

GUHRING



MICRO
RF 100

diver

**「MICRO
EVO²⁰²¹
LUTION」**

60° ramping and high-performance milling.

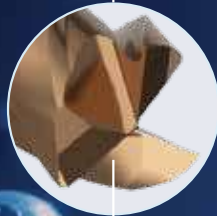
THE SMALLEST DIVER IN THE WORLD.

MICRO **diver** RF 100



SYMMETRICAL DRILLING GEOMETRY

optimized for drilling and ramping operations
excellent cutting edge stability



THE HIPIMS COATING DUROX®

achieves a very high surface quality
for optimal chip removal
as well as protection against wear and
oxidation in both wet and dry machining

DIMENSIONS

Ø 1/32" - 1/8"
.8mm - 3.0mm

LENGTHS

2.5xD and 5xD

• **innovative flute form**
very high tool stability
low-vibration cutting

• **new transition geometry**
improves overall stability

• **GühroJet coolant ducts**
guided cooling & lubrication
directly in the cutting area
for effective chip removal

• **new ultra fine carbide**
optimum balance between
hardness and toughness
for micromachining applications

**MICRO
EVO²⁰²¹
LUTION**

Plunging and milling with only one tool.
Outstanding performance across a wide range of materials.
Extreme cutting values and very high cutting depths,
which were previously not possible for micro-precision tools.



RF100 Micro-Diver Standard Length



Standard



No. Flutes



Helix Angle



Chamfer



Feed Dir.



Rake Angle



Slotting



Roughing



Ramping



Helix



Plunging



Finishing

NEW

Tool material

Carbide

Surface finish

Durox®

Shank

cylindrical

Series

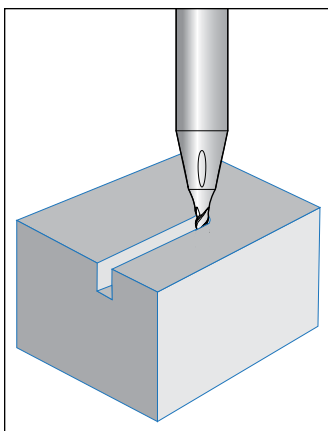
6808

Application group	Material examples	Ideal for
P	Steel	●
M	Stainless steel	●
K	Cast iron	●
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	○
●=Optimal ○=Secondary		

- extreme cutting values and performance
- with GüthroJet peripheral cooling with 4 or 6 exits
- center cutting
- with special drilling geometry



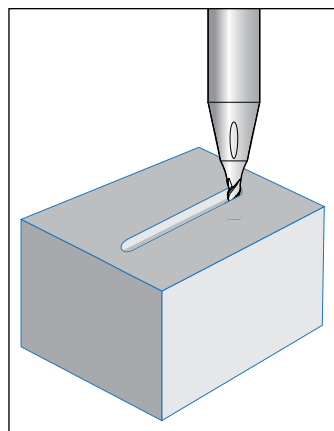
d1 h8 mm	d1 h8 inch	d2 h5 mm	l1 mm	l1 inch	l2 mm	l2 inch	l4 mm	c mm x 45°	c in x 45°	Code no.	EDP Number
0.790	1/32	4.00	38.10	1 1/2	1.97	0.078	10.0	0.016	0.0006	0.790	9068080007900
0.800		4.00	38.00		2.00	0.078	9.0	0.016	0.0006	0.800	9068080008000
1.000		4.00	38.00		2.50	0.098	9.0	0.020	0.0007	1.000	9068080010000
1.190	3/64	4.00	38.10	1 1/2	2.97	0.116	9.0	0.024	0.0009	1.190	9068080011900
1.200		4.00	38.00		3.00	0.118	9.0	0.024	0.0009	1.200	9068080012000
1.500		4.00	45.00		3.75	0.147	10.0	0.030	0.0011	1.500	9068080015000
1.590	1/16	4.00	44.45	1 3/4	3.97	0.156	10.0	0.032	0.0012	1.590	9068080015900
1.800		4.00	45.00		4.50	0.177	10.0	0.036	0.0014	1.800	9068080018000
1.980	5/64	6.00	50.80	2	4.95	0.190	15.0	0.040	0.0010	1.980	9068080019800
2.000		6.00	50.00		5.00	0.196	15.0	0.040	0.0010	2.000	9068080020000
2.200		6.00	50.00		5.50	0.216	15.0	0.044	0.0017	2.200	9068080022000
2.380	3/32	6.00	50.80	2	5.95	0.234	15.0	0.048	0.0018	2.380	9068080023800
2.500		6.00	50.00		6.25	0.246	15.0	0.050	0.0019	2.500	9068080025000
2.780	7/64	6.00	50.80	2	6.95	0.273	16.0	0.056	0.0022	2.780	9068080027800
2.800		6.00	50.00		7.00	0.275	16.0	0.056	0.0022	2.800	9068080028000
3.000		6.00	50.00		7.50	0.295	16.0	0.060	0.0023	3.000	9068080030000
3.175	1/8	6.00	50.80	2	7.93	0.312	17.0	0.064	0.0025	3.175	9068080031750



Open Slot Milling-

The open end allows chips to more easily be evacuated from the slot.

- Higher cutting parameters are possible



Closed Slot Milling-

There is less space for the chips and chip evacuation is more difficult.

