

GUHRING

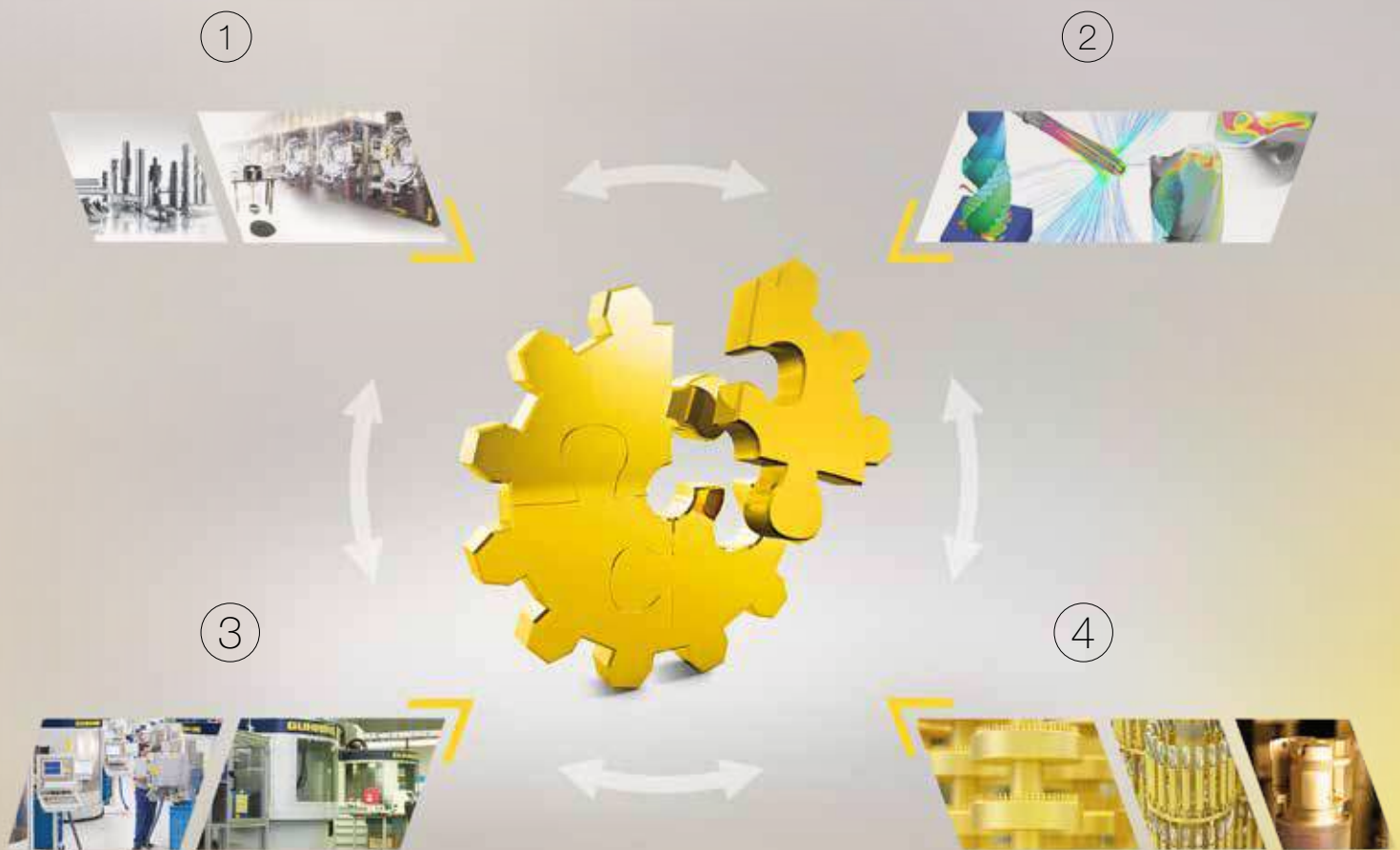
EFFICIENCY IN PERFECTION



**MULTI-FUNCTIONAL TOOLING SYSTEMS
FOR END MACHINING**

2015

Optimal combination of all tool parameters with our own R&D operations



① TOOL MATERIALS

Own carbide production

② GEOMETRIES

Own R&D for tool development

③ SYSTEMS AND MACHINE TOOL DIVISION

Own machine tool division and own systems development

④ COATINGS

Own coating machines and own coating development

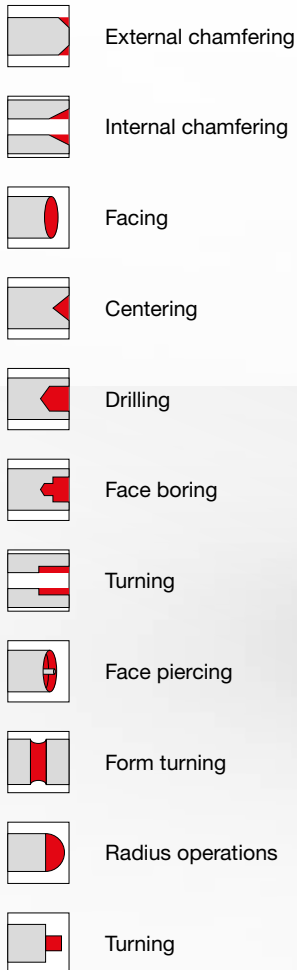


- + high level of stock availability*
- + extremely short delivery times*
- + one holder, flexible adaptation, maximum functionality*

Design, scheduling, production, stockholding and despatch are all in one location

Guhring has specialised in the GE 100 system production in Markt Erlbach. Multi-functional tooling systems have been manufactured at this location for in excess of 25 years – a proven concept. The division pools expert user knowledge gained from the end machining sector and solves customer specific enquiries quickly and competently. Short delivery times, high stock availability and on-time delivery speak for themselves.

Multi-functional tooling systems for end machining



External chamfering

Internal chamfering

Facing

Centering

Drilling

Face boring

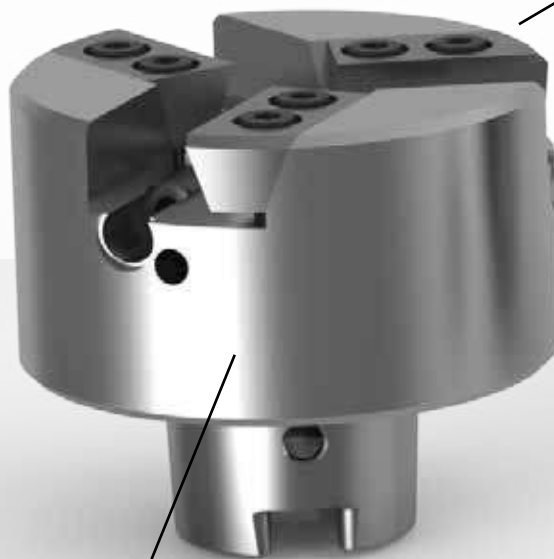
Turning

Face piercing

Form turning

Radius operations

Turning



Depending on the machining tasks, the **tool heads** (p. 21) are available with 2, 3, or 4 adaptors for tool holders.

Thanks to an interface on the short taper GE 100 tools can be **combined with all tool holders** (p. 35).

FIELDS OF APPLICATION

- Machining of pipes, shafts and housings
- Machining bars
- Stud machining
- Facing and centring as preparation for turning between centres

USERS

- Manufacturers of long tubes
- Manufacturers of pipe and valve fittings
- Automotive industry and engine manufacturers
- Armature industry
- Steel manufacturers

Bore for holding clamping sleeves for centre and step drills. Simple fitting of the drilling tool from the outside.

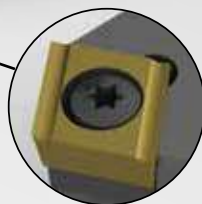
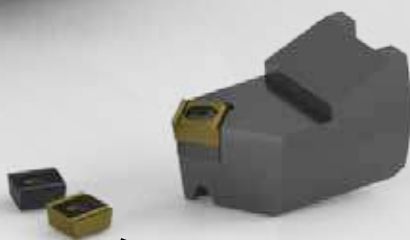
Basic body

Clamping wedge

Our clamping holders (p. 24) are **axially and radially adjustable**, via adjusting screws, making the machining of different workpiece diameters possible with only one tool.

Two to four axially and radially adjustable clamping holders in combination with a centre or step drill perform the complete machining in seconds.

Tool heads with five clamping holders or more are available on request.



Precision ground **ISO indexable inserts** (p. 36) with application oriented chip breaker (index accuracy $\pm 0.013\text{mm}$).

Combine up to 5 OPERATING STEPS
with only one TOOL!

STEEL

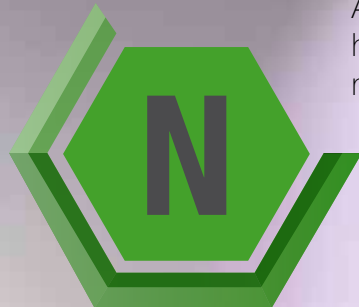
general steel types from low to high tensile strength (500-1400 N/mm²); high tensile strength heat treatable steels and tool steels (up to 48 HRC); hardened steels and chilled cast iron in excess of 63 HRC



CAST IRON

Cast iron types such as grey cast iron (GG25), spheroidal graphite iron, malleable cast iron and cast steel alloys, abrasive special cast alloys





ALUMINIUM

Aluminium wrought alloys;
high tensile aluminium; cast silicon aluminium;
non-ferrous metals



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ADVANTAGES

- + great flexibility thanks to modular design
- + combining several operating steps
- + simple handling
- + precise run-out and concentricity
- + versatile ISO indexable insert range



AUTOMOTIVE

Special requirements – multi-functional solutions

Many different components in vehicles of any type incorporate countless pipes and shafts. In addition, a large number of housings require multiple operating steps in various materials.

The modular design of the GE 100 system enables the assembly of the modular tool from standard products. Individual customer solutions are designed according to the machining strategy of the user. Inserts in different tool material qualities, various coatings as well as insert and tool geometries also allow the economically efficient machining of a large number of materials.



Application examples

- Pneumatic springs
- Side impact protection
- Transmission housings
- Camshaft and balance shaft ends
- Hydro-mountings
- Seat cross struts
- Stub axles
- Drive shafts
- Shock absorber body and pistons
- Fuel and oil lines, injection systems, brake lines
- Anti-roll bars

CHALLENGE

Seat cross strut



When machining hardened and tempered tubes for vehicle seats special conditions demand that the finished diameters and lengths are provided with corresponding chamfers and tolerances. The process requires DIN ISO indexable inserts as well as good chip evacuation.



tool
1



tool
2

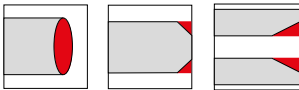
V_c : 120 m/min
 f_n : 0,15 mm/rev.
 a_p : 2 mm

Two tool heads machine the left and the right side with only two holders for a good chip flow. For the turning operation two indexable inserts on each head enable high feed rates and therefore have a positive effect on the chip formation.

