416	0.0473	280	0.0529	0.0567
N	Copper and copper alloys	0.25xD	2.00xD	150	0.0139	0.0174	0.0209	180	0.0261	0.0313	195	0.0348	0.0383	0.0435	210	0.0487	0.0522
S	Heat-resistant alloys, Fe-based	0.15xD	2.00xD	120	0.0057	0.0071	0.0085	144	0.0106	0.0128	156	0.0142	0.0156	0.0177	168	0.0198	0.0213
S	Heat-resistant alloys, Ni-based, CO-based	0.15xD	2.00xD	70	0.0046	0.0058	0.0069	84	0.0086	0.0104	91	0.0115	0.0127	0.0144	98	0.0161	0.0173
S	Titanium alloys & pure titanium	0.20xD	2.00xD	115	0.0095	0.0118	0.0142	138	0.0177	0.0213	150	0.0236	0.0260	0.0295	161	0.0331	0.0354
H	Hardened steel, hardened and tempered, < 55 HRC	0.05xD	2.00xD	45	0.0050	0.0063	0.0076	54	0.0095	0.0113	59	0.0126	0.0139	0.0158	63	0.0176	0.0189

FINISHING 精加工

Art. no. 6808

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø			v_c	f_z/Ø		v_c	f_z/Ø			v_c	f_z/Ø	
					0.8	1.0	1.2		1.5	1.8		2.0	2.2	2.5		2.8	3.0
P	Unalloyed steel	0.03xD	2.00xD	**180**	0.0086	0.0108	0.0130	**216**	0.0162	0.0194	**234**	0.0216	0.0238	0.0270	**252**	0.0302	0.0324
P	Low-alloyed steel	0.03xD	2.00xD	**180**	0.0077	0.0096	0.0115	**216**	0.0144	0.0173	**234**	0.0192	0.0211	0.0240	**252**	0.0269	0.0288
P	High-alloyed steel and tool steel	0.03xD	2.00xD	**180**	0.0058	0.0072	0.0086	**216**	0.0108	0.0130	**234**	0.0144	0.0158	0.0180	**252**	0.0202	0.0216
M	Stainless steel, ferritic, martensitic	0.03xD	2.00xD	**180**	0.0077	0.0096	0.0115	**216**	0.0144	0.0173	**234**	0.0192	0.0211	0.0240	**252**	0.0269	0.0288
M	Stainless steel, austenitic	0.03xD	2.00xD	**155**	0.0067	0.0084	0.0101	**186**	0.0126	0.0151	**202**	0.0168	0.0185	0.0210	**217**	0.0235	0.0252
M	Duplex steel, high strength stainless steels	0.03xD	2.00xD	**115**	0.0059	0.0073	0.0088	**138**	0.0110	0.0132	**150**	0.0147	0.0162	0.0184	**161**	0.0206	0.0220
K	Grey cast iron Cast iron with spheroidal graphite iron	0.03xD	2.00xD	**155**	0.0067	0.0084	0.0101	**186**	0.0126	0.0151	**202**	0.0168	0.0185	0.0210	**217**	0.0235	0.0252
K	Malleable cast iron GJV & ADI	0.03xD	2.00xD	**130**	0.0060	0.0075	0.0090	**156**	0.0112	0.0134	**169**	0.0149	0.0164	0.0187	**182**	0.0209	0.0224
N	Aluminium-wrought alloys Aluminium-cast alloys	0.03xD	2.00xD	**220**	0.0115	0.0144	0.0173	**264**	0.0216	0.0259	**286**	0.0288	0.0317	0.0360	**308**	0.0403	0.0432
N	Copper and copper alloys	0.03xD	2.00xD	**160**	0.0106	0.0133	0.0159	**192**	0.0199	0.0239	**208**	0.0265	0.0292	0.0331	**224**	0.0371	0.0398
S	Heat-resistant alloys, Fe-based	0.03xD	2.00xD	**130**	0.0043	0.0054	0.0065	**156**	0.0081	0.0097	**169**	0.0108	0.0119	0.0135	**182**	0.0151	0.0162
S	Heat-resistant alloys, Ni-based, CO-based	0.03xD	2.00xD	**75**	0.0035	0.0044	0.0053	**90**	0.0066	0.0079	**98**	0.0088	0.0096	0.0110	**105**	0.0123	0.0132
S	Titanium alloys & pure titanium	0.03xD	2.00xD	**120**	0.0072	0.0090	0.0108	**144**	0.0135	0.0162	**156**	0.0180	0.0198	0.0225	**168**	0.0252	0.0270
H	Hardened steel, hardened and tempered, < 55 HRC	0.02xD	2.00xD	**45**	0.0038	0.0048	0.0058	**54**	0.0072	0.0086	**59**	0.0096	0.0106	0.0120	**63**	0.0134	0.0144