- Lower cutting parameters and chip volume are necessary



ROUGHING

Series 6808

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth			SFM	Feed / tooth		SFM	Feed / tooth			SFM	Feed / tooth	
				1/32" 0.8mm	1.0mm	3/64" 1.2mm		1/16" 1.5	1.8mm		5/64" 2.0mm	2.2mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	0.25xD	2.00xD	560	0.00044	0.00056	0.00067	670	0.00084	0.00100	725	0.00112	0.00123	0.00139	780	0.00156	0.00167
P Low-alloyed steel	0.25xD	2.00xD	560	0.00040	0.00050	0.00059	670	0.00074	0.00089	725	0.00099	0.00109	0.00124	780	0.00139	0.00149
High-alloyed steel and tool steel	0.20xD	2.00xD	560	0.00030	0.00037	0.00044	670	0.00056	0.00067	725	0.00074	0.00082	0.00093	780	0.00104	0.00112
Stainless steel, ferritic, martensitic	0.25xD	2.00xD	560	0.00040	0.00050	0.00059	670	0.00074	0.00089	725	0.00099	0.00109	0.00124	780	0.00139	0.00149
M Stainless steel, austenitic	0.20xD	2.00xD	475	0.00035	0.00043	0.00052	570	0.00065	0.00078	620	0.00087	0.00096	0.00109	665	0.00122	0.00130
Duplex steel, high strength stainless steels	0.20xD	2.00xD	345	0.00030	0.00038	0.00046	415	0.00057	0.00069	450	0.00076	0.00083	0.00095	480	0.00106	0.00114
Grey cast iron, spheroidal graphite iron	0.25xD	2.00xD	475	0.00035	0.00043	0.00052	570	0.00065	0.00078	620	0.00087	0.00096	0.00109	665	0.00122	0.00130
Malleable cast iron, GJV & ADI	0.25xD	2.00xD	395	0.00031	0.00039	0.00046	470	0.00058	0.00069	510	0.00077	0.00085	0.00096	550	0.00108	0.00116
Aluminium-wrought alloys	0.25xD	2.00xD	655	0.00059	0.00074	0.00089	785	0.00112	0.00134	850	0.00149	0.00164	0.00186	915	0.00208	0.00223
N Aluminium-cast alloys																
Copper and copper alloys	0.25xD	2.00xD	490	0.00055	0.00069	0.00082	590	0.00103	0.00123	640	0.00137	0.00151	0.00171	690	0.00192	0.00206
Heat-resistant alloys, Fe-based	0.15xD	2.00xD	395	0.00022	0.00028	0.00033	470	0.00042	0.00050	510	0.00056	0.00061	0.00070	550	0.00078	0.00084
S Heat-resistant alloys, Ni-based, CO-based	0.15xD	2.00xD	230	0.00018	0.00023	0.00027	275	0.00034	0.00041	300	0.00045	0.00050	0.00057	320	0.00063	0.00068
Titanium alloys & pure titanium	0.20xD	2.00xD	375	0.00037	0.00046	0.00056	450	0.00070	0.00084	490	0.00093	0.00102	0.00116	525	0.00130	0.00139
H Hardened steel < 55 HRC	0.05xD	2.00xD	150	0.00020	0.00025	0.00030	175	0.00037	0.00044	195	0.00050	0.00055	0.00062	205	0.00069	0.00074

FINISHING

Series 6808

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth			SFM	Feed / tooth		SFM	Feed / tooth			SFM	Feed / tooth	
				1/32" 0.8mm	1.0mm	3/64" 1.2mm		1/16" 1.5	1.8mm		5/64" 2.0mm	2.2mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	0.03xD	2.00xD	590	0.00034	0.00043	0.00051	710	0.00064	0.00076	765	0.00085	0.00094	0.00106	825	0.00119	0.00128
P Low-alloyed steel	0.03xD	2.00xD	590	0.00030	0.00038	0.00045	710	0.00057	0.00068	765	0.00076	0.00083	0.00094	825	0.00106	0.00113
High-alloyed steel and tool steel	0.03xD	2.00xD	590	0.00023	0.00028	0.00034	710	0.00043	0.00051	765	0.00057	0.00062	0.00071	825	0.00080	0.00085
Stainless steel, ferritic, martensitic	0.03xD	2.00xD	590	0.00030	0.00038	0.00045	710	0.00057	0.00068	765	0.00076	0.00083	0.00094	825	0.00106	0.00113
M Stainless steel, austenitic	0.03xD	2.00xD	505	0.00026	0.00033	0.00040	610	0.00050	0.00059	660	0.00066	0.00073	0.00083	710	0.00093	0.00099
Duplex steel, high strength stainless steels	0.03xD	2.00xD	375	0.00023	0.00029	0.00035	450	0.00043	0.00052	490	0.00058	0.00064	0.00072	525	0.00081	0.00087
Grey cast iron, spheroidal graphite iron	0.03xD	2.00xD	505	0.00026	0.00033	0.00040	610	0.00050	0.00059	660	0.00066	0.00073	0.00083	710	0.00093	0.00099
Malleable cast iron, GJV & ADI	0.03xD	2.00xD	425	0.00024	0.00030	0.00035	510	0.00044	0.00053	555	0.00059	0.00065	0.00074	595	0.00082	0.00088
Aluminium-wrought alloys	0.03xD	2.00xD	720	0.00045	0.00057	0.00068	865	0.00085	0.00102	940	0.00113	0.00125	0.00142	1010	0.00159	0.00170
N Aluminium-cast alloys																
Copper and copper alloys	0.03xD	2.00xD	525	0.00042	0.00052	0.00063	630	0.00078	0.00094	680	0.00104	0.00115	0.00130	735	0.00146	0.00157
Heat-resistant alloys, Fe-based	0.03xD	2.00xD	425	0.00017	0.00021	0.00026	510	0.00032	0.00038	555	0.00043	0.00047	0.00053	595	0.00059	0.00064
S Heat-resistant alloys, Ni-based, CO-based	0.03xD	2.00xD	245	0.00014	0.00017	0.00021	295	0.00026	0.00031	320	0.00035	0.00038	0.00043	345	0.00048	0.00052
Titanium alloys & pure titanium	0.03xD	2.00xD	395	0.00028	0.00035	0.00043	470	0.00053	0.00064	510	0.00071	0.00078	0.00089	550	0.00099	0.00106
H Hardened steel < 55 HRC	0.02xD	2.00xD	150	0.00015	0.00019	0.00023	175	0.00028	0.00034	195	0.00038	0.00042	0.00047	205	0.00053	0.00057