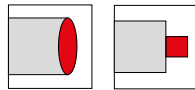
CHALLENGE

OUR SOLUTION

tool
1



tool
2



ADVANTAGES

- Standard DIN ISO indexable insert
- Quick-change system on tool head
- Short chips and good chip flow guarantee process reliability
- Uncomplicated and simple re-adjustment of tools
- Wear parts replaceable

Shock absorber



Facing, internal and external chamfering as well as turning a shock absorber reservoir tube in one operating step – and this with varying tube diameters,

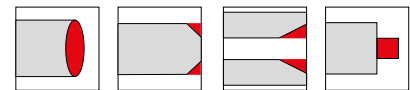


V_c : 220 m/min
 f_n : 0,2 mm/rev.
 a_p : 1 mm

GE 100 tool head with four holders, simultaneously tackling the machining steps. Clamping holders can be adjusted for various tube diameters.

CHALLENGE

OUR SOLUTION



ADVANTAGES

- Short cycle time thanks to machining in one operating step
- Machining of different tube diameters with one tool
- Setting gauge enables quick modification to other tube diameters
- DIN ISO precision inserts ensure a clean and accurate workpiece surface finish

Brake line

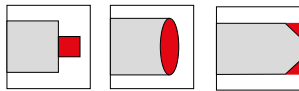


Turning a brake line made of three different materials. The aluminium steel core must not be damaged.



V_c : 100 m/min
 f_n : 0,2 mm/rev.
 a_p : 1 mm

One **tool head with guide bracket** supports the brake line during the machining process. Consequently, only the plastic coating and a thin layer of the core is removed. In addition, facing and chamfering operations are performed in the same operating step.



- The guide bracket prevents the workpiece from deviating
- Multiple operating steps are carried out simultaneously
- Economic solution with DIN ISO indexable inserts
- With this system it is possible to even machine workpieces protruding far out of the clamping device

Valve body

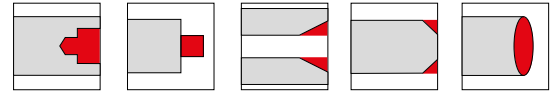


When machining aluminium valve bodies, several diameters and chamfers have to be machined in one operating step and with the shortest cycle times. The tooling concept should include a drilling tool. Furthermore, the fine adjustment of the diameter tolerances must be provided.

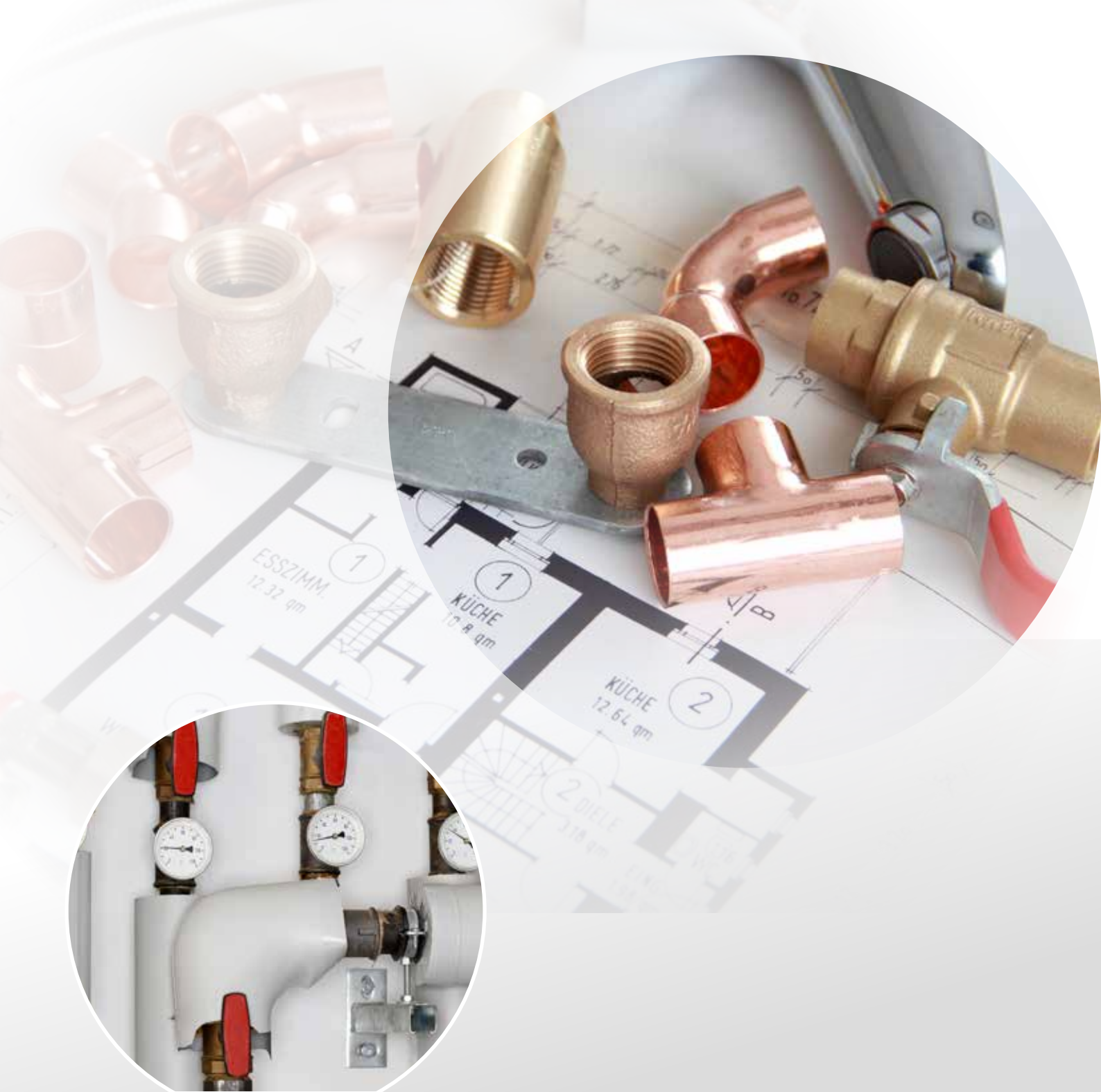


V_c : 250 m/min
 f_n : 0,3 mm/rev.
 a_p : 5 mm

Tool heads with internal cooling connection and centre bore. The holders are designed with two inserts for large turning operations. The symmetrical construction permits high speed application.



- Total machining process with one stroke
- Extremely short cycle time
- Internal cooling optimises chip flow
- Smooth operation even at high speed
- Application of DIN ISO indexable inserts
- Low tool inventory
- Stable process despite a wide variety of settings
- Quick conversion and modification of tools



SANITARY AND BUILDING TECHNOLOGY

Pipes and containers for the sanitary and building technology are often manufactured by machining processes. The multi-functional tooling system GE 100 provides economical machining.

Application examples

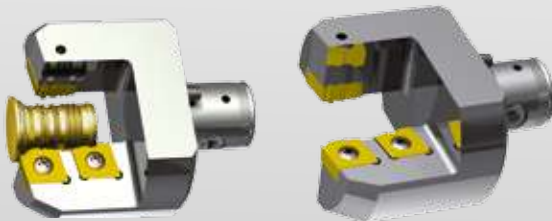
- Water pipelines
- Pipe fittings
- Armatures
- Toilet seat fittings
- Heating manifolds
- Water cylinders

CHALLENGE

Pipe fittings and pipes



Manufacture of complex profile contours on the simplest of machines in only one operating step.



V_c : 170 m/min
 f_n : 0,25 mm/rev.
 a_p : 2 mm

Tool head with profile inserts. The geometry of the insert corresponds with the finished contour. To keep the cutting forces low, the contour is distributed over three inserts.



OUR SOLUTION

ADVANTAGE

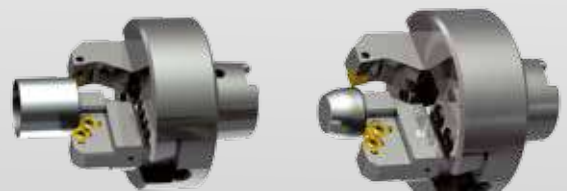
- High-quality profiled components can be manufactured on a simple machine
- Thanks to exchangeable form inserts the tool is always available as a standard item
- A consistent level of quality is ensured
- Easy handling guarantees process reliability
- Various coatings allow flexible machining of different materials

CHALLENGE

Pipes for flushing cisterns

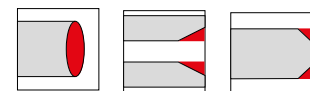


Stainless steel formed pipes must have precisely defined chamfer widths. The out-of-roundness of the pipes is however often up to 1 mm and leads to an inaccurate chamfer geometry. In extreme cases a sharp edge remains. The scrap rate is in excess of 50%.



V_c : 50 m/min
 f_n : 0,1 mm/rev.
 a_p : 3 mm

GE 100 with linear guided floating holder for internal and external facing as well as length-adjustable chamfer tool holder. The linear guidance prevents tilting and ensures consistent chamfer geometry. The chamfer length is set via a length-adjustable chamfer tool holder.



