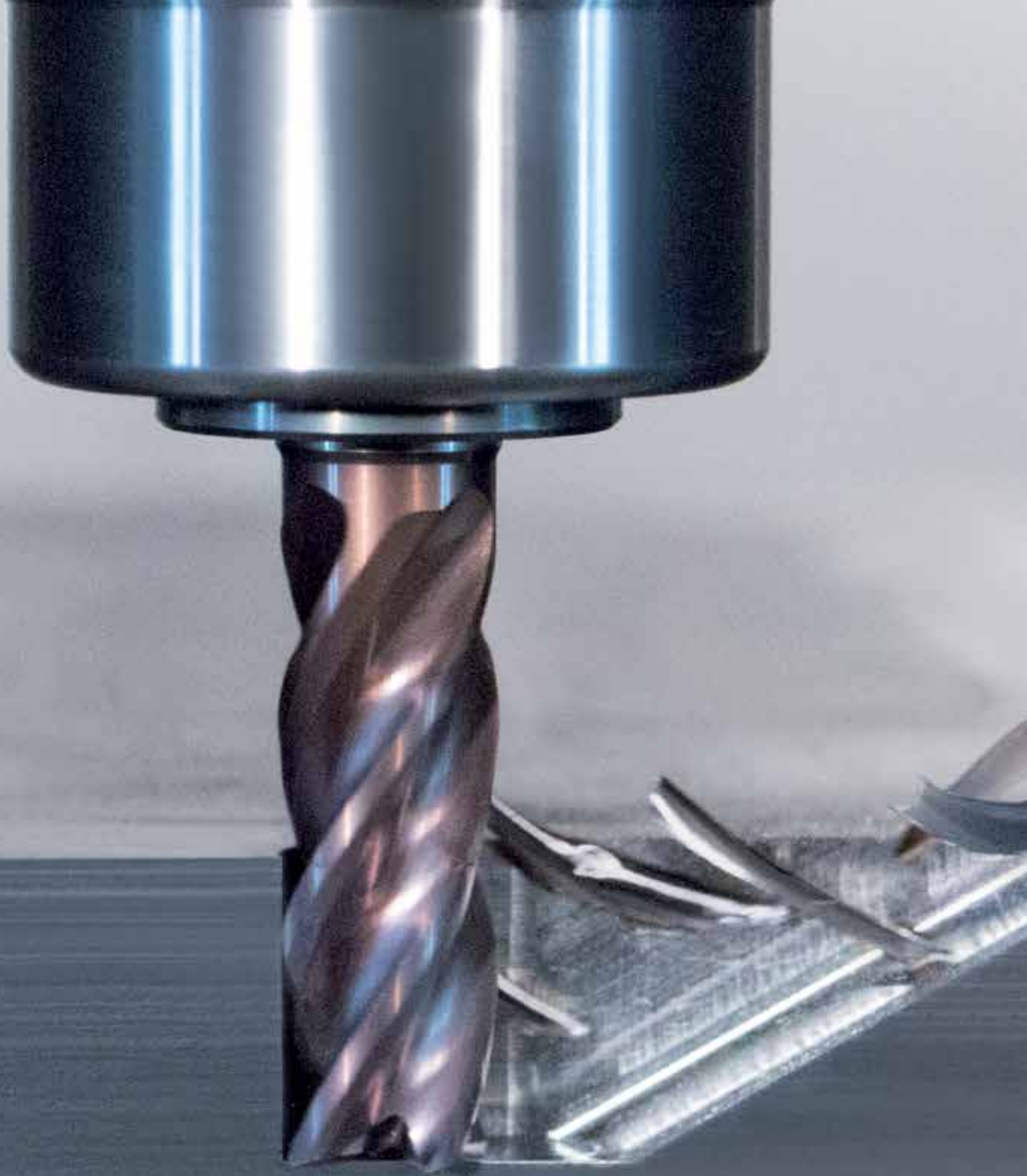


# GUHRING

RF 100  
**diver**





**RAMPING** ┌ With extremely steep plunge angle up to 45° ┐  
└ Very good chip removal ┘

┌ Very good drilling characteristics to 2xD ┐ **DRILLING**  
└ No separate pilot tool necessary ┘  
┌ Ideal pre-drilling tool for reamers ┘