OPEN SLOTS AND HELICAL INTERPOLATION

Series 6808

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth			SFM	Feed / tooth		SFM	Feed / tooth			SFM	Feed / tooth	
				1/32" 0.8mm	1.0mm	3/64" 1.2mm		1/16" 1.5	1.8mm		5/64" 2.0mm	2.2mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	1.00xD	1.00xD	460	0.00028	0.00035	0.00043	550	0.00053	0.00064	600	0.00071	0.00078	0.00089	640	0.00099	0.00106
P Low-alloyed steel	1.00xD	1.00xD	460	0.00025	0.00031	0.00038	550	0.00047	0.00057	600	0.00063	0.00069	0.00079	640	0.00088	0.00094
High-alloyed steel and tool steel	1.00xD	0.75xD	460	0.00019	0.00024	0.00028	550	0.00035	0.00043	600	0.00047	0.00052	0.00059	640	0.00066	0.00071
Stainless steel, ferritic, martensitic	1.00xD	1.00xD	460	0.00025	0.00031	0.00038	550	0.00047	0.00057	600	0.00063	0.00069	0.00079	640	0.00088	0.00094
M Stainless steel, austenitic	1.00xD	1.00xD	390	0.00022	0.00028	0.00033	470	0.00041	0.00050	510	0.00055	0.00061	0.00069	550	0.00077	0.00083
Duplex steel, high strength stainless steels	1.00xD	0.75xD	295	0.00019	0.00024	0.00029	350	0.00036	0.00043	380	0.00048	0.00053	0.00060	410	0.00067	0.00072
Grey cast iron, spheroidal graphite iron	1.00xD	1.00xD	390	0.00022	0.00028	0.00033	470	0.00041	0.00050	510	0.00055	0.00061	0.00069	550	0.00077	0.00083
Malleable cast iron, GJV & ADI	1.00xD	1.00xD	330	0.00020	0.00024	0.00030	390	0.00037	0.00044	425	0.00049	0.00054	0.00061	460	0.00069	0.00074
Aluminium-wrought alloys	1.00xD	1.00xD	560	0.00038	0.00047	0.00057	670	0.00071	0.00085	725	0.00094	0.00104	0.00118	780	0.00132	0.00142
N Aluminium-cast alloys																
Copper and copper alloys	1.00xD	1.00xD	410	0.00035	0.00043	0.00052	490	0.00065	0.00078	530	0.00087	0.00096	0.00109	575	0.00122	0.00130
Heat-resistant alloys, Fe-based	1.00xD	0.50xD	330	0.00014	0.00018	0.00021	390	0.00027	0.00032	425	0.00035	0.00039	0.00044	460	0.00050	0.00053
S Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.50xD	200	0.00011	0.00015	0.00017	235	0.00022	0.00026	255	0.00029	0.00031	0.00036	275	0.00040	0.00043
Titanium alloys & pure titanium	1.00xD	0.75xD	330	0.00024	0.00030	0.00035	390	0.00044	0.00053	425	0.00059	0.00065	0.00074	460	0.00083	0.00089
H Hardened steel < 55 HRC	1.00xD	0.25xD	115	0.00013	0.00016	0.00019	140	0.00024	0.00028	150	0.00031	0.00035	0.00039	160	0.00044	0.00047