OUR SOLUTION

ADVANTAGE

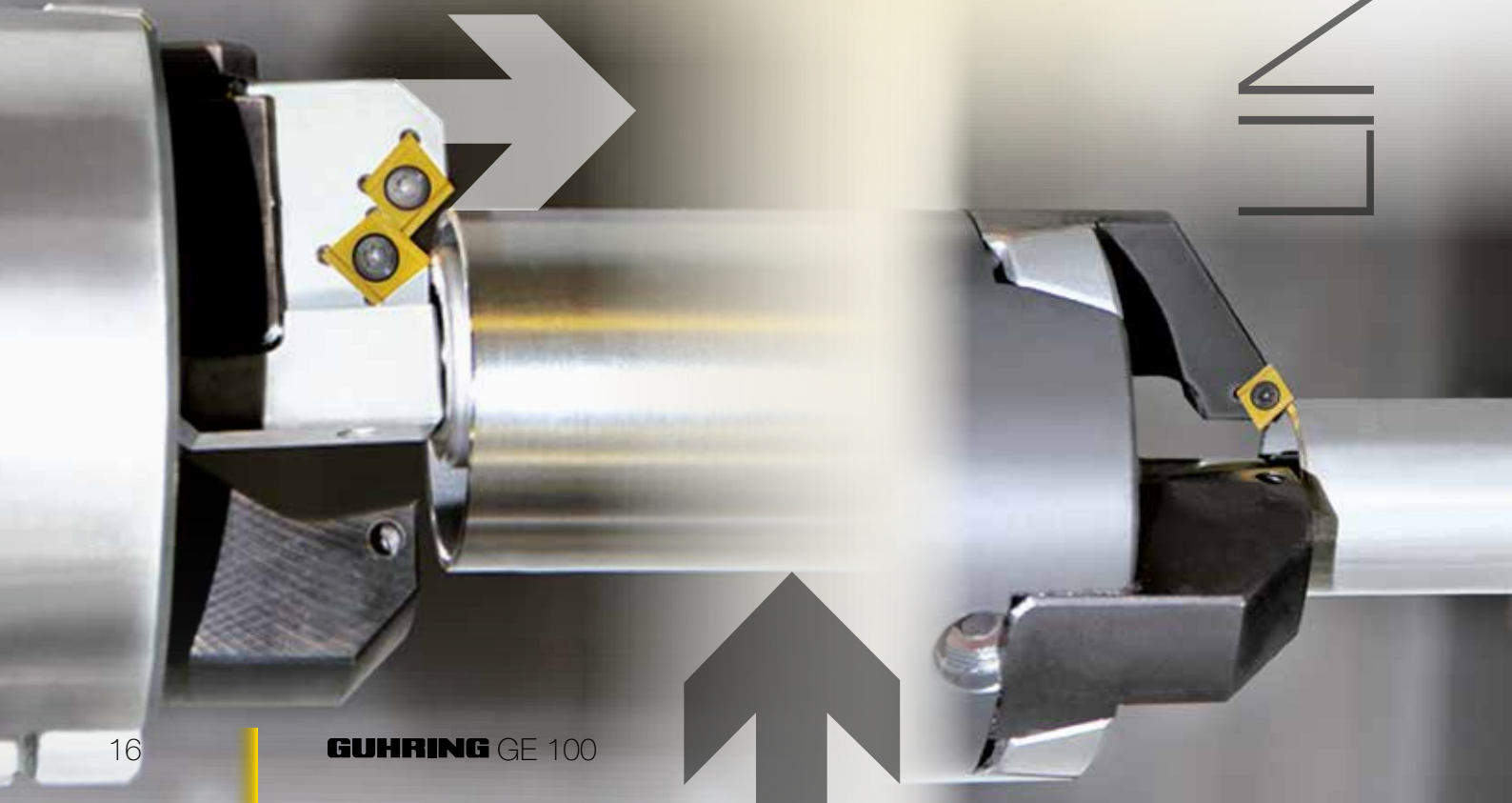
- Process reliable production of a defined chamfer
- Considerable reduction in scrap rate of up to 95%
- Application of standard DIN ISO indexable inserts
- Uncomplicated tool simplifies the work of machine operators

GE 100 FLOATING HOLDERS

Guhring's GE 100 floating holder is the optimal solution for end machining of 'out-of-roundness' pipes such as facing, internal and external chamfering in one operating cycle. Thanks to the Guhring developed sprung floating holder clean and consistent chamfers are achieved even with extremely out-of-roundness pipes.

- Compensates for out-of-roundness and wall thickness differences of pipes
- Consistent chamfer width especially with small chamfers
- Compensates inaccuracies of rotating axis to clamping axis
- Combines several operating steps
- More floating travel possible
- Suitable for extremely thin pipes
- Thanks to various adapters suitable for use on any machine

CONCENTRICITY
LINEAR

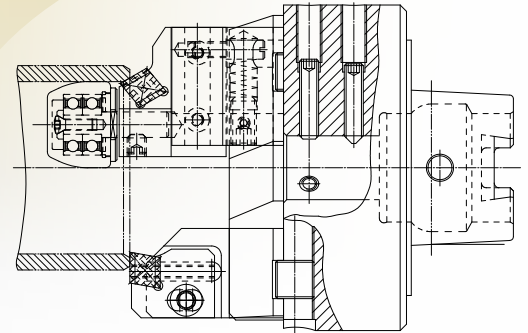




LINEAR FLOATING HOLDERS

Linear sprung floating holders are especially well suited to a large pendulum stroke. The linear guidance prevents the pendulum being pushed away and therefore guarantees a consistent chamfer angle.

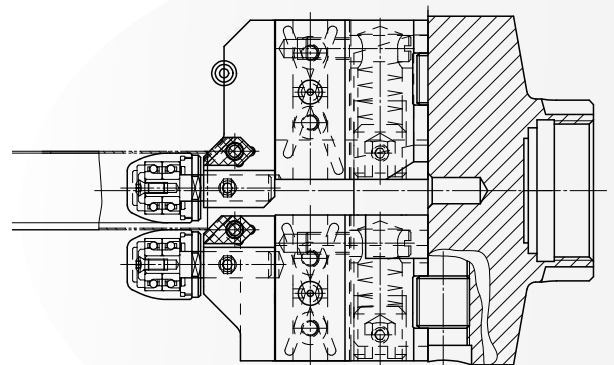
Linear floating holders are currently available as a special tool.



Linear sprung floating holder

EXTERNAL AND INTERNAL FLOATING HOLDERS

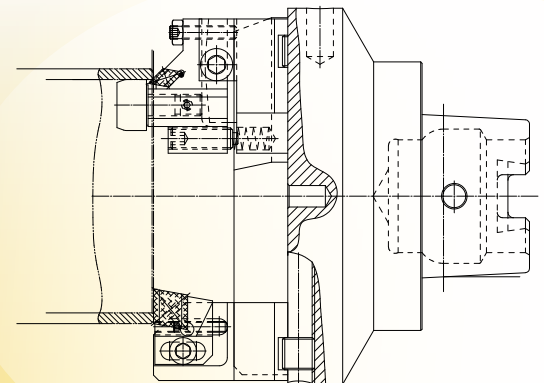
For extremely thin-walled pipes and small chamfers – the newly developed external and internal floating holder. Pipes with $\varnothing 18 \times 1$ and max. $0.05 \times 45^\circ$ chamfer are not a problem.



Linear sprung floating holder

CLASSIC FLOATING HOLDERS

Classic floating holders are pivoted by a bolt and suitable for the internal chamfering from an internal pipe diameter of 14 mm. They can be ordered via the standard GE 100 range.



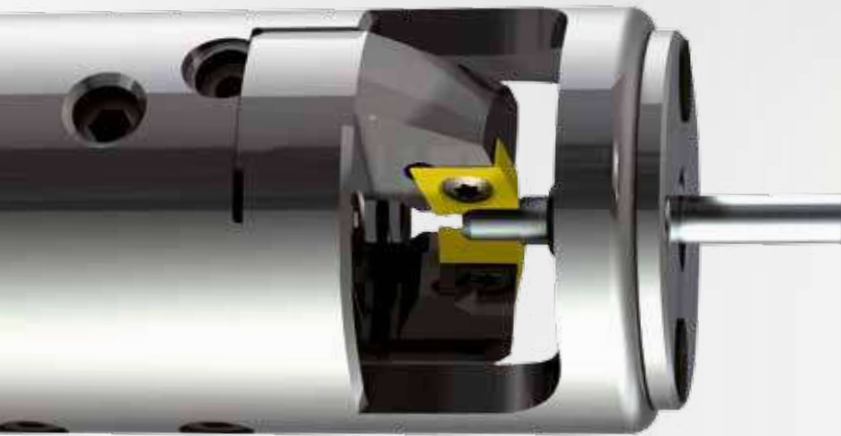
Floating holder pivoted by bolt

All floating holders are clamped on GE 100 tool heads. They allow the adaptation to all recognised machine holders and quick-change systems.

SPECIAL SOLUTIONS

GE 100 with guide bracket

A sealed grooved ball bearing with a guide bushing guarantees absolutely accurate concentricity. Radial adjustable tool holders allow the precise setting of the diameter and the chamfer.



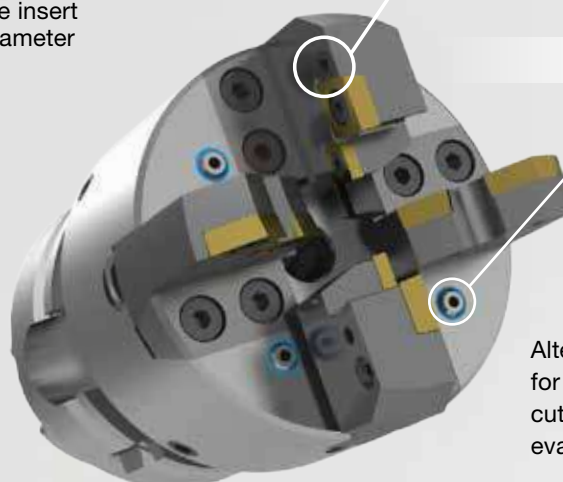
ADVANTAGES AT A GLANCE:

- Machining of long, slender components
- Protrusion length 10xD
- Large material removal in one operating step
- Tool and workpiece stabilise each other
- Rigid clamping for minimal indexable insert wear

GE 100 with threaded wedge adjustment

- Adjustable indexable inserts for maximum accuracy
- Simple indexable insert adjustment possibilities thanks to threaded wedge adjustment (TWA)
- Adjustment range of indexable insert with TWA is up to 0.30 mm diameter

TWA adjustment



Cooling

Alternative with cooling elements for providing coolant to the cutting edge and to improve chip evacuation.



Form operations

Special solutions for special demands

Standard stocked insert blanks can be formed quickly and individually to the machining task.

BF 100

Drilling, chamfering and facing in one operating step.

Flexible positioning of indexable inserts to flute geometries of drilling tools in order to provide good chip evacuation.



Coning in no time at all

Simple, quick and clean –

with Guhring's new coning device for the machining of shafts the ends of round materials can now be machined in no time at all. The coning device is simply clamped on a commercially available handheld drill.

There is a choice of two semi-standard coning device designs with 45° chamfer angle:

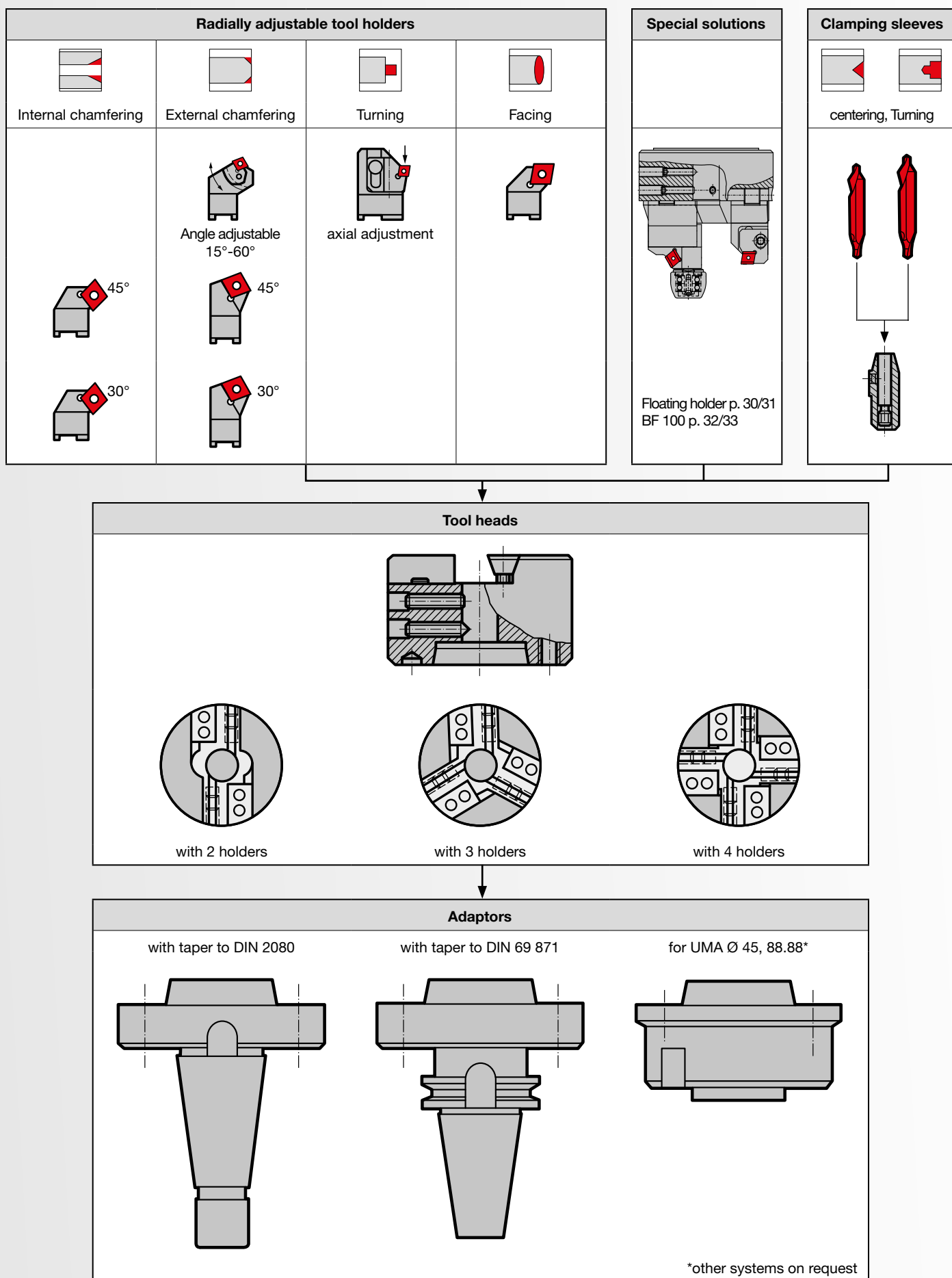
- One design for material diameter 4 to 14 mm with DIN indexable insert CC..09T3...
- One design for material diameter 14 to 30 mm with DIN indexable insert DCMT 1504...



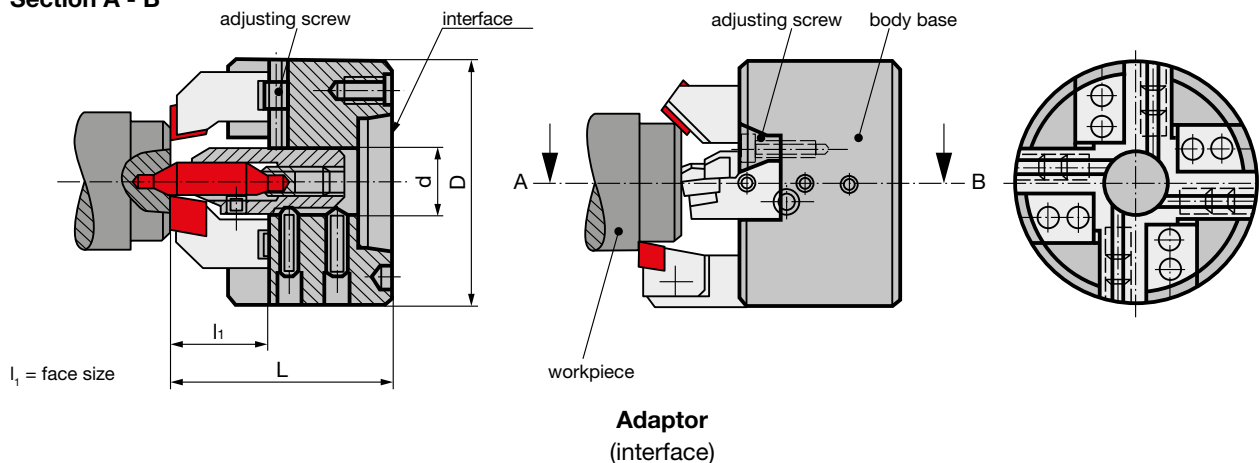
Setting device

Quick and simple adjustment with the GE 100 setting device.

SYSTEM CHARACTERISTICS



Section A - B

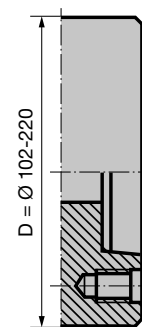
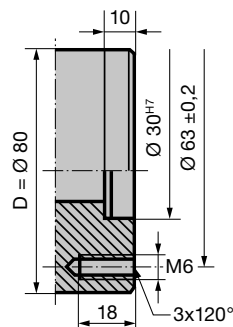
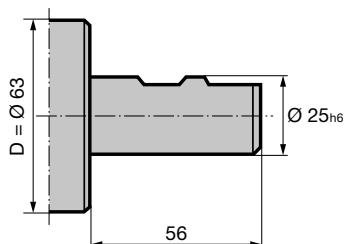
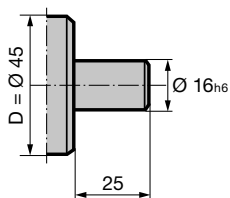


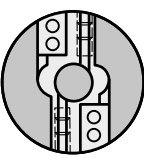
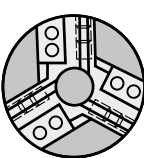
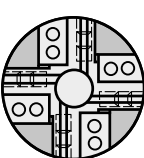
Ø 16x25

B25 DIN 1835

Ø 30x10 deep

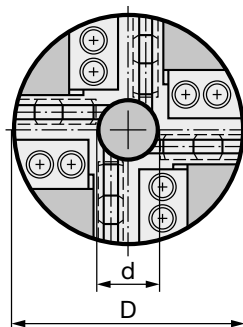
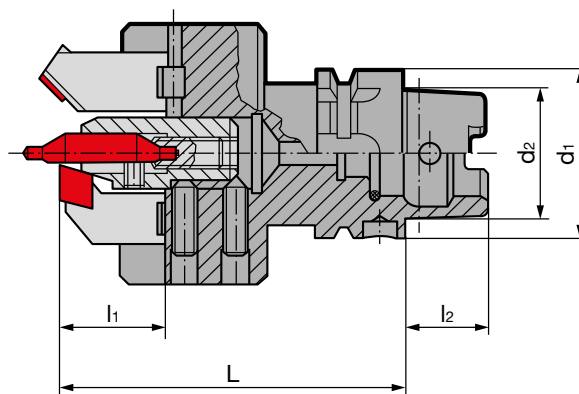
C3 ... C8
DIN 55028



Tool head	Size	Code no.*	Availability	Dimensions				Adaptor (Interface)	V-wedge Guh. no. 6021 Code no.*	Adjust. screw Guh. no. 6022 Code no.*
				D mm	d mm	L mm	l1 mm			
	I	45,002	●	45	10.0	50	27	Ø 16 x 25	45,000	8,000
									54,000	
									63,001	
	II	63,002	●	63	10.0	50	27	B25 DIN 1835	63,000	8,000
		80,002	●	80	20.0	75	35	Ø 30 x 10 deep	80,000	12,000
		102,002	●	102	20.0	80	35	C3 DIN 55028	102,000	12,000
	III	112,002	●	112	31.5	100	45	C4 DIN 55028	112,000	12,000
	I								63,001	
		63,003	●	63	10.0	50	27	B25 DIN 1835	63,000	8,000
	II	80,003	●	80	20.0	75	35	Ø 30 x 10 deep	80,001	12,000
		102,003	●	102	20.0	80	35	C3 DIN 55028	102,000	12,000
	III	112,003	●	112	31.5	100	45	C4 DIN 55028	112,000	12,000
		140,003	●	140	31.5	105	45	C5 DIN 55028	140,000	12,000
	IV									
	II	102,004	●	102	20.0	80	35	C3 DIN 55028	102,001	12,000
		112,004	●	112	31.5	100	45	C4 DIN 55028	112,001	12,000
	III	140,004	●	140	31.5	105	45	C5 DIN 55028	140,001	12,000
									170,000	
	IV	170,004	○	170	50.0	160	60	C6 DIN 55028	170,001	16,000
		220,004	○	220	50.0	175	60	C8 DIN 55028	220,000	16,000

*) When ordering, please always state Guhring no. and code no.!

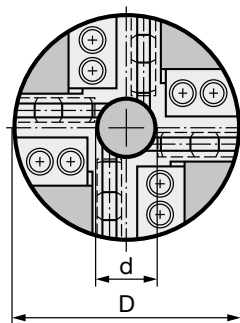
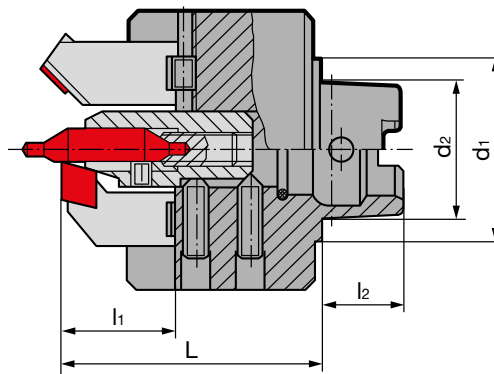
● on stock ○ on request



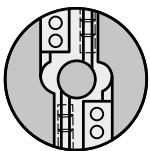
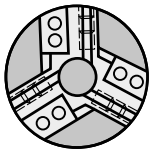
Tool head
with HSK-holder,
form **A**
automatic

Tool head	Size	Code no.*	Dimensions							HSK-holder
			D mm	d mm	d ₁ mm form A	d ₂ mm	L mm form A	l ₁ mm	l ₂ mm	
2 Clamp. holders form A Guh. no. 6041	I	45,032	45	10.0	32	24	85	27	16	32
		63,040	63	10.0	40	30	85	27	20	40
	II	80,050	80	20.0	50	38	105	35	25	50
		102,063	102	20.0	63	48	105	35	32	63
	III	112,080	112	31.5	80	60	131	45	40	80
		140,100	140	31.5	100	75	131	45	50	100
3 Clamp. holders form A Guh. no. 6042	I	63,040	63	10.0	40	30	85	27	20	40
	II	80,050	80	20.0	50	38	105	35	25	50
		102,063	102	20.0	63	48	105	35	32	63
	III	112,080	112	31.5	80	60	131	45	40	80
		140,100	140	31.5	100	75	131	45	50	100
4 Clamp. holders form A Guh. no. 6043	II	102,063	102	20.0	63	48	105	35	32	63
	III	112,080	112	31.5	80	60	131	45	40	80
		140,100	140	31.5	100	75	131	45	50	100

*) When ordering, please always state Guhring no. and code no.!