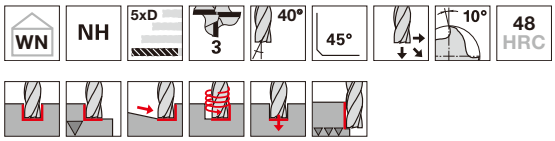
DRILLING 鑽銑加工

Art. no. 6808

	Material/ISO material	a_p max	v_c	f_z/Ø			v_c	f_z/Ø		v_c	f_z/Ø			v_c	f_z/Ø	
				0.8	1.0	1.2		1.5	1.8		2.0	2.2	2.5		2.8	3.0
P	Unalloyed steel	1.00xD	**100**	0.0014	0.0018	0.0022	**120**	0.0027	0.0032	**130**	0.0036	0.0040	0.0045	**140**	0.0050	0.0054
P	Low-alloyed steel	1.00xD	**100**	0.0013	0.0016	0.0019	**120**	0.0024	0.0029	**130**	0.0032	0.0035	0.0040	**140**	0.0045	0.0048
P	High-alloyed steel and tool steel	0.50xD	**90**	0.0010	0.0012	0.0014	**108**	0.0018	0.0022	**117**	0.0024	0.0026	0.0030	**126**	0.0034	0.0036
M	Stainless steel, ferritic, martensitic	0.75xD	**90**	0.0012	0.0015	0.0018	**108**	0.0023	0.0027	**117**	0.0030	0.0033	0.0038	**126**	0.0042	0.0045
M	Stainless steel, austenitic	0.50xD	**85**	0.0011	0.0014	0.0017	**102**	0.0021	0.0025	**111**	0.0028	0.0031	0.0035	**119**	0.0039	0.0042
M	Duplex steel, high strength stainless steels	0.25xD	**65**	0.0010	0.0012	0.0014	**78**	0.0018	0.0022	**85**	0.0024	0.0026	0.0030	**91**	0.0034	0.0036
K	Grey cast iron Cast iron with spheroidal graphite iron	1.00xD	**90**	0.0011	0.0014	0.0017	**108**	0.0021	0.0025	**117**	0.0028	0.0031	0.0035	**126**	0.0039	0.0042
K	Malleable cast iron GJV & ADI	1.00xD	**75**	0.0010	0.0012	0.0014	**90**	0.0018	0.0022	**98**	0.0024	0.0026	0.0030	**105**	0.0034	0.0036
N	Aluminium-wrought alloys Aluminium-cast alloys	0.50xD	**125**	0.0019	0.0024	0.0029	**150**	0.0036	0.0043	**163**	0.0048	0.0053	0.0060	**175**	0.0067	0.0072
N	Copper and copper alloys	0.50xD	**90**	0.0018	0.0022	0.0026	**108**	0.0033	0.0040	**117**	0.0044	0.0048	0.0055	**126**	0.0062	0.0066
S	Heat-resistant alloys, Fe-based	0.25xD	**75**	0.0007	0.0009	0.0011	**90**	0.0014	0.0016	**98**	0.0018	0.0020	0.0023	**105**	0.0025	0.0027
S	Heat-resistant alloys, Ni-based, CO-based	0.25xD	**45**	0.0006	0.0008	0.0009	**54**	0.0011	0.0014	**59**	0.0015	0.0017	0.0019	**63**	0.0021	0.0023
S	Titanium alloys & pure titanium	0.25xD	**70**	0.0012	0.0015	0.0018	**84**	0.0023	0.0027	**91**	0.0030	0.0033	0.0038	**98**	0.0042	0.0045

Ratio end mills RF 100 Microdiver 高效率RF 100 Microdiver 銑刀

5D刃長



Tool material	Solid carbide
Surface	X
Type	NH
Shank form	cyl.