CLOSED SLOTS AND RAMPING

Series 6808

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth			SFM	Feed / tooth		SFM	Feed / tooth			SFM	Feed / tooth	
				1/32" 0.8mm	1.0mm	3/64" 1.2mm		1/16" 1.5	1.8mm		5/64" 2.0mm	2.2mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	1.00xD	1.00xD	330	0.00017	0.00021	0.00026	395	0.00032	0.00038	425	0.00043	0.00047	0.00053	460	0.00059	0.00064
P Low-alloyed steel	1.00xD	1.00xD	330	0.00015	0.00019	0.00023	395	0.00028	0.00034	425	0.00038	0.00042	0.00047	460	0.00053	0.00057
High-alloyed steel and tool steel	1.00xD	0.75xD	330	0.00011	0.00014	0.00017	395	0.00021	0.00026	425	0.00028	0.00031	0.00035	460	0.00040	0.00043
Stainless steel, ferritic, martensitic	1.00xD	1.00xD	330	0.00015	0.00019	0.00023	395	0.00028	0.00034	425	0.00038	0.00042	0.00047	460	0.00053	0.00057
M Stainless steel, austenitic	1.00xD	1.00xD	295	0.00013	0.00017	0.00020	350	0.00025	0.00030	385	0.00033	0.00036	0.00041	415	0.00046	0.00050
Duplex steel, high strength stainless steels	1.00xD	0.75xD	210	0.00011	0.00015	0.00017	255	0.00022	0.00026	280	0.00029	0.00032	0.00036	300	0.00041	0.00043
Grey cast iron, spheroidal graphite iron	1.00xD	1.00xD	295	0.00013	0.00017	0.00020	355	0.00025	0.00030	380	0.00033	0.00036	0.00041	415	0.00046	0.00050
K Malleable cast iron, GJV & ADI	1.00xD	1.00xD	245	0.00012	0.00015	0.00018	295	0.00022	0.00026	320	0.00030	0.00032	0.00037	345	0.00041	0.00044
Aluminium-wrought alloys	1.00xD	1.00xD	395	0.00023	0.00028	0.00034	470	0.00043	0.00051	510	0.00057	0.00062	0.00071	550	0.00080	0.00085
N Aluminium-cast alloys	1.00xD	1.00xD	295	0.00021	0.00026	0.00031	355	0.00039	0.00047	385	0.00052	0.00057	0.00065	410	0.00073	0.00078
Copper and copper alloys	1.00xD	1.00xD	295	0.00021	0.00026	0.00031	355	0.00039	0.00047	385	0.00052	0.00057	0.00065	410	0.00073	0.00078
Heat-resistant alloys, Fe-based	1.00xD	0.50xD	245	0.00009	0.00011	0.00013	295	0.00016	0.00019	320	0.00021	0.00023	0.00027	345	0.00030	0.00032
S Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.50xD	145	0.00007	0.00009	0.00010	175	0.00013	0.00015	195	0.00017	0.00019	0.00022	205	0.00024	0.00026
Titanium alloys & pure titanium	1.00xD	0.75xD	230	0.00014	0.00018	0.00021	275	0.00027	0.00032	300	0.00035	0.00039	0.00044	320	0.00050	0.00053
H Hardened steel < 55 HRC	1.00xD	0.25xD	80	0.00007	0.00009	0.00011	100	0.00014	0.00017	110	0.00019	0.00021	0.00024	115	0.00026	0.00028

DRILLING

Series 6808

Material/ISO material	DOC max	SFM	Feed / tooth			SFM	Feed / tooth		SFM	Feed / tooth			SFM	Feed / tooth	
			1/32" 0.8mm	1.0mm	3/64" 1.2mm		1/16" 1.5	1.8mm		5/64" 2.0mm	2.2mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	1.00xD	325	0.00006	0.00007	0.00009	395	0.00011	0.00013	425	0.00014	0.00016	0.00018	460	0.00020	0.00021
P Low-alloyed steel	1.00xD	325	0.00005	0.00006	0.00007	395	0.00009	0.00011	425	0.00013	0.00014	0.00016	460	0.00018	0.00019
High-alloyed steel and tool steel	0.50xD	295	0.00004	0.00005	0.00006	355	0.00007	0.00009	385	0.00009	0.00010	0.00012	410	0.00013	0.00014
Stainless steel, ferritic, martensitic	0.75xD	295	0.00005	0.00006	0.00007	355	0.00009	0.00011	385	0.00012	0.00013	0.00015	410	0.00017	0.00018
M Stainless steel, austenitic	0.50xD	280	0.00004	0.00006	0.00007	335	0.00008	0.00010	365	0.00011	0.00012	0.00014	390	0.00015	0.00017
Duplex steel, high strength stainless steels	0.25xD	210	0.00004	0.00005	0.00006	255	0.00007	0.00009	280	0.00009	0.00010	0.00012	300	0.00013	0.00014
Grey cast iron, spheroidal graphite iron	1.00xD	295	0.00004	0.00006	0.00007	355	0.00008	0.00010	384	0.00011	0.00012	0.00014	415	0.00015	0.00017
K Malleable cast iron, GJV & ADI	1.00xD	245	0.00004	0.00005	0.00006	295	0.00007	0.00009	320	0.00009	0.00010	0.00012	345	0.00013	0.00014
Aluminium-wrought alloys	0.50xD	410	0.00007	0.00009	0.00011	490	0.00014	0.00017	535	0.00019	0.00021	0.00024	575	0.00026	0.00028
N Aluminium-cast alloys	0.50xD	295	0.00007	0.00009	0.00010	355	0.00013	0.00016	385	0.00017	0.00019	0.00022	410	0.00024	0.00026
Copper and copper alloys	0.50xD	295	0.00007	0.00009	0.00010	355	0.00013	0.00016	385	0.00017	0.00019	0.00022	410	0.00024	0.00026
Heat-resistant alloys, Fe-based	0.25xD	245	0.00003	0.00004	0.00004	295	0.00006	0.00006	320	0.00007	0.00008	0.00009	345	0.00010	0.00011
S Heat-resistant alloys, Ni-based, CO-based	0.25xD	145	0.00002	0.00003	0.00004	175	0.00004	0.00006	195	0.00006	0.00007	0.00007	205	0.00008	0.00009
Titanium alloys & pure titanium	0.25xD	230	0.00005	0.00006	0.00007	275	0.00009	0.00011	300	0.00012	0.00013	0.00015	320	0.00017	0.00018
H Hardened steel < 55 HRC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

