

GUHRING

Program now
enhanced
by full size
diameters

RF 100
d/iver



DRILLING

RAMPING

ROUGHING

SLOTTING

FINISHING



Shank DIN 6535 HA/HB

Solid carbide/DIN 6527

4-fluted

36°/38° helix

Optimal chip space

Neck clearance

Signum-coating

Cutting edge preparation

Face geometry for
drilling and ramping

RAMPING

- + Plunge angle up to 45°
- + Very good chip removal

APPLICATION EXAMPLE

Wet machining in 42CrMo4

Plunge angle = 30°

$a_p = 12 \text{ mm}$
 $a_c = 11.7 \text{ mm}$
 $v_c = 200 \text{ m/min}$

$v_f = 1200 \text{ mm/min}$



DRILLING

- + Very good drilling characteristics to 2xD
- + Ideal pre-drilling tool for reamers
- + No separate pilot tool necessary

APPLICATION EXAMPLE

Dry machining in cast iron

$a_p = 12 \text{ mm}$
 $a_c = 12 \text{ mm}$
 $v_c = 240 \text{ m/min}$

$v_f = 800 \text{ mm/min}$



SLOTTING

- + High feed rate for plunging and slotting
- + High metal removal rate and undersize diameter for precision slots
- + High process reliability with smooth operation

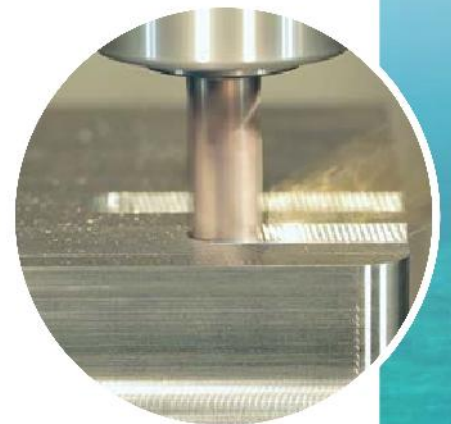
APPLICATION EXAMPLE

Dry machining in steel 42CrMo4

$a_p = 12 \text{ mm}$
 $a_e = 11.7 \text{ mm}$
 $v_c = 240 \text{ m/min}$

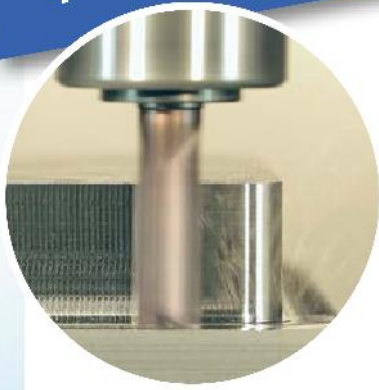
$v_f = 1800 \text{ mm/min}$

Metal removal rate $Q = 252 \text{ cm}^3/\text{min}$



ROUGHING

- + Thanks to low power consumption also suitable on less rigid machines
- + Up to 100% increased cutting speed in steel
- + High metal removal rate



APPLICATION EXAMPLE

Dry machining in steel 42CrMo4

$a_p = 24 \text{ mm}$

$a_e = 3 \text{ mm}$

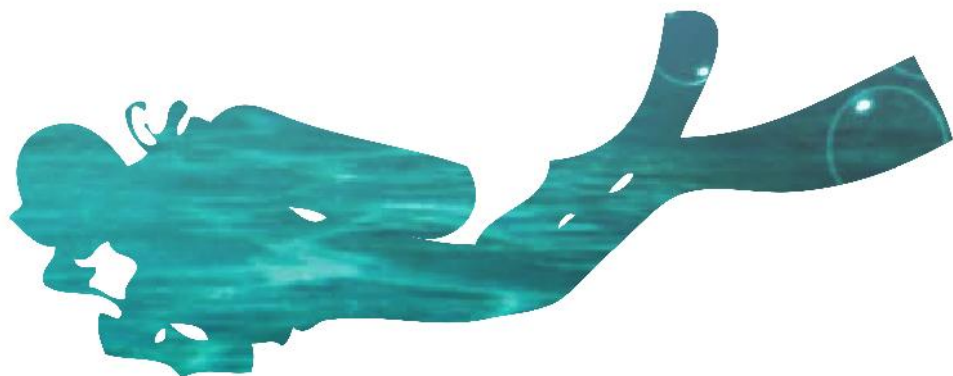
$v_c = 280 \text{ m/min}$

$v_f = 3050 \text{ mm/min}$

Metal removal rate $Q = 219 \text{ cm}^3/\text{min}$

FINISHING

- + Contours with high surface quality
- + Up to 100% increased tool life
- + High cutting parameters also in alloyed heat-treatable steels