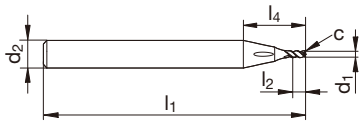
NEW

P	•
M	•
K	•
N	•
S	•
H	○

GÜHRINGNAVIGATOR

- for extreme cutting values and cutting performance
- with internal cooling: GühroJet peripheral cooling with 6 or 4 exits
- centre cutting
- with special drill face

- 高切削參數與高性能
- 鈷領特有4～6道平行中心出水
- 切刃過中心
- 端刃面可以鑽銑



編號 6809

d1 h8	d2 h5	l1	l2	l4	c	刃數	價格
mm	mm	mm	mm	mm	mm x 45°		
1.000	4.00	45.00	5.00	11.8	0.020	3	3,300
1.190	4.00	50.80	5.95	12.4	0.024	3	3,300
1.500	4.00	50.00	7.50	13.5	0.030	3	3,300
1.590	4.00	50.80	7.95	13.9	0.032	3	3,300
1.980	6.00	57.15	9.90	19.6	0.040	3	3,300
2.000	6.00	57.00	10.00	19.6	0.040	3	3,500
2.380	6.00	57.15	11.90	21.1	0.048	3	3,500
2.500	6.00	57.00	12.50	21.5	0.050	3	3,500
2.780	6.00	57.15	13.90	22.8	0.056	3	3,500
3.000	6.00	57.00	15.00	23.7	0.060	3	3,500
3.175	6.00	57.15	15.87	25.0	0.064	3	3,500

OPEN SLOTS AND HELIX 開放式槽與螺旋下刀銑削

Art. no. 6809

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø		v_c	f_z/Ø	v_c	f_z/Ø		v_c	f_z/Ø	
					1.0	1.2		1.5		2.0	2.5		2.8	3.0
P	Unalloyed steel	1.00xD	0.50xD	112	0.0081	0.0097	134	0.0122	146	0.0162	0.0203	157	0.0227	0.0243
P	Low-alloyed steel	1.00xD	0.50xD	112	0.0072	0.0086	134	0.0108	146	0.0144	0.0180	157	0.0202	0.0216
P	High-alloyed steel and tool steel	1.00xD	0.25xD	112	0.0054	0.0065	134	0.0081	146	0.0108	0.0135	157	0.0151	0.0162
M	Stainless steel, ferritic, martensitic	1.00xD	0.25xD	112	0.0072	0.0086	134	0.0108	146	0.0144	0.0180	157	0.0202	0.0216
M	Stainless steel, austenitic	1.00xD	0.25xD	96	0.0063	0.0076	115	0.0095	125	0.0126	0.0158	134	0.0176	0.0189
M	Duplex steel, high strength stainless steels	1.00xD	0.25xD	71	0.0055	0.0066	85	0.0083	92	0.0110	0.0138	99	0.0154	0.0165
K	Grey cast iron Cast iron with spheroidal graphite iron	1.00xD	0.50xD	96	0.0063	0.0076	115	0.0095	125	0.0126	0.0158	134	0.0176	0.0189
K	Malleable cast iron GJV & ADI	1.00xD	0.50xD	80	0.0056	0.0067	96	0.0084	104	0.0112	0.0140	112	0.0157	0.0168
N	Aluminium-wrought alloys Aluminium-cast alloys	1.00xD	0.50xD	136	0.0108	0.0130	163	0.0162	177	0.0216	0.0270	190	0.0302	0.0324
N	Copper and copper alloys	1.00xD	0.50xD	100	0.0099	0.0119	120	0.0149	130	0.0199	0.0249	140	0.0278	0.0298
S	Heat-resistant alloys, Fe-based	1.00xD	0.25xD	80	0.0041	0.0049	96	0.0061	104	0.0081	0.0101	112	0.0113	0.0122
S	Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.25xD	46	0.0033	0.0039	55	0.0049	60	0.0066	0.0082	64	0.0092	0.0099
S	Titanium alloys & pure titanium	1.00xD	0.25xD	72	0.0068	0.0081	86	0.0101	94	0.0135	0.0169	101	0.0189	0.0203
H	Hardened steel, hardened and tempered, < 55 HRC	1.00xD	0.10xD	26	0.0036	0.0043	31	0.0054	34	0.0072	0.0090	36	0.0101	0.0108