RAMPING - MAX RAMP ANGLE

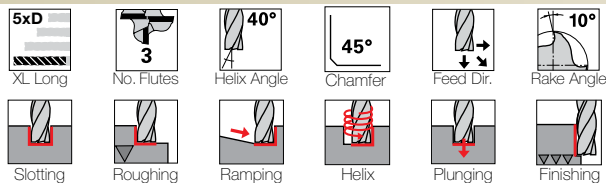
Material/ISO material	Max ramp angle
Unalloyed steel	60°
P Low-alloyed steel	45°
High-alloyed steel and tool steel	30°
Stainless steel, ferritic, martensitic	15°
M Stainless steel, austenitic	10°
Duplex steel, high strength stainless steels	5°
Grey cast iron, spheroidal graphite iron	45°
K Malleable cast iron, GJV & ADI	15°
Aluminium-wrought alloys	30°
N Aluminium-cast alloys	30°
Copper and copper alloys	30°
Heat-resistant alloys, Fe-based	10°
S Heat-resistant alloys, Ni-based, CO-based	5°
Titanium alloys & pure titanium	10°
H Hardened steel < 55 HRC	3°

HELICAL - MAX STEP DOWN PER REV

Material/ISO material	DOC max
Unalloyed steel	0.30 x Ø
P Low-alloyed steel	0.25 x Ø
High-alloyed steel and tool steel	0.20 x Ø
Stainless steel, ferritic, martensitic	0.20 x Ø
M Stainless steel, austenitic	0.20 x Ø
Duplex steel, high strength stainless steels	0.10 x Ø
Grey cast iron, spheroidal graphite iron	0.30 x Ø
K Malleable cast iron, GJV & ADI	0.25 x Ø
Aluminium-wrought alloys	0.25 x Ø
N Aluminium-cast alloys	0.25 x Ø
Copper and copper alloys	0.25 x Ø
Heat-resistant alloys, Fe-based	0.15 x Ø
S Heat-resistant alloys, Ni-based, CO-based	0.10 x Ø
Titanium alloys & pure titanium	0.15 x Ø
H Hardened steel < 55 HRC	0.10 x Ø



RF100 Micro-Diver XL Length



Tool material

Carbide

Surface finish

Durox®

Shank

cylindrical

Series

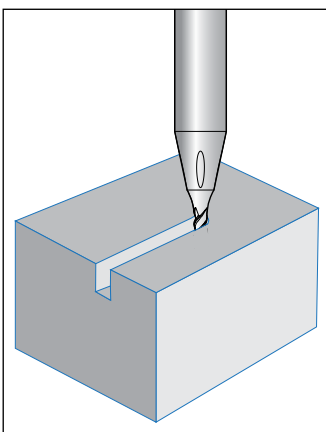
6809

Application group	Material examples	Ideal for
P	Steel	●
M	Stainless steel	●
K	Cast iron	●
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	○
●=Optimal ○=Secondary		

- extreme cutting values and performance
- with GührJet peripheral cooling with 4 or 6 exits
- center cutting
- with special drilling geometry



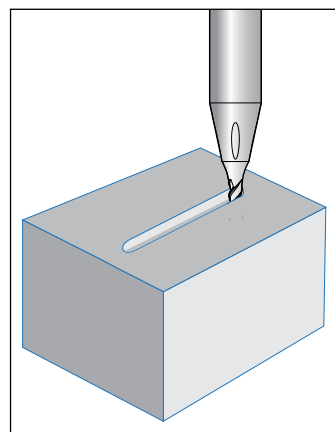
d1 h8 mm	d1 h8 inch	d2 h5 mm	l1 mm	l1 inch	l2 mm	l2 inch	l4 mm	c mm x 45°	c in x 45°	Code no.	EDP Number
1.000		4.00	45.00		5.00	0.196	12.0	0.020	0.0007	1.000	9068090010000
1.190	3/64	4.00	50.80	2	5.95	0.234	12.0	0.024	0.0009	1.190	9068090011900
1.500		4.00	50.00		7.50	0.295	13.0	0.030	0.0011	1.500	9068090015000
1.590	1/16	4.00	50.80	2	7.95	0.312	14.0	0.032	0.0012	1.590	9068090015900
1.980	5/64	6.00	57.15	2 1/4	9.90	0.389	20.0	0.040	0.0010	1.980	9068090019800
2.000		6.00	57.00		10.00	0.393	20.0	0.040	0.0010	2.000	9068090020000
2.380	3/32	6.00	57.15	2 1/4	11.90	0.468	21.0	0.048	0.0018	2.380	9068090023800
2.500		6.00	57.00		12.50	0.492	22.0	0.050	0.0019	2.500	9068090025000
2.780	7/64	6.00	57.15	2 1/4	13.90	0.547	23.0	0.056	0.0022	2.780	9068090027800
3.000		6.00	57.00		15.00	0.590	24.0	0.060	0.0023	3.000	9068090030000
3.175	1/8	6.00	57.15	2 1/4	15.87	0.624	25.0	0.064	0.0025	3.175	9068090031750



Open Slot Milling-

The open end allows chips to more easily be evacuated from the slot.