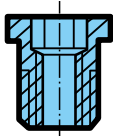
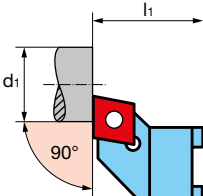
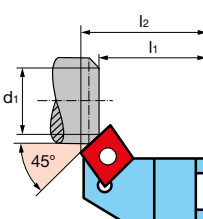


Tool head
with HSK-holder.
form C
manual
with increased
locating face

Tool head	Size	Code no.*	Dimensions							HSK-holder
			D mm	d mm	d1 mm form C	d2 mm	L mm form C	l1 mm	l2 mm	
2 Clamp. holders	I	45,032	45	10.0	40	24	59	27	16	32
form C Guh. no. 6031		63,040	63	10.0	50	30	59	27	20	40
	II	80,050	80	20.0	63	38	75	35	25	50
		102,063	102	20.0	80	48	75	35	32	63
	III	112,080	112	31.5	100	60	100	45	40	80
		140,100	140	31.5	125	75	100	45	50	100
3 Clamp. holders	I	63,040	63	10.0	50	30	59	27	20	40
form C Guh. no. 6032	II	80,050	80	20.0	63	38	75	35	25	50
		102,063	102	20.0	80	48	75	35	32	63
	III	112,080	112	31.5	100	60	100	45	40	80
140,100		140	31.5	125	75	100	45	50	100	
4 Clamp. holders	II	102,063	102	20.0	80	48	75	35	32	63
form C Guh. no. 6033	III	112,080	112	31.5	100	60	100	45	40	80
		140,100	140	31.5	125	75	100	45	50	100

*) When ordering, please always state Guhring no. and code no.!

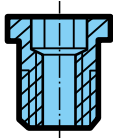
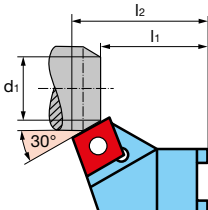
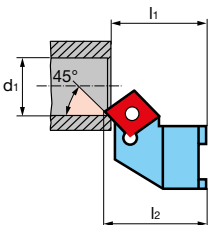
Clamping holders, radially adjustable

Clamp. holders type	Code no.*	Facing size	Total length	Machining dia. range	for Tool head		for insert type	Spare parts		
					D mm	Size		Tungst. carb. base	Threaded ring	Clamp. screw
								Guh. no. 6126 Code no.	Guh. no. 6127 Code no.	Guh. no. 6128 Code no.
										
Guh. no. 6101  Holder for facing operations 	11,006	27	-	0 - 20	45	I	CCH...0602	-	-	2,501
	12,006			5 - 35	63					3,500
	11,009			0 - 30	63					
	21,009	35	-	0 - 22	45	II	CCH...0973	9,000	5,000	3,501
	22,009			0 - 40	63					
	21,012			0 - 25	80					
	22,012			0(8**) - 44	102					
	31,012			10 - 40	80					
	32,012			10(17**) - 62	102					
	31,016	45	-	0 - 30	80	III	CNH...1204	12,000	6,000	4,000
	32,016			0(8**) - 50	102					
	41,016			12 - 40	80					
	42,016	60	-	13 - 62	102	IV	CNH...1606	16,000	8,000	5,000
	31,012			0 - 40	112					
	32,012			0 - 70	140					
	31,016			35 - 70	112					
	32,016			35 - 100	140					
	41,016			0 - 46	112					
42,016	0 - 76	140								
41,019	-	-	35 - 80	112	IV	CNH...1606	16,000	8,000	5,000	
42,019			35 - 110	140						
41,016			0 - 80	170						
42,016	-	-	0 - 130	220	IV	CNH...1606	19,000	8,000	5,000	
41,019			50 - 130	170						
42,019			50 - 180	220						
41,016			50 - 180	220						
Guh. no. 6102  Holder for ext. chamfering operations 	11,006	27	30.4	8 - 13	45	I	CCH...0602	-	-	2,501
	12,006			10 - 30	63					3,500
	11,009			12 - 17	45					
	12,009	32.7	-	15 - 34	63	II	CCH...0973	-	-	3,501
	21,009			8 - 12	45					
	22,009			9 - 30	63					
	21,012	35	40.7	12 - 16	45	II	CCH...0973	9,000	5,000	3,501
	22,012			13 - 34	63					
	31,012			9 - 23	80					
	32,012			9(18**) - 45	102					
	31,016			20 - 33	80					
	32,016			20(29**) - 55	102					
	21,012	43.0	-	9 - 20	80	III	CNH...1204	12,000	6,000	4,000
	22,012			9(17**) - 44	102					
	31,012			20 - 31	80					
	32,012	45	53.0	20(29**) - 55	102	IV	CNH...1606	16,000	8,000	5,000
	31,016			15 - 38	112					
	32,016			15 - 68	140					
41,016	60	63.3	38 - 60	112	IV	CNH...1606	16,000	8,000	5,000	
42,016			38 - 90	140						
41,016			15 - 38	112						
42,016	-	-	15 - 68	140	IV	CNH...1606	16,000	8,000	5,000	
41,016			38 - 60	112						
42,016			38 - 90	140						

*) When ordering, please always state Guhring no. and code no.!

**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

Clamping holders, radially adjustable

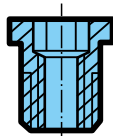
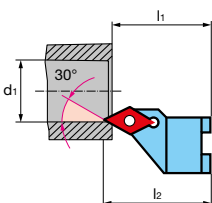
Clamp. holders type	Code no.*	Facing size	Total length	Machining dia. range	for Tool head		for insert type	Spare parts						
					D mm	Size		Tungst. carb. base	Threaded ring	Clamp. screw				
								Guh. no. 6126 Code no.	Guh. no. 6127 Code no.	Guh. no. 6128 Code no.				
														
		l1 mm	l2 mm	d1 min. d1 max. mm	D mm	Size								
Guh. no. 6103														
 Holder for ext. chamfering operations 	11,006	27	31.5	8 - 13	45	I	CCH...0602	-	-	2,501				
	12,006			10 - 30	63			-	-					
	11,009		34.3	8 - 12	45		CCH...0973	-	-	3,500				
	12,009			10 - 30	63			-	-					
	21,009	35	42.3	8 - 21	60	II		9,000	5,000	3,501				
	22,009			8(17**) - 43	102									
	21,012		45.0	8 - 20	80		CNH...1204				12,000	6,000	4,000	
	22,012			8(17**) - 43	102									
	31,012	45	55.1	15 - 38	112	III		CNH...1606	16,000	8,000				5,000
	32,012			15 - 68	140									
	31,016		57.9	38 - 60	112		15 - 68				140			
	32,016			38 - 90	140									
	41,016	60	70.9	36 - 72	170	IV	CNH...1204	12,001	6,000	4,000				
	42,016			36 - 124	220						71 - 114	170	71 - 166	220
	Guh. no. 6104													
	 Holder for int. chamfering operations 	11,006	27	29.0	7 - 15	45	I	CCH...0602	-	-	2,501			
		12,006			14 - 30	63		DCM...0702						
11,007		7 - 25			63									
12,007		7 - 15			45	CCH...0973		9,001			5,000	3,501		
11,009		14 - 30			63									
11,009		7 - 22			63									
21,009		35	36.5	15 - 27	80	II	CNH...1204	12,001	6,000	4,000				
22,009				15(23**) - 49	102									
21,012				25 - 35	80									
22,012				25(30**) - 57	102									
31,012		45	47.0	16 - 25	80	III	CNH...1606	16,001	8,000	5,000				
32,012				16(24**) - 46	102									
31,016				25 - 35	80									
32,016				25(30**) - 53	102									
31,012		45	48.0	15 - 40	112	III	CNH...1204	12,000	6,000	4,000				
32,012				15 - 70	140									
32,012				40 - 60	112									
32,012	40 - 90			140										
31,016	60	47.0	20 - 40	112	IV	CNH...1606	16,001	8,000	5,000					
32,016			20 - 70	140										
32,016			40 - 60	112										
32,016			40 - 90	140										
41,016	60	68.0	40 - 82	170	IV	CNH...1606	16,001	8,000	5,000					
42,016			40 - 132	220						78 - 120	170	78 - 170	220	

*) When ordering, please always state Guhring no. and code no.!

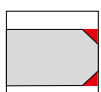
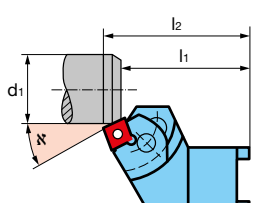
**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

Clamping holders

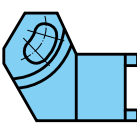
Clamp. holders, radially adjustable

Clamp. holders type	Code no.*	Facing size	Total length	Machining dia. range	for Tool head		for insert type	Spare parts				
					D mm	Size		Tungst. carb. base	Threaded ring	Clamp. screw		
								Guh. no. 6126	Guh. no. 6127	Guh. no. 6128		
								Code no.	Code no.	Code no.		
		l1 mm	l2 mm	d1 min. d1 max. mm	D mm	Size						
Guh. no. 6105	11,006	27	29.5	7 - 15	45	I	CCC...0602	-	-	2,501		
	12,006			15 - 30	63			DCM...0702	-		-	
Holder for int. chamfering operations	11,007			7 - 20	63				-		-	3,500
	12,007			7 - 15	63				-		-	
	11,009			14 - 17	45			-	-			
	21,009	35	36.5	18 - 35	63	II	CCH...0973	9,002	5,000	3,501		
				15 - 27	80							
				15(23**) - 49	102							
	22,009		25 - 38	80								
			25(35**) - 60	102								
	21,012	38.0	16 - 25	80		CNH...1204	12,002	6,000	4,000			
			16(24**) - 46	102								
	22,012		26 - 36	80								
			26(36**) - 58	102								
	31,012	45	48.0	15 - 40	112	III	CNH...1606	16,002	8,000	5,000		
				15 - 70	140							
	32,012			40 - 60	112							
				40 - 90	140							
31,016	20 - 40			112								
	20 - 70	140										
32,016	40 - 60	112										
	40 - 90	140										
41,016	60	70	40 - 82	170	IV		-	-				
			40 - 132	220								
42,016			78 - 120	170		16,000	8,000					
			78 - 170	220								

Clamping holders, axially, radially and angular adjustable

Clamp. holders type	Code no.*	Angle adjust-ment range N min. max	Dimensions		Machining dia. range d1 min. d1 max. mm	for Tool head		for insert type
			l1 mm	l2 mm		D mm	Size	
Guh. no. 6111  Holder with adjustable angle for external chamfering 	80,000	15° - 60°	35	39.5	12 - 21	80	II	CCH...0602
					12 - 44	102		
	112,00	15° - 60°	45	54.5	16 - 35	112	III	CNH...1204
					16 - 65	140		
	170,00	15° - 60°	60	76.5	30 - 67	170	IV	CNH...1906
					30 - 120	220		

Components for Guhring no. 6111

Basic holder	Code no.*	Holder inserts	Code no.*	Clamping screw	Code no.*	for holder Guhring no. 6111 Code no.*
Guh. no. 6112		Guh. no. 6113		Guh. no. 6128		
	80,000		20,006		2,501	80,000
	112,000		30,012		4,002	112,000
	170,000		40,019		5,000	170,000

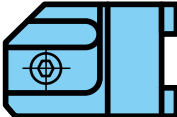
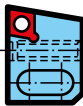
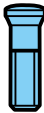
*) When ordering, please always state Guhring no. and code no.!