RAMPING AND CLOSED SLOTS 開槽與斜向銑削

Art. no. 6809

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø		v_c	f_z/Ø	v_c	f_z/Ø		v_c	f_z/Ø	
					1.0	1.2		1.5		2.0	2.5		2.8	3.0
P	Unalloyed steel	1.00xD	0.50xD	78	0.0049	0.0058	94	0.0073	102	0.0097	0.0122	110	0.0136	0.0146
P	Low-alloyed steel	1.00xD	0.50xD	78	0.0043	0.0052	94	0.0065	102	0.0086	0.0108	110	0.0121	0.0130
P	High-alloyed steel and tool steel	1.00xD	0.25xD	78	0.0032	0.0039	94	0.0049	102	0.0065	0.0081	110	0.0091	0.0097
M	Stainless steel, ferritic, martensitic	1.00xD	0.25xD	78	0.0043	0.0052	94	0.0065	102	0.0086	0.0108	110	0.0121	0.0130
M	Stainless steel, austenitic	1.00xD	0.25xD	67	0.0038	0.0045	81	0.0057	87	0.0076	0.0095	94	0.0106	0.0113
M	Duplex steel, high strength stainless steels	1.00xD	0.25xD	50	0.0033	0.0040	60	0.0050	65	0.0066	0.0083	70	0.0093	0.0099
K	Grey cast iron Cast iron with spheroidal graphite iron	1.00xD	0.50xD	67	0.0038	0.0045	81	0.0057	87	0.0076	0.0095	94	0.0106	0.0113
K	Malleable cast iron GJV & ADI	1.00xD	0.50xD	56	0.0034	0.0040	67	0.0050	73	0.0067	0.0084	78	0.0094	0.0101
N	Aluminium-wrought alloys Aluminium-cast alloys	1.00xD	0.50xD	95	0.0065	0.0078	114	0.0097	124	0.0130	0.0162	133	0.0181	0.0194
N	Copper and copper alloys	1.00xD	0.50xD	70	0.0060	0.0072	84	0.0089	91	0.0119	0.0149	98	0.0167	0.0179
S	Heat-resistant alloys, Fe-based	1.00xD	0.25xD	56	0.0024	0.0029	67	0.0036	73	0.0049	0.0061	78	0.0068	0.0073
S	Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.25xD	32	0.0020	0.0024	39	0.0030	42	0.0039	0.0049	45	0.0055	0.0059
S	Titanium alloys & pure titanium	1.00xD	0.25xD	50	0.0041	0.0049	60	0.0061	66	0.0081	0.0101	71	0.0113	0.0122
H	Hardened steel, hardened and tempered, < 55 HRC	1.00xD	0.10xD	18	0.0022	0.0026	22	0.0032	24	0.0043	0.0054	25	0.0060	0.0065