# SLOTTING

High process reliability with  
smooth operation

High feed rate for plunging and slotting

High metal removal rate and undersize diameter for precision slots

Up to 100% increased cutting speed in steel

High metal removal rate

# ROUGHING

Thanks to low power consumption also  
suitable for less rigid machines

Contours with high surface quality

# FINISHING

Up to 100% increased tool life

High cutting parameters also in alloyed heat-treatable steels

Precision slots can be produced in all tolerances

# UNDERSIZE

Piloting on curved or oblique surfaces

Reduced vibrations with blending pocket radii



Shank DIN 6535 HA/HB

Solid carbide/DIN 6527

4-fluted

36°/38° helix

Face geometry for drilling and ramping

Neck clearance

Signum-coating

Cutting edge preparation

Optimal chip space

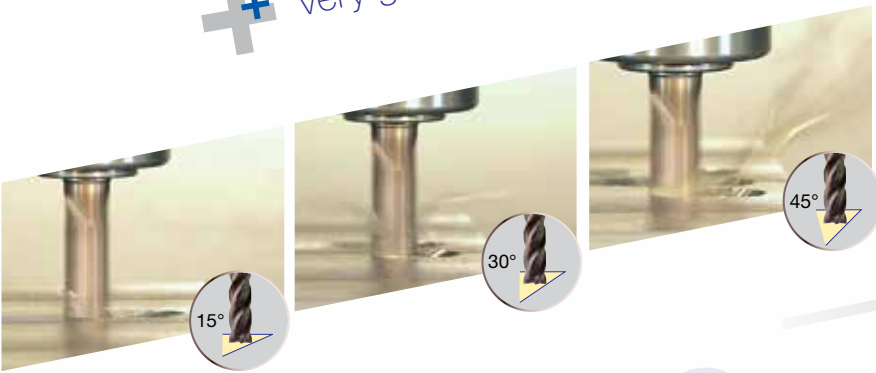
# RAMPING

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

## APPLICATION EXAMPLE

Wet machining in 42CrMo4  
Plunge angle = 30°

$a_p = 12 \text{ mm}$   
 $a_e = 11.7 \text{ mm}$   
 $v_c = 200 \text{ m/min}$   
 $v_f = 1200 \text{ mm/min}$



# 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

$a_p = 12 \text{ mm}$   
 $a_e = 12 \text{ mm}$   
 $v_c = 240 \text{ m/min}$   
 $v_f = 800 \text{ mm/min}$



## DRILLING\* AND RAMPING\* | CUTTING VALUES

Material / ISO Material	Hardness	Drilling depth* ( $a_p$ max.)	Ramping* max. angle in °	Cutting speed ( $v_c$ )	fz (mm/min)					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cut. steels, unall. heat-treat./case hard. steels	up to 850 N/mm <sup>2</sup>	2 x d	45°	270	0.020	0.030	0.040	0.045	0.050	0.060
<b>P</b> Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm <sup>2</sup>	2 x d	45°	240	0.015	0.020	0.035	0.040	0.045	0.050
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm <sup>2</sup>	2 x d	30°	200	0.010	0.015	0.025	0.030	0.035	0.040
<b>M</b> Stainless steel - easy to machine / sulphured	up to 750 N/mm <sup>2</sup>	1 x d	10°	60	0.010	0.015	0.025	0.030	0.035	0.040
Stainless steel - moderately difficult to machine	above 750 - 950 N/mm <sup>2</sup>	1 x d	5°	50	0.010	0.015	0.020	0.025	0.030	0.035
<b>K</b> Cast iron, grey cast iron, spher. graphite/mall. cast iron	above 240 HB 30	2 x d	45°	150	0.020	0.030	0.040	0.045	0.050	0.060
<b>N</b> Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	1 x d	30°	180	0.015	0.020	0.035	0.040	0.045	0.050
Aluminium-cast alloys	above 3% Si	1 x d	45°	140	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