**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

Clamping holders, axially, radially and angular adjustable

Clamp. holders type	Length adjustment range		Code no.*	Facing size l1 mm	Machining dia. range** d1 min. d1 max. mm	for Tool head		for insert type				
	l2 min. mm	l2 max. mm				D mm	Size					
Guh. no. 6114	35 - 42		80,000	35	11.0 - 25.0	80	II	CCH...0602				
 Holder for turning operations axially and radially adjustable	42 - 49	80,001	4.0 - 28.0						102	CNH...1204		
	49 - 56	80,002									CCH...09T3	
	35 - 45	102,000										
	45 - 55	102,001										
	55 - 65	102,002										
	40 - 50	102,003										
	50 - 60	102,004										
	60 - 70	102,005										
	40 - 50	102,013										
	50 - 60	102,014										
	60 - 70	102,015										
	45 - 55	112,000	45		6.0 - 35.0	112		III	CNH...1204			
	55 - 65	112,001								6.0 - 65.0	140	CCH...09T3
	65 - 75	112,002										
	45 - 55	112,010										
	55 - 65	112,011										
65 - 75	112,012											

Components for Guhring no. 6114

Basic holder	Code no.*	Holder inserts	Code no.*	Clamping screw	Code no.*	for holder Guh. no. 6114 Code no.*	
Guh. no. 6115		Guh. no. 6116		Guh. no. 6128			
	80,000		20,006		2,501	80,000	
	80,001					80,001	
	80,002					80,002	
	102,000		23,006		2,501	102,000	
	102,001					102,001	
	102,002					102,002	
	102,000		23,012		4,002	102,003	
	102,001					102,004	
	102,002					102,005	
	102,000		23,009		3,500	102,013	
	102,001					102,014	
	102,002					102,015	
	112,000		23,012		4,002	112,003	
	112,001					112,004	
	112,002					112,005	
	112,000		23,009		3,500	112,010	
	112,001					112,011	
	112,002					112,012	

*) When ordering, please always state Guhring no. and code no.! **) without clamping sleeve

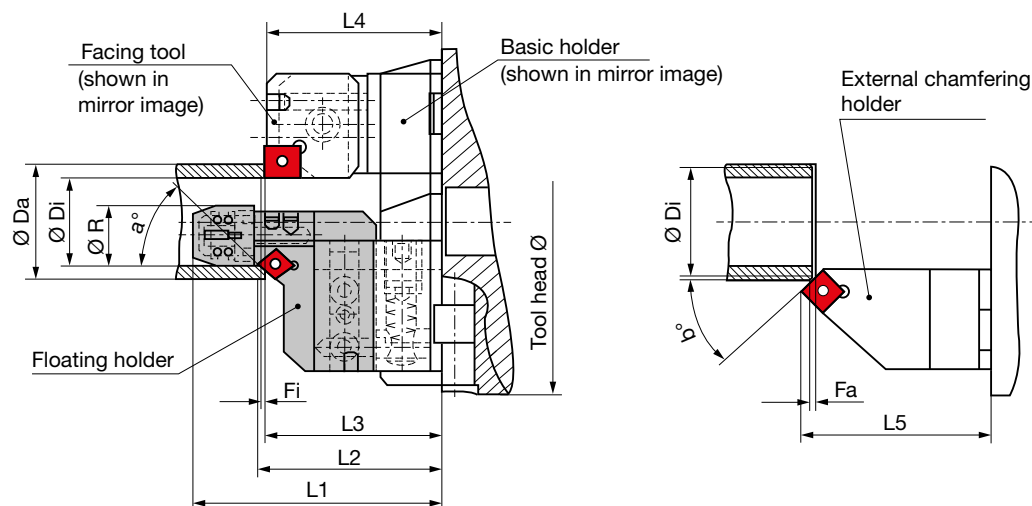
Floating holder

For tool heads from Ø 102 (Size II)

For tool heads from Ø 140 (Size III)

Piston stroke 2.5 mm

Chamfering length max. 3 mm



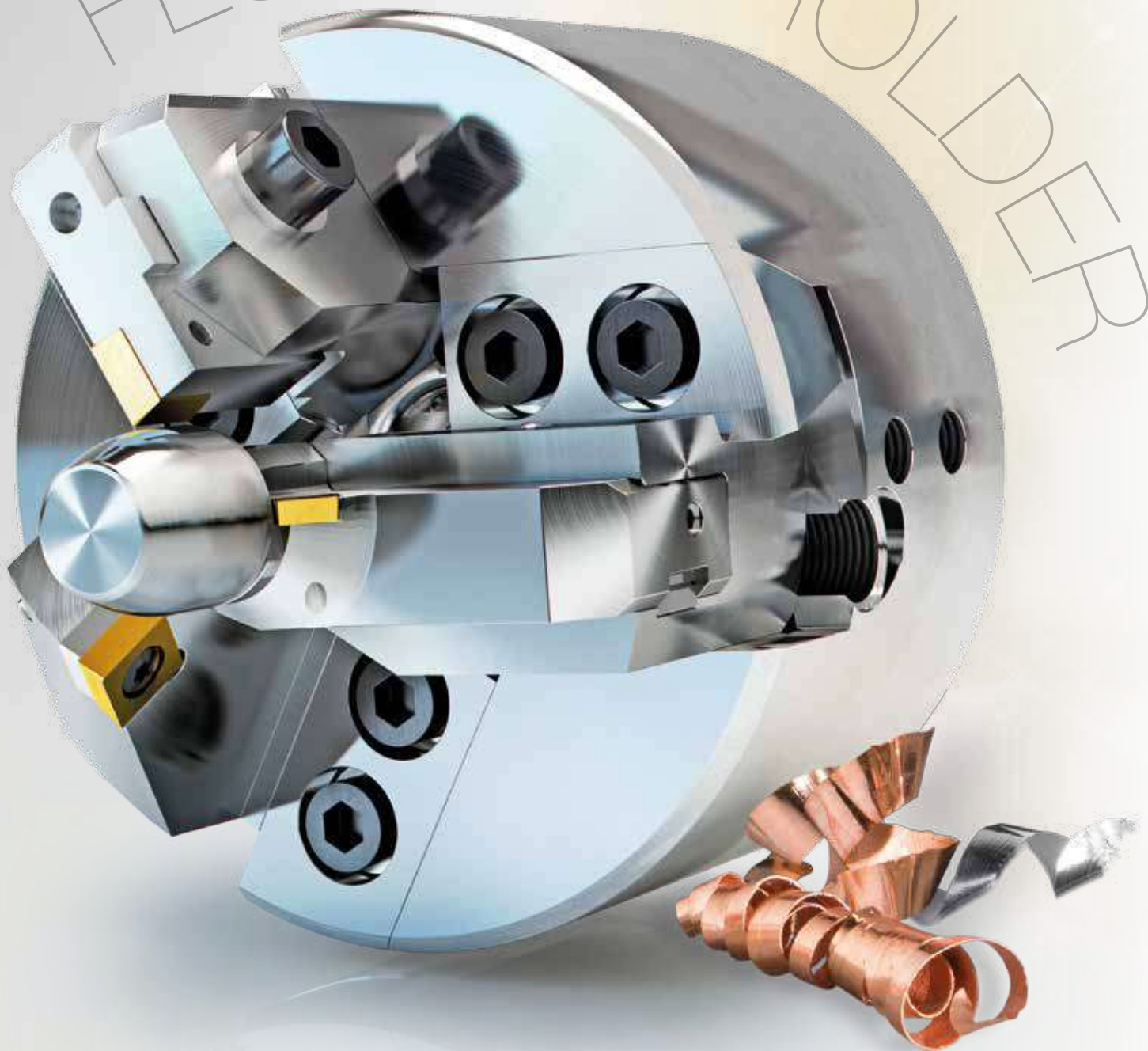
Floating holder											
Drawing no.	Material No.	Size	$\varnothing Di$	$\varnothing R$	α°	Fi max.	$L1$	$L2$	$L3$	Insert	Tool head $\varnothing$
GI 0602 2059 R	302 731 463	II	20-40	18	45°	3	69	50.5	47-50	CC .. 0602..	102
GI 0602 2061 R	302 731 464	II	20-40	18	30°	3	69	50.5	47-50	CC .. 0602..	102
GI SC09 2027 R	302 731 465	II	40-60	27	45°	3	70.5	50.7	47-50	SC .. 09T3..	102
GI SC09 2029 R	302 731 466	II	40-60	27	30°	3	70.5	50.7	47-50	SC .. 09T3..	102
GI SC09 3003 R	302 731 471	III	50-98	27	45°	3	72.5	52.7	49-52	SC .. 09T3..	140
GI SC09 3004 R	302 731 472	III	50-98	27	30°	3	72.5	52.7	49-52	SC .. 09T3..	140

Facing tool						
Drawing no.	Material No.	Size	$\varnothing Da - \varnothing Di$	$L4$	Insert	Tool head $\varnothing$
GP SC09 2013 R	302 732 245	II	20-57	47-50	SC .. 09T3..	102
GP SC09 2014 R	302 732 246	II	40-74	47-50	SC .. 09T3..	102
GP SC09 2013 R	302 732 245	III	48-115	49-52	SC .. 09T3..	140