ROUGHING 粗加工

Art. no. 6809

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø		v_c	f_z/Ø	v_c	f_z/Ø		v_c	f_z/Ø	
					1.0	1.2		1.5		2.0	2.5		2.8	3.0
P	Unalloyed steel	0.10xD	5.00xD	134	0.0128	0.0153	161	0.0191	174	0.0255	0.0319	188	0.0357	0.0383
P	Low-alloyed steel	0.10xD	5.00xD	134	0.0113	0.0136	161	0.0170	174	0.0227	0.0284	188	0.0318	0.0340
P	High-alloyed steel and tool steel	0.08xD	5.00xD	134	0.0085	0.0102	161	0.0128	174	0.0170	0.0213	188	0.0238	0.0255
M	Stainless steel, ferritic, martensitic	0.10xD	5.00xD	134	0.0113	0.0136	161	0.0170	174	0.0227	0.0284	188	0.0318	0.0340
M	Stainless steel, austenitic	0.08xD	5.00xD	115	0.0099	0.0119	138	0.0149	150	0.0198	0.0248	161	0.0278	0.0298
M	Duplex steel, high strength stainless steels	0.05xD	5.00xD	86	0.0087	0.0104	103	0.0130	112	0.0174	0.0217	120	0.0243	0.0260
K	Grey cast iron Cast iron with spheroidal graphite iron	0.10xD	5.00xD	115	0.0099	0.0119	138	0.0149	150	0.0198	0.0248	161	0.0278	0.0298
K	Malleable cast iron GJV & ADI	0.10xD	5.00xD	96	0.0088	0.0106	115	0.0132	125	0.0176	0.0220	134	0.0247	0.0265
N	Aluminium-wrought alloys Aluminium-cast alloys	0.15xD	5.00xD	163	0.0170	0.0204	196	0.0255	212	0.0340	0.0425	228	0.0476	0.0510
N	Copper and copper alloys	0.12xD	5.00xD	120	0.0157	0.0188	144	0.0235	156	0.0313	0.0392	168	0.0438	0.0470
S	Heat-resistant alloys, Fe-based	0.08xD	5.00xD	96	0.0064	0.0077	115	0.0096	125	0.0128	0.0159	134	0.0179	0.0191
S	Heat-resistant alloys, Ni-based, CO-based	0.05xD	5.00xD	55	0.0052	0.0062	66	0.0078	72	0.0104	0.0130	77	0.0145	0.0155
S	Titanium alloys & Reintitan	0.08xD	5.00xD	86	0.0106	0.0128	103	0.0159	112	0.0213	0.0266	120	0.0298	0.0319
H	Hardened steel, hardened and tempered, < 55 HRC	0.03xD	5.00xD	31	0.0057	0.0068	37	0.0085	40	0.0113	0.0142	43	0.0159	0.0170

FINISHING 精加工

Art. no. 6809

	Material/ISO material	a_e max	a_p max	v_c	f_z/Ø		v_c	f_z/Ø	v_c	f_z/Ø		v_c	f_z/Ø	
					1.0	1.2		1.5		2.0	2.5		2.8	3.0
P	Unalloyed steel	0.02xD	5.00xD	**146**	0.0097	0.0117	**175**	0.0146	**190**	0.0194	0.0243	**204**	0.0272	0.0292
P	Low-alloyed steel	0.02xD	5.00xD	**146**	0.0086	0.0104	**175**	0.0130	**190**	0.0173	0.0216	**204**	0.0242	0.0259
P	High-alloyed steel and tool steel	0.02xD	5.00xD	**146**	0.0065	0.0078	**175**	0.0097	**190**	0.0130	0.0162	**204**	0.0181	0.0194
M	Stainless steel, ferritic, martensitic	0.02xD	5.00xD	**146**	0.0086	0.0104	**175**	0.0130	**190**	0.0173	0.0216	**204**	0.0242	0.0259
M	Stainless steel, austenitic	0.02xD	5.00xD	**125**	0.0076	0.0091	**150**	0.0113	**163**	0.0151	0.0189	**175**	0.0212	0.0227
M	Duplex steel, high strength stainless steels	0.02xD	5.00xD	**93**	0.0066	0.0079	**112**	0.0099	**121**	0.0132	0.0165	**130**	0.0185	0.0198
K	Grey cast iron Cast iron with spheroidal graphite iron	0.02xD	5.00xD	**125**	0.0076	0.0091	**150**	0.0113	**163**	0.0151	0.0189	**175**	0.0212	0.0227
K	Malleable cast iron GJV & ADI	0.02xD	5.00xD	**104**	0.0067	0.0081	**125**	0.0101	**135**	0.0134	0.0168	**146**	0.0188	0.0202
N	Aluminium-wrought alloys Aluminium-cast alloys	0.02xD	5.00xD	**177**	0.0130	0.0156	**212**	0.0194	**230**	0.0259	0.0324	**248**	0.0363	0.0389
N	Copper and copper alloys	0.02xD	5.00xD	**130**	0.0119	0.0143	**156**	0.0179	**169**	0.0239	0.0298	**182**	0.0334	0.0358
S	Heat-resistant alloys, Fe-based	0.02xD	5.00xD	**104**	0.0049	0.0058	**125**	0.0073	**135**	0.0097	0.0122	**146**	0.0136	0.0146
S	Heat-resistant alloys, Ni-based, CO-based	0.02xD	5.00xD	**60**	0.0039	0.0047	**72**	0.0059	**78**	0.0079	0.0099	**84**	0.0111	0.0118
S	Titanium alloys & pure titanium	0.02xD	5.00xD	**94**	0.0081	0.0097	**113**	0.0122	**122**	0.0162	0.0203	**132**	0.0227	0.0243
H	Hardened steel, hardened and tempered, < 55 HRC	0.01xD	5.00xD	**34**	0.0043	0.0052	**41**	0.0065	**44**	0.0086	0.0108	**48**	0.0121	0.0130