Plunging* and Ramping*

Material / ISO Material	Hardness	Drilling depth* (a _p max.)	Ramping* max. angle in °	Cutting speed. (v _c)	f _z (mm/z) with nom. Ø						
					4	6	8	10	12	16	20
Struct./free-cut. steels, unall. heat-treat./case hard. steels	< 850 N/mm ²	1xd	45°	270	0.015	0.020	0.030	0.040	0.045	0.050	0.060
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	1xd	45°	240	0.012	0.015	0.020	0.035	0.040	0.045	0.050
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	30°	200	0.008	0.010	0.015	0.025	0.030	0.035	0.040
M Stainless steel - easy to machine / sulphured	< 750 N/mm ²	1xd	10°	60	0.008	0.010	0.015	0.025	0.030	0.035	0.040
Stainless steel - moderately difficult to machine	> 750 - 950 N/mm ²	0.5xd	5°	50	0.008	0.010	0.015	0.020	0.025	0.030	0.035
K Cast iron, grey cast iron, spher. graphite/mall. cast iron	> 240 HB 30	1xd	45°	150	0.015	0.020	0.030	0.040	0.045	0.050	0.060
N Aluminium, Al-wrought alloys, Al-alloys	< 3% Si	1xd	30°	180	0.012	0.015	0.020	0.035	0.040	0.045	0.050
Aluminium-cast alloys	> 3% Si	1xd	45°	140	0.015	0.020	0.030	0.040	0.045	0.050	0.060
S Titanium, titanium alloys	< 1400 N/mm ²	0.5xd	10°	45	0.008	0.010	0.015	0.020	0.025	0.030	0.035

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

Slotting*

Material / ISO Material	Hardness	Cutting depth (a _p)	Cutting width (a _e)	Cutting speed. (v _c)	f _z (mm/z) with nom. Ø						
					4	6	8	10	12	16	20
Struct./free-cut. steels, unall. heat-treat./case hard. steels	< 850 N/mm ²	1xd	1xd	270	0.018	0.025	0.035	0.050	0.060	0.080	0.100
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	1xd	1xd	240	0.018	0.025	0.035	0.050	0.060	0.080	0.100
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	1xd	200	0.018	0.025	0.030	0.045	0.050	0.070	0.085
M Stainless steel - easy to machine / sulphured	< 750 N/mm ²	1xd	1xd	120	0.015	0.020	0.030	0.045	0.060	0.065	0.075
Stainless steel - moderately difficult to machine	> 750 - 950 N/mm ²	1xd	1xd	80	0.015	0.020	0.030	0.040	0.045	0.060	0.070
K Cast iron, grey cast iron, spher. graphite/mall. cast iron	> 240 HB 30	1xd	1xd	160	0.018	0.025	0.035	0.050	0.060	0.080	0.100
N Aluminium, Al-wrought alloys, Al-alloys	< 3% Si	1xd	1xd	500	0.020	0.030	0.040	0.065	0.080	0.095	0.110
Aluminium-cast alloys	> 3% Si	1xd	1xd	340	0.015	0.020	0.030	0.055	0.065	0.080	0.100
S Titanium, titanium alloys	< 1400 N/mm ²	1xd	1xd	60	0.015	0.020	0.030	0.040	0.045	0.060	0.070

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

HPC-Roughing* and HSC-Finishing**

Material / ISO Material	Hardness	Cutting depth (a _p)	Cutting width*** (a _e)	Cutting speed. (v _c)	f _z (mm/z) with nom. Ø						
					4	6	8	10	12	16	20
Struct./free-cut. steels, unall. heat-treat./case hard. steels	< 850 N/mm ²	2xd	0.4xd	350	0.020	0.030	0.045	0.060	0.075	0.090	0.110
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	2xd	0.4xd	290	0.020	0.030	0.045	0.060	0.075	0.090	0.110
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	2xd	0.3xd	240	0.018	0.025	0.030	0.055	0.070	0.085	0.100
M Stainless steel - easy to machine / sulphured	< 750 N/mm ²	2xd	0.3xd	140	0.018	0.025	0.035	0.055	0.065	0.080	0.090
Stainless steel - moderately difficult to machine	> 750 - 950 N/mm ²	2xd	0.25xd	120	0.015	0.020	0.030	0.045	0.050	0.065	0.075
K Cast iron, grey cast iron, spher. graphite/mall. cast iron	> 240 HB 30	2xd	0.4xd	180	0.015	0.030	0.045	0.060	0.075	0.090	0.110
N Aluminium, Al-wrought alloys, Al-alloys	< 3% Si	2xd	0.5xd	600	0.030	0.040	0.060	0.080	0.100	0.120	0.150
Aluminium-cast alloys	> 3% Si	2xd	0.4xd	420	0.020	0.030	0.045	0.060	0.075	0.090	0.110
S Titanium, titanium alloys	< 1400 N/mm ²	2xd	0.4xd	120	0.015	0.020	0.030	0.045	0.050	0.065	0.075

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

** for HSC machining the cutting speed can be increased by 50%, feed rate f_z can be reduced depending on surface requirements.