- Higher cutting parameters are possible



Closed Slot Milling-

There is less space for the chips and chip evacuation is more difficult.

- Lower cutting parameters and chip volume are necessary



ROUGHING

Series 6809

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth		SFM	Feed / tooth	SFM	Feed / tooth		SFM	Feed / tooth	
				1.0mm	3/64" 1.2mm		1/16" 1.5		5/64" 2.0mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	0.10xD	5.00xD	440	0.00050	0.00060	525	0.00075	570	0.00100	0.00126	615	0.00141	0.00151
P Low-alloyed steel	0.10xD	5.00xD	440	0.00044	0.00054	525	0.00067	570	0.00089	0.00112	615	0.00125	0.00134
High-alloyed steel and tool steel	0.08xD	5.00xD	440	0.00033	0.00040	525	0.00050	570	0.00067	0.00084	615	0.00094	0.00100
Stainless steel, ferritic, martensitic	0.10xD	5.00xD	440	0.00044	0.00054	525	0.00067	570	0.00089	0.00112	615	0.00125	0.00134
M Stainless steel, austenitic	0.08xD	5.00xD	375	0.00039	0.00047	450	0.00059	490	0.00078	0.00098	525	0.00109	0.00117
Duplex steel, high strength stainless steels	0.05xD	5.00xD	280	0.00034	0.00041	340	0.00051	365	0.00069	0.00085	395	0.00096	0.00102
Grey cast iron, spheroidal graphite iron	0.10xD	5.00xD	375	0.00039	0.00047	450	0.00059	490	0.00078	0.00098	530	0.00109	0.00117
K Malleable cast iron, GJV & ADI	0.10xD	5.00xD	315	0.00035	0.00042	375	0.00052	410	0.00069	0.00087	440	0.00097	0.00104
Aluminium-wrought alloys	0.15xD	5.00xD	535	0.00067	0.00080	645	0.00100	700	0.00134	0.00167	750	0.00187	0.00201
N Aluminium-cast alloys	0.12xD	5.00xD	395	0.00062	0.00074	470	0.00093	510	0.00123	0.00154	550	0.00172	0.00185
Copper and copper alloys	0.08xD	5.00xD	315	0.00025	0.00030	375	0.00038	410	0.00050	0.00063	440	0.00070	0.00075
Heat-resistant alloys, Fe-based	0.05xD	5.00xD	180	0.00020	0.00024	215	0.00031	235	0.00041	0.00051	250	0.00057	0.00061
S Heat-resistant alloys, Ni-based, CO-based	0.08xD	5.00xD	280	0.00042	0.00050	340	0.00063	370	0.00084	0.00105	400	0.00117	0.00126
Titanium alloys & pure titanium	0.03xD	5.00xD	100	0.00022	0.00027	120	0.00033	130	0.00044	0.00056	140	0.00063	0.00067
H Hardened steel < 55 HRC													

FINISHING

Series 6809

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth		SFM	Feed / tooth	SFM	Feed / tooth		SFM	Feed / tooth	
				1.0mm	3/64" 1.2mm		1/16" 1.5		5/64" 2.0mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	0.02xD	5.00xD	480	0.00038	0.00046	575	0.00057	625	0.00076	0.00096	670	0.00107	0.00115
P Low-alloyed steel	0.02xD	5.00xD	480	0.00034	0.00041	575	0.00051	625	0.00068	0.00085	670	0.00095	0.00102
High-alloyed steel and tool steel	0.02xD	5.00xD	480	0.00026	0.00031	575	0.00038	625	0.00051	0.00064	670	0.00071	0.00076
Stainless steel, ferritic, martensitic	0.02xD	5.00xD	480	0.00034	0.00041	575	0.00051	625	0.00068	0.00085	670	0.00095	0.00102
M Stainless steel, austenitic	0.02xD	5.00xD	410	0.00030	0.00036	490	0.00044	535	0.00059	0.00074	575	0.00083	0.00089
Duplex steel, high strength stainless steels	0.02xD	5.00xD	305	0.00026	0.00031	365	0.00039	400	0.00052	0.00065	425	0.00073	0.00078
Grey cast iron, spheroidal graphite iron	0.02xD	5.00xD	410	0.00030	0.00036	490	0.00044	535	0.00059	0.00074	575	0.00083	0.00089
K Malleable cast iron, GJV & ADI	0.02xD	5.00xD	340	0.00026	0.00032	410	0.00040	440	0.00053	0.00066	480	0.00074	0.00080
Aluminium-wrought alloys	0.02xD	5.00xD	580	0.00051	0.00061	695	0.00076	755	0.00102	0.00128	815	0.00143	0.00153
N Aluminium-cast alloys	0.02xD	5.00xD	425	0.00047	0.00056	510	0.00070	555	0.00094	0.00117	600	0.00131	0.00141
Copper and copper alloys	0.02xD	5.00xD	340	0.00019	0.00023	410	0.00029	440	0.00038	0.00048	480	0.00054	0.00057
Heat-resistant alloys, Fe-based	0.02xD	5.00xD	200	0.00015	0.00019	235	0.00023	255	0.00031	0.00039	275	0.00044	0.00046
S Heat-resistant alloys, Ni-based, CO-based	0.02xD	5.00xD	310	0.00032	0.00038	370	0.00048	400	0.00064	0.00080	430	0.00089	0.00096
Titanium alloys & pure titanium	0.01xD	5.00xD	110	0.00017	0.00020	135	0.00026	145	0.00034	0.00043	155	0.00048	0.00051
H Hardened steel < 55 HRC													