DRILLING 鑽銑加工

Art. no. 6809

	Material/ISO material	a_p max	v_c	f_z/Ø		v_c	f_z/Ø	v_c	f_z/Ø		v_c	f_z/Ø	
				1.0	1.2		1.5		2.0	2.5		2.8	3.0
P	Unalloyed steel	0.50xD	**84**	0.0014	0.0017	**101**	0.0022	**109**	0.0029	0.0036	**118**	0.0040	0.0043
P	Low-alloyed steel	0.50xD	**84**	0.0013	0.0015	**101**	0.0019	**109**	0.0026	0.0032	**118**	0.0036	0.0038
P	High-alloyed steel and tool steel	0.25xD	**84**	0.0010	0.0012	**101**	0.0014	**109**	0.0019	0.0024	**118**	0.0027	0.0029
M	Stainless steel, ferritic, martensitic	0.25xD	**84**	0.0013	0.0015	**101**	0.0019	**109**	0.0026	0.0032	**118**	0.0036	0.0038
M	Stainless steel, austenitic	0.25xD	**72**	0.0011	0.0013	**86**	0.0017	**94**	0.0022	0.0028	**101**	0.0031	0.0034
M	Duplex steel, high strength stainless steels	0.25xD	**54**	0.0010	0.0012	**65**	0.0015	**70**	0.0020	0.0024	**76**	0.0027	0.0029
K	Grey cast iron Cast iron with spheroidal graphite iron	0.50xD	**72**	0.0011	0.0013	**86**	0.0017	**94**	0.0022	0.0028	**101**	0.0031	0.0034
K	Malleable cast iron GJV & ADI	0.50xD	**60**	0.0010	0.0012	**72**	0.0015	**78**	0.0020	0.0025	**84**	0.0028	0.0030
N	Aluminium-wrought alloys Aluminium-cast alloys	0.50xD	**102**	0.0019	0.0023	**122**	0.0029	**133**	0.0038	0.0048	**143**	0.0054	0.0058
N	Copper and copper alloys	0.50xD	**75**	0.0018	0.0021	**90**	0.0027	**97.5**	0.0035	0.0044	**105**	0.0049	0.0053
S	Heat-resistant alloys, Fe-based	0.25xD	**60**	0.0007	0.0009	**72**	0.0011	**78**	0.0014	0.0018	**84**	0.0020	0.0022
S	Heat-resistant alloys, Ni-based, CO-based	0.25xD	**34**	0.0006	0.0007	**41**	0.0009	**44**	0.0012	0.0015	**48**	0.0016	0.0018
S	Titanium alloys & pure titanium	0.25xD	**54**	0.0012	0.0014	**65**	0.0018	**70**	0.0024	0.0030	**76**	0.0034	0.0036

GÜHRING

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