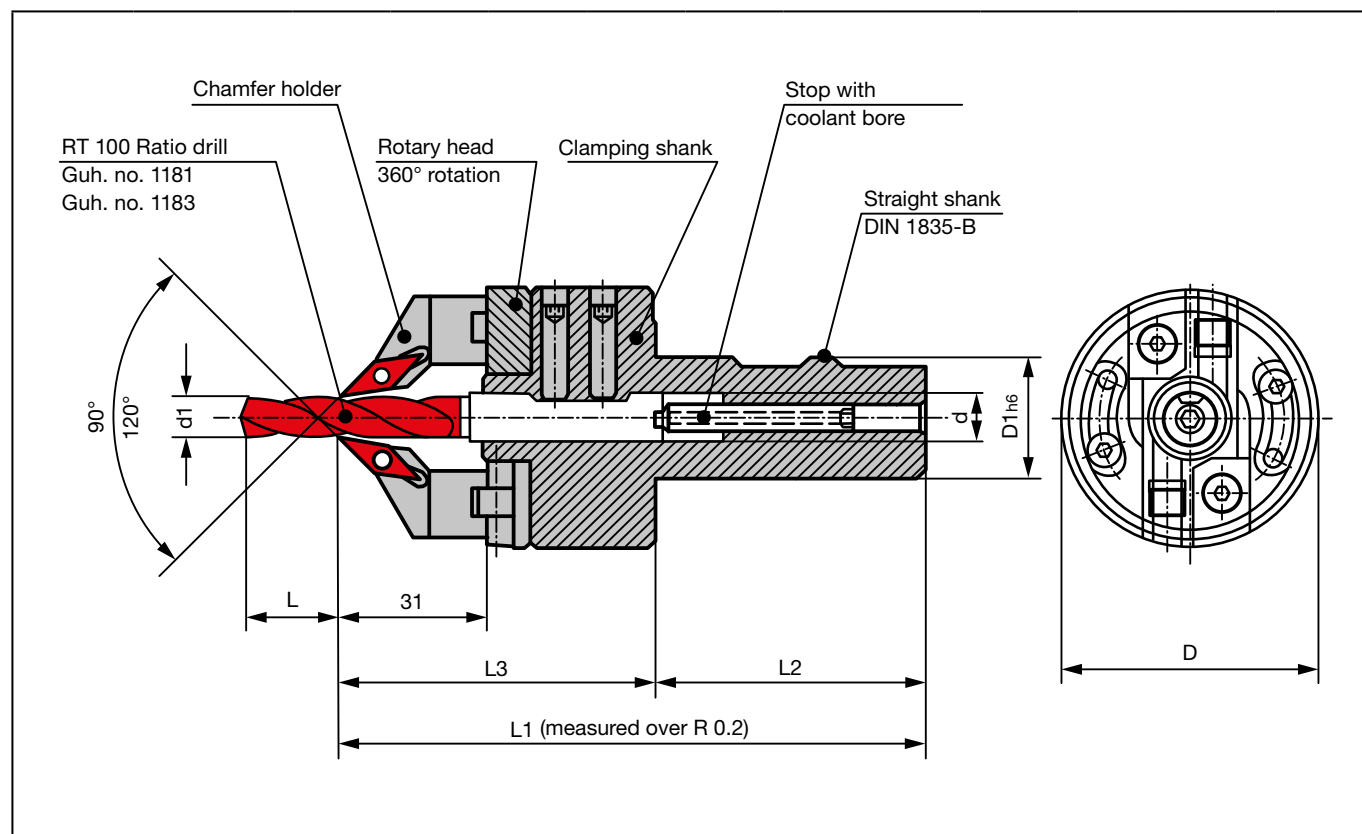
Basic holder						
Drawing no.	Material No.	Size	$\varnothing Da - \varnothing Di$	$L3$	Insert	Tool head $\varnothing$
X 12 196	302 732 244	II	20-74	47-50	SC .. 09T3..	102
X 12 197	302 732 251	III	48-115	49-52	SC .. 09T3..	140

External chamfering holder								
Drawing no.	Material No.	Size	$\varnothing Di$	β°	$L5$	Fa max.	Insert	Tool head $\varnothing$
GA SC09 2034 R	302 732 247	II	28-48	45°	53.2	3	SC .. 09T3..	102
GA SC09 2035 R	302 732 248	II	48-68	45°	53.2	3	SC .. 09T3..	102
GA SC09 2036 R	302 732 249	II	28-48	30°	53.5	3	SC .. 09T3..	102
GA SC09 2037 R	302 732 250	II	48-68	30°	53.5	3	SC .. 09T3..	102
GA SC09 3009 R	302 732 252	III	56-111	45°	55.2	3	SC .. 09T3..	140
GA SC09 3010 R	302 732 253	III	58-112	30°	55.5	3	SC .. 09T3..	140

FLOATING HOLDER

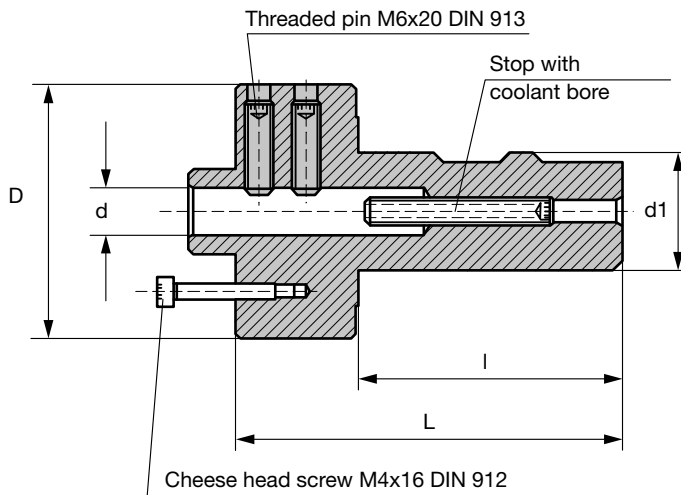


BF 100 modular drilling and chamfering tool



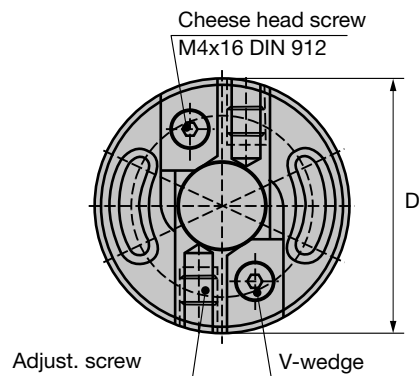
Size	Shank d Ø h6	Drilling Ø d1		Drilling depth L Guhring no.				Dimensions				
		from	up to	1181		1183		D1	D	L1	L2	L3
106	6	5.0	6.0			12	17	25	54	122	56	66
108	8	6.1	8.0	2	14	14	26					
110	10	8.1	10.0	15	24	29	38					
112	12	10.1	12.0	22	36	38	52					
114	14	12.1	14.0	26	41	43	58					
214	14	12.1	14.0	26	40	43	57	32	63	135	50	75
216	16	14.1	16.0	31	46	49	64					
218	18	16.1	18.0	39	55	59	75					
220	20	18.1	20.0	44	62	66	84					

Clamping shank with adapter DIN 1835 form B
Guh. no. 6500



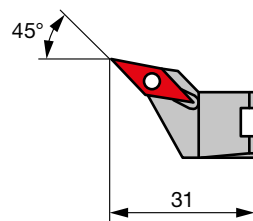
Size	Code no.	Price €	Dimensions mm				
			d	L	I	D	d1
106	25,006	221.00	6	82	56	54	25
108	25,008		8				
110	25,010		10				
112	25,012		12				
114	25,014		14				
214	32,014	237.00	14	95	60	63	32
216	32,016		16				
218	32,018		18				
220	32,020		20				

Rotary head 360°
Guh. no. 6510

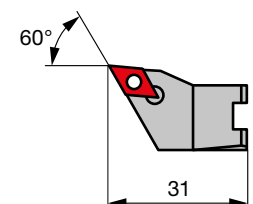


Size	Code no.	Price €	Dimensions mm	
			D	
106-114	54,000	317.00	54	
214-220	63,000	351.00	63	
Spare parts				
	V-wedge Guhring no. 6021		Adjusting screw Guhring no. 6022	
Size	Code no.	Price €	Code no.	Preis €
106-114	54,000	47.00	8,000	13.10
214-220	63,001	47.00	8,000	13.10

Chamfer holder 90°
Guh. no. 6520

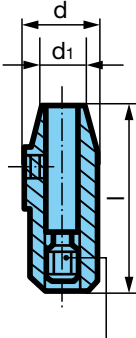


Chamfer holder 120°
Guh. no. 6521



			Spare parts clamping screws		Insert type
Size	Code no.	Price €	Guh. no. 6128 Code no.	Price €	
for all sizes	12,090	228.00	2.501	2.10	VBM..1102..
	12,120	228.00	2.501	2.10	DCM..0702..

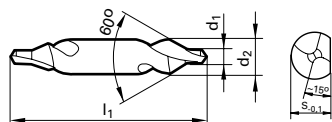
Clamping bushes

Version	Guhring no.	Code no.*	Dimensions			for centre drills		for step drills	Stop (component) (Spare part Guh. no. 6155)
			d1 mm	d mm	l mm	form A/R drill-Ø	form B drill-Ø		Code no.*
	Guh. no. 6155	4,000	4.0	10.0	32	1.6	–	–	6,000
	for size I	5,000	5.0	10.0	32	2.0	–	–	6,001
		6,300	6.3	10.0	32	2.5	1.6	–	6,002
	Guh. no. 6152	4,000	4.0	20.0	49	1.6	–	–	10,000
	for size II	5,000	5.0	20.0	49	2.0	–	–	10,001
		6,300	6.3	20.0	49	2.5	1.6	–	10,002
		8,000	8.0	20.0	49	3.15	2.0	M 4	10,003
		10,000	10.0	20.0	49	4.0	2.5	M 5	10,004
	Guh. no. 6153	6,300	6.3	31.5	70	2.5	1.6	–	12,000
	for size III	8,000	8.0	31.5	70	3.15	2.0	M 4	12,001
		10,000	10.0	31.5	70	4.0	2.5	M 5	12,002
		11,200	11.2	31.5	70	–	3.15	–	12,003
		12,500	12.5	31.5	70	5.0	–	M 6	12,004
		14,000	14.0	31.5	70	–	4.0	M 8	12,005
		16,000	16.0	31.5	70	6.3	–	M 10	12,006
		18,000	18.0	31.5	70	–	5.0	–	12,007
	Guh. no. 6154	18,000	18.0	50.0	116	–	5.0	–	20,000
	for Size IV	20,000	20.0	50.0	116	8.0	6.3	M 12	20,001
		25,000	25.0	50.0	116	10.0	8.0	M 16	20,002
		31,500	31.5	50.0	116	12.5	10.0	M 20	20,003

*) When ordering, please always state Guhring no. and code no.!

Guhring no.

Standard
Tool material
Surface
Form
Cutting direction
Discount group



d1	d2	l1	s
mm	mm	mm	mm
1.000	3.150	31.50	2.35
1.600	4.000	35.50	3.25
2.000	5.000	40.00	4.20
2.500	6.300	45.00	5.35
3.150	8.000	50.00	6.95
4.000	10.000	56.00	8.40
5.000	12.500	63.00	10.95
6.300	16.000	71.00	14.00
8.000	20.000	80.00	17.90
10.000	25.000	100.00	22.50

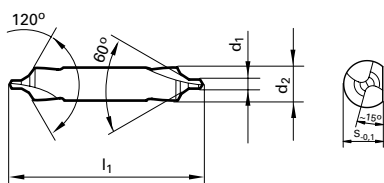
587	588
DIN 333	
HSS	
	
A	R
right	right
138	138



Availability	
●	○
●	●
●	●
●	●
●	●
●	●
●	●
●	●
●	●

Guhring no.

Standard
Tool material
Surface
Form
Cutting direction
Discount group



d1	d2	l1	s
mm	mm	mm	mm
1.600	6.300	45.00	5.35
2.000	8.000	50.00	6.95
2.500	10.000	56.00	8.40
3.150	11.200	60.00	10.00
4.000	14.000	67.00	12.65
5.000	18.000	75.00	16.40
6.300	20.000	80.00	17.90
8.000	25.000	100.00	22.50

589
DIN 333
HSS

B
right
138

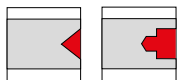


Availability	
●	
●	
●	
●	
●	
●	
●	

○ bright

● on stock ○ on request

Step drills for centering DIN 332



Guhring no.