OPEN SLOTS AND HELICAL INTERPOLATION

Series 6809

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth		SFM	Feed / tooth	SFM	Feed / tooth		SFM	Feed / tooth	
				1.0mm	3/64" 1.2mm		1/16" 1.5		5/64" 2.0mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	1.00xD	0.50xD	365	0.00032	0.00038	440	0.00048	480	0.00064	0.00080	515	0.00089	0.00096
P Low-alloyed steel	1.00xD	0.50xD	365	0.00028	0.00034	440	0.00043	480	0.00057	0.00071	515	0.00080	0.00085
High-alloyed steel and tool steel	1.00xD	0.25xD	365	0.00021	0.00026	440	0.00032	480	0.00043	0.00053	515	0.00059	0.00064
Stainless steel, ferritic, martensitic	1.00xD	0.25xD	365	0.00028	0.00034	440	0.00043	480	0.00057	0.00071	515	0.00080	0.00085
M Stainless steel, austenitic	1.00xD	0.25xD	315	0.00025	0.00030	375	0.00037	410	0.00050	0.00062	440	0.00069	0.00074
Duplex steel, high strength stainless steels	1.00xD	0.25xD	230	0.00022	0.00026	280	0.00033	300	0.00043	0.00054	325	0.00061	0.00065
Grey cast iron, spheroidal graphite iron	1.00xD	0.50xD	315	0.00025	0.00030	375	0.00037	410	0.00050	0.00062	440	0.00069	0.00074
K Malleable cast iron, GJV & ADI	1.00xD	0.50xD	260	0.00022	0.00026	315	0.00033	340	0.00044	0.00055	365	0.00062	0.00066
Aluminium-wrought alloys	1.00xD	0.50xD	445	0.00043	0.00051	535	0.00064	580	0.00085	0.00106	625	0.00119	0.00128
N Aluminium-cast alloys	1.00xD	0.50xD	325	0.00039	0.00047	395	0.00059	425	0.00078	0.00098	460	0.00109	0.00117
Copper and copper alloys	1.00xD	0.25xD	260	0.00016	0.00019	315	0.00024	340	0.00032	0.00040	365	0.00044	0.00048
Heat-resistant alloys, Fe-based	1.00xD	0.25xD	150	0.00013	0.00015	180	0.00019	200	0.00026	0.00032	210	0.00036	0.00039
S Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.25xD	235	0.00027	0.00032	280	0.00040	310	0.00053	0.00067	330	0.00074	0.00080
Titanium alloys & pure titanium	1.00xD	0.10xD	85	0.00014	0.00017	100	0.00021	110	0.00028	0.00035	115	0.00040	0.00043
H Hardened steel < 55 HRC													

CLOSED SLOTS AND RAMPING

Series 6809

Material/ISO material	WOC max	DOC max	SFM	Feed / tooth		SFM	Feed / tooth		SFM	Feed / tooth		SFM	Feed / tooth	
				1.0mm	3/64" 1.2mm		1/16" 1.5			5/64" 2.0mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	1.00xD	0.50xD	255	0.00019	0.00023	310	0.00029	335	0.00038	0.00048	360	0.00054	0.00057	
P Low-alloyed steel	1.00xD	0.50xD	255	0.00017	0.00020	310	0.00026	335	0.00034	0.00043	360	0.00048	0.00051	
High-alloyed steel and tool steel	1.00xD	0.25xD	255	0.00013	0.00015	310	0.00019	335	0.00026	0.00032	360	0.00036	0.00038	
Stainless steel, ferritic, martensitic	1.00xD	0.25xD	255	0.00017	0.00020	310	0.00026	335	0.00034	0.00043	360	0.00048	0.00051	
M Stainless steel, austenitic	1.00xD	0.25xD	220	0.00015	0.00018	265	0.00022	285	0.00030	0.00037	310	0.00042	0.00044	
Duplex steel, high strength stainless steels	1.00xD	0.25xD	165	0.00013	0.00016	195	0.00020	210	0.00026	0.00033	230	0.00037	0.00039	
Grey cast iron, spheroidal graphite iron	1.00xD	0.50xD	220	0.00015	0.00018	265	0.00022	285	0.00030	0.00037	310	0.00042	0.00044	
K Malleable cast iron, GJV & ADI	1.00xD	0.50xD	185	0.00013	0.00016	220	0.00020	240	0.00026	0.00033	255	0.00037	0.00040	
Aluminium-wrought alloys	1.00xD	0.50xD	310	0.00026	0.00031	375	0.00038	405	0.00051	0.00064	435	0.00071	0.00076	
N Aluminium-cast alloys	1.00xD	0.50xD	230	0.00024	0.00028	275	0.00035	300	0.00047	0.00059	320	0.00066	0.00070	
Copper and copper alloys	1.00xD	0.50xD	230	0.00024	0.00028	275	0.00035	300	0.00047	0.00059	320	0.00066	0.00070	
Heat-resistant alloys, Fe-based	1.00xD	0.25xD	185	0.00009	0.00011	220	0.00014	240	0.00019	0.00024	255	0.00027	0.00029	
S Heat-resistant alloys, Ni-based, CO-based	1.00xD	0.25xD	105	0.00008	0.00009	130	0.00012	140	0.00015	0.00019	150	0.00022	0.00023	
Titanium alloys & pure titanium	1.00xD	0.25xD	165	0.00016	0.00019	200	0.00024	215	0.00032	0.00040	230	0.00044	0.00048	
H Hardened steel < 55 HRC	1.00xD	0.10xD	60	0.00009	0.00010	70	0.00013	80	0.00017	0.00021	80	0.00024	0.00026	