# 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

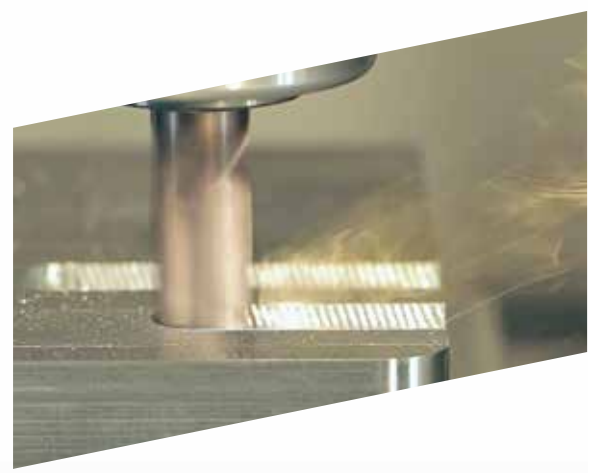
$a_p = 12 \text{ mm}$

$a_e = 11.7 \text{ mm}$

$v_c = 240 \text{ m/min}$

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

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



## SLOTTING\* | CUTTING VALUES

Material / ISO Material	Hardness	Cutting depth ( $a_p$ )	Cutting width ( $a_e$ )	Cutting speed ( $v_c$ )	fz (mm/min)					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutt. steels, unall. heat-treat./case hard. steels	up to 850 N/mm <sup>2</sup>	1 x d	1 x d	270	0.025	0.035	0.050	0.060	0.080	0.100
<b>P</b> Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm <sup>2</sup>	1 x d	1 x d	240	0.025	0.035	0.050	0.060	0.080	0.100
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm <sup>2</sup>	1 x d	1 x d	200	0.025	0.030	0.045	0.050	0.070	0.085
<b>M</b> Stainless steel - easy to machine / sulphured	up to 750 N/mm <sup>2</sup>	1 x d	1 x d	120	0.020	0.030	0.045	0.060	0.065	0.075
Stainless steel - moderately difficult to machine	above 750 - 950 N/mm <sup>2</sup>	1 x d	1 x d	80	0.020	0.030	0.040	0.045	0.060	0.070
<b>K</b> Cast iron, grey cast iron, spher. graphite/mall. cast iron	above 240 HB 30	1 x d	1 x d	160	0.025	0.035	0.050	0.060	0.080	0.100
<b>N</b> Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	1 x d	1 x d	500	0.030	0.040	0.065	0.080	0.095	0.110
Aluminium-cast alloys	above 3% Si	1 x d	1 x d	340	0.020	0.030	0.055	0.065	0.080	0.100

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



# 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

## HPC-ROUGHING\* AND HSC-FINISHING\*\*

### CUTTING VALUES

Material / ISO Material	Hardness	Cutting depth ( $a_p$ )	Cutting width ( $a_e$ )	Cutting speed ( $v_c$ )	$f_z$ (mm/min)					
					5.7	7.7	9.7	11.7	15.6	19.5
Struct./free-cutt. steels, unall. heat-treat./case hard. steels	up to 850 N/mm <sup>2</sup>	2 x d	0.5 x d	350	0.030	0.045	0.060	0.075	0.090	0.110
<b>P</b> Free-cutting steels, unalloyed case hard. steels, nitr. steels	850 - 1200 N/mm <sup>2</sup>	2 x d	0.4 x d	290	0.030	0.045	0.060	0.075	0.090	0.110
Alloyed heat-treatable, tool and high speed steels	850 - 1400 N/mm <sup>2</sup>	2 x d	0.3 x d	240	0.025	0.030	0.055	0.070	0.085	0.100
<b>M</b> Stainless steel - easy to machine / sulphured	up to 750 N/mm <sup>2</sup>	2 x d	0.3 x d	140	0.025	0.035	0.055	0.065	0.080	0.090
Stainless steel - moderately difficult to machine	above 750 - 950 N/mm <sup>2</sup>	2 x d	0.25 x d	120	0.020	0.030	0.045	0.050	0.065	0.075
<b>K</b> Cast iron, grey cast iron, spher. graphite/mall. cast iron	above 240 HB 30	2 x d	0.4 x d	180	0.030	0.045	0.060	0.075	0.090	0.110
<b>N</b> Aluminium, Al-wrought alloys, Al-alloys	up to 3% Si	2 x d	0.5 x d	600	0.040	0.060	0.080	0.100	0.120	0.150
Aluminium-cast alloys	above 3% Si	2 x d	0.4 x d	420	0.030	0.045	0.060	0.075	0.090	0.110

\* 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 %.

# RF 100 DIVER-Set



Content: RF 100 Diver - Ø 5.7-7.7-9.7-11.7-15,6

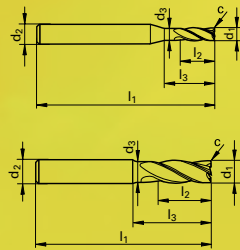
Guhring no.      Shank 6755 HA      Shank 6754 HB

Solid carbide  
DIN 6527  
Shank to DIN 6535 HA and HB  
36/38° helix  
4-fluted

Undersize diameter for precision slots  
and interpolated corner radii and contours

With cutting edge preparation  
and SIGNUM-coating

Guhring no.



6737



6736



Code no.	d1 (h10) mm	d2 (h6) mm	d3 mm	l1 mm	l2 mm	l3 mm	c mm 45°	Availability
5.700	5.700	6.000	5.500	57.00	13.00	20.40	0.057	● ●
7.700	7.700	8.000	7.400	63.00	19.00	25.50	0.077	● ● ● ●
9.700	9.700	10.000	9.400	72.00	22.00	30.00	0.097	● ● ● ● ● ●
11.700	11.700	12.000	11.200	83.00	26.00	35.00	0.117	● ● ● ● ● ● ● ●
13.700	13.700	14.000	13.200	83.00	26.00	37.00	0.137	● ● ● ● ● ● ● ●
15.600	15.600	16.000	15.100	92.00	32.00	44.00	0.156	● ● ● ● ● ● ● ●
19.500	19.500	20.000	19.000	104.00	38.00	52.00	0.195	● ● ● ● ● ● ● ●

Guhring no.  
**4301**



Guhring no.  
**4232**



THE CHUCK FOR OPTIMAL PERFORMANCE

# GUHRING

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