*** for trochoidal milling and imachining with a_e = 0.1-0.2xd the cutting speed v_c and the feed rate can be increased by 50 %.

Drilling*

Material / ISO Material	Hardness	Drilling depth* (a _p max.)	Cutting speed. (v _c)	f _z (mm/z) with nom. Ø						
				4	6	8	10	12	16	20
Struct./free-cut. steels, unall. heat-treat./case hard. steels	< 850 N/mm ²	2xd	270	0.015	0.020	0.030	0.040	0.045	0.050	0.060
P Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm ²	2xd	240	0.010	0.015	0.020	0.035	0.040	0.045	0.050
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm ²	1xd	200	0.008	0.010	0.015	0.025	0.030	0.035	0.040
K Cast iron, grey cast iron, spher. graphite/mall. cast iron	> 240 HB 30	2xd	150	0.015	0.020	0.030	0.040	0.045	0.050	0.060
N Aluminium, Al-wrought alloys, Al-alloys	< 3% Si	1xd	180	0.010	0.015	0.020	0.035	0.040	0.045	0.050
Aluminium-cast alloys	> 3% Si	1xd	140	0.015	0.020	0.030	0.040	0.045	0.050	0.060

* wood pecking recommended from drilling depth 1 x D

* peripheral cooling „Guhrojet“ recommended for optimal chip evacuation and tool life

RF 100 DIVER-Set	Undersize diameter	Guh. no. 6755-1.0	6754-1.0
RF 100 DIVER-Set	Full size diameter	Guh. no. 6755-2.0	6754-2.0



Undersize diameter

Content: 5 pieces
 Guhring no. 6737 (shank HA) respectively
 Guhring no. 6736 (shank HB)
 in the following dia.: 5.7 / 7.7 / 9.7 / 11.7 / 15.6

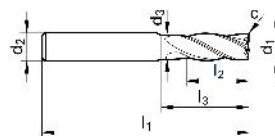
Undersize diameter for mating grooves
 and interpolated corner radii and contours

Full size diameter

Content: 5 pieces
 Guhring no. 6737 (shank HA) respectively
 Guhring no. 6736 (shank HB)
 in the following dia.: 6.0 / 8.0 / 10.0 / 12.0 / 16.0



RF 100 DIVER	Guh. no. 6737	6736
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Tool material	Solid carbide	
Surface finish	Signum	Signum
Discount group	106	106



Code no.	d1 (h10)	d2 (h6)	d3	l1	l2	l3	c	Z
	mm	mm	mm	mm	mm	mm	mm x 45°	
4.000	4.000	6.000	3.800	57.00	11.00	18.00	0.040	4
5.000	5.000	6.000	4.800	57.00	13.00	18.00	0.050	4
5.700	5.700	6.000	5.500	57.00	13.00	19.60	0.060	4
6.000	6.000	6.000	5.700	57.00	13.00	20.00	0.060	4
7.700	7.700	8.000	7.400	63.00	19.00	25.50	0.080	4
8.000	8.000	8.000	7.700	63.00	19.00	26.00	0.080	4
9.700	9.700	10.000	9.400	72.00	22.00	30.50	0.100	4
10.000	10.000	10.000	9.500	72.00	22.00	30.00	0.100	4
11.700	11.700	12.000	11.200	83.00	26.00	35.30	0.120	4
12.000	12.000	12.000	11.500	83.00	26.00	36.00	0.120	4
13.700	13.700	14.000	13.200	83.00	26.00	35.30	0.140	4
14.000	14.000	14.000	13.500	83.00	26.00	36.00	0.140	4
15.600	15.600	16.000	15.100	92.00	32.00	41.20	0.160	4
16.000	16.000	16.000	15.500	92.00	32.00	42.00	0.160	4
19.500	19.500	20.000	19.000	104.00	38.00	51.10	0.200	4
20.000	20.000	20.000	19.500	104.00	38.00	52.00	0.200	4

Availability

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GUHRING

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