DRILLING

Series 6809

Material/ISO material	DOC max	SFM	Feed / tooth		SFM	Feed / tooth		SFM	Feed / tooth		SFM	Feed / tooth	
			1.0mm	3/64" 1.2mm		1/16" 1.5			5/64" 2.0mm	3/32" 2.5mm		7/64" 2.8mm	1/8" 3.0mm
Unalloyed steel	0.50xD	275	0.00006	0.00007	330	0.00009	360	0.00011	0.00014	385	0.00016	0.00017	
P Low-alloyed steel	0.50xD	275	0.00005	0.00006	330	0.00007	360	0.00010	0.00013	385	0.00014	0.00015	
High-alloyed steel and tool steel	0.25xD	275	0.00004	0.00005	330	0.00006	360	0.00007	0.00009	385	0.00011	0.00011	
Stainless steel, ferritic, martensitic	0.25xD	275	0.00005	0.00006	330	0.00007	360	0.00010	0.00013	385	0.00014	0.00015	
M Stainless steel, austenitic	0.25xD	235	0.00004	0.00005	280	0.00007	310	0.00009	0.00011	330	0.00012	0.00013	
Duplex steel, high strength stainless steels	0.25xD	175	0.00004	0.00005	210	0.00006	230	0.00008	0.00009	250	0.00011	0.00011	
Grey cast iron, spheroidal graphite iron	0.50xD	235	0.00004	0.00005	280	0.00007	310	0.00009	0.00011	330	0.00012	0.00013	
K Malleable cast iron, GJV & ADI	0.50xD	195	0.00004	0.00005	235	0.00006	255	0.00008	0.00010	275	0.00011	0.00012	
Aluminium-wrought alloys	0.50xD	335	0.00007	0.00009	400	0.00011	435	0.00015	0.00019	470	0.00021	0.00023	
N Aluminium-cast alloys	0.50xD	245	0.00007	0.00008	295	0.00011	320	0.00014	0.00017	345	0.00019	0.00021	
Copper and copper alloys	0.50xD	245	0.00007	0.00008	295	0.00011	320	0.00014	0.00017	345	0.00019	0.00021	
Heat-resistant alloys, Fe-based	0.25xD	195	0.00003	0.00004	235	0.00004	255	0.00006	0.00007	275	0.00008	0.00009	
S Heat-resistant alloys, Ni-based, CO-based	0.25xD	110	0.00002	0.00003	135	0.00004	145	0.00005	0.00006	155	0.00006	0.00007	
Titanium alloys & pure titanium	0.25xD	175	0.00005	0.00006	210	0.00007	230	0.00009	0.00012	250	0.00013	0.00014	
H Hardened steel < 55 HRC	--	--	--	--	--	--	--	--	--	--	--	--	--

RAMPING - MAX RAMP ANGLE

Material/ISO material	Max ramp angle
Unalloyed steel	60°
P Low-alloyed steel	45°
High-alloyed steel and tool steel	30°
Stainless steel, ferritic, martensitic	15°
M Stainless steel, austenitic	10°
Duplex steel, high strength stainless steels	5°
Grey cast iron, spheroidal graphite iron	45°
K Malleable cast iron, GJV & ADI	15°
Aluminium-wrought alloys	30°
N Aluminium-cast alloys	30°
Copper and copper alloys	30°
Heat-resistant alloys, Fe-based	10°
S Heat-resistant alloys, Ni-based, CO-based	5°
Titanium alloys & pure titanium	10°
H Hardened steel < 55 HRC	3°

HELICAL - MAX STEP DOWN PER REV

Material/ISO material	DOC max
Unalloyed steel	0.30 x Ø
P Low-alloyed steel	0.25 x Ø
High-alloyed steel and tool steel	0.20 x Ø
Stainless steel, ferritic, martensitic	0.20 x Ø
M Stainless steel, austenitic	0.20 x Ø
Duplex steel, high strength stainless steels	0.10 x Ø
Grey cast iron, spheroidal graphite iron	0.30 x Ø
K Malleable cast iron, GJV & ADI	0.25 x Ø
Aluminium-wrought alloys	0.25 x Ø
N Aluminium-cast alloys	0.25 x Ø
Copper and copper alloys	0.25 x Ø
Heat-resistant alloys, Fe-based	0.15 x Ø
S Heat-resistant alloys, Ni-based, CO-based	0.10 x Ø
Titanium alloys & pure titanium	0.15 x Ø
H Hardened steel < 55 HRC	0.10 x Ø