Standard

Tool material

Surface

Type

Form

Cutting direction

Discount group

274

574

Guhring standard

HSS



N

N

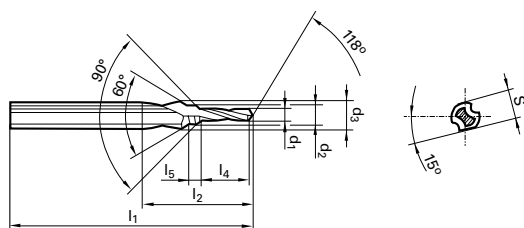
for countersinks form D for countersinks form DR

right

right

138

138



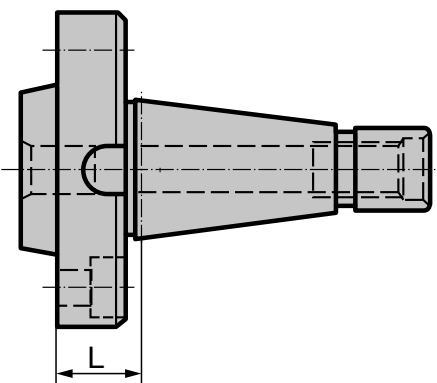
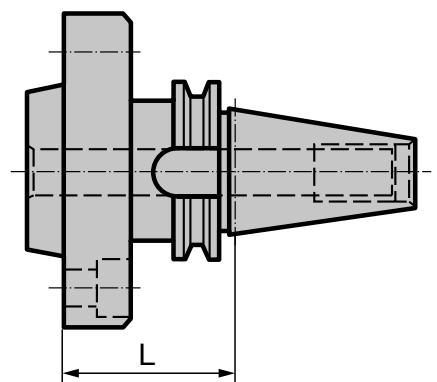
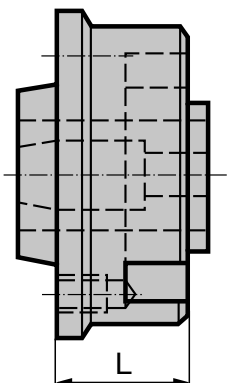
d3 h7	d2	d1 h8	s	l1	l2	l4	l5	for
mm	mm	mm	mm	mm	mm	mm	mm	thread
8.000	4.300	3.300	6.75	63.00	23.00	11.00	1.60	M 4
10.000	5.300	4.200	8.45	67.00	27.00	13.00	2.15	M 5
12.500	6.400	5.000	10.45	71.00	33.00	16.00	2.90	M 6
14.000	8.400	6.800	12.50	88.00	41.00	19.50	3.50	M 8
16.000	10.500	8.500	14.85	94.00	47.00	23.00	4.70	M10
20.000	13.000	10.200	18.45	105.00	59.00	28.00	6.50	M12
25.000	17.000	14.000	23.40	132.00	67.00	33.00	8.30	M16
31.500	21.000	17.500	29.35	145.00	76.50	38.00	10.35	M20
40.000	25.000	21.000	36.50	160.00	90.00	45.00	12.00	M24

Availability



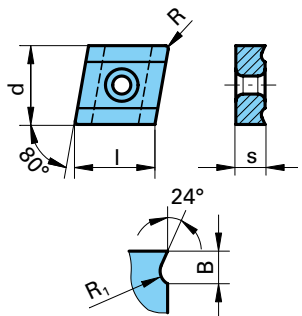
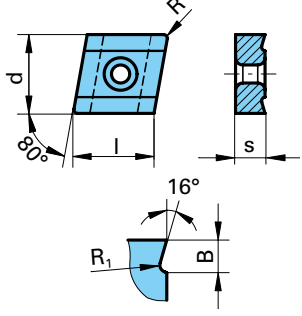
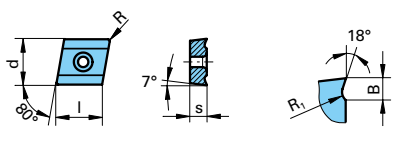
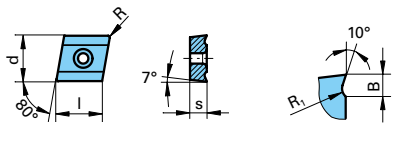
● steam tempered

● on stock ○ on request

Adaptors with ISO taper to DIN 2080		Code no.*	Size	Tool head size	Interface	Size L mm	Head Ø
Guh. no. 6051		30,080	SK 30	II	Ø 30 ^{H6} x 10	16.6	80
	40,080	SK 40	II	Ø 30 ^{H6} x 10	16.6	80	
	40,102	SK 40	II	C 3 DIN 55028	21.6	102	
	40,112	SK 40	III	C 4 DIN 55028	21.6	112	
	40,140	SK 40	III	C 5 DIN 55028	21.6	140	
	50,140	SK 50	III	C 5 DIN 55028	23.2	140	
Adaptors with ISO taper to DIN 69871-1 AD		Code no.*	Size	Tool head size	Interface	Size L mm	head Ø
Guh. no. 6052		40,102	SK 40	II	C 3 DIN 55028	55	102
	40,112	SK 40	III	C 4 DIN 55028	55	112	
	40,140	SK 40	III	C 5 DIN 55028	55	140	
	45,112	SK 45	III	C 4 DIN 55028	55	112	
	45,140	SK 45	III	C 5 DIN 55028	55	140	
	50,140	SK 50	III	C 5 DIN 55028	55	140	
Adaptors for UMA Ø 45/88.88		Code no.*	Tool holder adaptors	Tool head size	Interface	Size L mm	Head Ø
Guh. no. 6056		3,004	4	II	C 3 DIN 55028	40	102
	4,002	2	III	C 4 DIN 55028	40	112	
	4,003	3	III	C 4 DIN 55028	40	112	
	4,004	4	III	C 4 DIN 55028	40	112	
	5,004	4	III	C 5 DIN 55028	45	140	

*) When ordering, please always state Guhring no. and code no.! Other systems on request.

Indexable inserts

Indexable insert type	Dimensions of basic body mm				Dimensions of chipbreaker mm		Carbide grade	Surface finish	Cutting direction
Indexable insert with high radius chipbreaker and 4 cutting edges	R	d	l	s	B	R ₁	ISO code*	Gühring no.	Code no.
	0.0	12.70	12.9	4.76	2.6	1.5	CNHX120400(R/L)226		124,000
	0.4	12.70	12.9	4.76	2.6	1.5	CNHX120404(R/L)226		124,040
	0.4	12.70	12.9	4.76	3.0	2.0	CNHX120404(R/L)230		124,041
	0.8	12.70	12.9	4.76	2.6	1.5	CNHX120408(R/L)226		124,080
	0.8	12.70	12.9	4.76	3.0	2.0	CNHX120408(R/L)230		124,081
	0.2	15.88	16.1	6.35	2.6	1.5	CNHX160602(R/L)226		166,000
	0.4	15.88	16.1	6.35	2.6	1.5	CNHX160604(R/L)226		166,040
	0.4	15.88	16.1	6.35	2.6	1.5	CNHX160604(R/L)230		166,041
	0.8	15.88	16.1	6.35	2.6	1.5	CNHX160608(R/L)226		166,080
	0.8	15.88	16.1	6.35	3.0	1.5	CNHX160608(R/L)230		166,081
	0.4	19.05	19.3	6.35	3.0	2.0	CNHX190604(R/L)230		196,040
	0.8	19.05	19.3	6.35	3.0	2.0	CNHX190608(R/L)235		196,080
Indexable insert with standard chipbreaker and 4 cutting edges	R	d	l	s	B	R ₁	ISO code*	Gühring no.	Code no.
	0.0	12.70	12.9	4.76	2.2	0.5	CNHX120400(R/L)122		124,000
	0.0	12.70	12.9	4.76	2.6	0.5	CNHX120400(R/L)126		124,001
	0.4	12.70	12.9	4.76	2.2	0.5	CNHX120404(R/L)122		124,040
	0.4	12.70	12.9	4.76	2.6	0.5	CNHX120404(R/L)126		124,041
	0.4	12.70	12.9	4.76	2.6	0.5	CNHX120404(R/L)130		124,042
	0.8	12.70	12.9	4.76	2.6	0.5	CNHX120408(R/L)126		124,080
	0.8	12.70	12.9	4.76	3.0	0.5	CNHX120408(R/L)130		124,081
	0.2	15.88	16.1	6.35	2.6	0.5	CNHX160602(R/L)126		166,000
	0.4	15.88	16.1	6.35	2.6	0.5	CNHX160604(R/L)126		166,040
	0.4	15.88	16.1	6.35	2.6	0.5	CNHX160604(R/L)130		166,041
	0.8	15.88	16.1	6.35	3.0	0.5	CNHX160608(R/L)126		166,080
	0.8	15.88	16.1	6.35	3.0	0.5	CNHX160608(R/L)130		166,081
	0.4	19.05	19.3	6.35	3.0	0.5	CNHX190604(R/L)130		196,040
Indexable insert with high radius chipbreaker and 2 cutting edges	R	d	l	s	B	R ₁	ISO code*	Gühring no.	Code no.
	0.2	6.35	6.4	2.38	1.2	0.5	CCHX060202(R/L)212		62,020
	0.4	6.35	6.4	2.38	1.2	0.5	CCHX060204(R/L)212		62,040
	0.8	6.35	6.4	2.38	1.4	0.5	CCHX060208(R/L)214		62,080
	0.2	9.53	9.6	3.97	1.6	1.0	CCHX09T302(R/L)216		93,020
	0.4	9.53	9.6	3.97	1.6	1.0	CCHX09T304(R/L)216		93,040
	0.8	9.53	9.6	3.97	1.8	1.0	CCHX09T308(R/L)218		93,080
	0.2	12.70	12.9	4.76	1.6	1.0	CCHX120402(R/L)216		124,020
	0.4	12.70	12.9	4.76	1.6	1.0	CCHX120404(R/L)216		124,040
	0.8	12.70	12.9	4.76	1.6	1.0	CCHX120408(R/L)216		124,080
Indexable insert without chipbreaker and 2 cutting edges	R	d	l	s	B	R ₁	ISO code*	Gühring no.	Code no.
	0.2	6.35	6.4	2.38	1.2	0.2	CCHX060202(R/L)112		62,020
	0.4	6.35	6.4	2.38	1.2	0.2	CCHX060204(R/L)112		62,040
	0.8	6.35	6.4	2.38	1.4	0.2	CCHX060208(R/L)114		62,080
	0.2	9.53	9.6	3.97	1.6	0.2	CCHX09T302(R/L)116		93,020
	0.4	9.53	9.6	3.97	1.6	0.2	CCHX09T304(R/L)116		93,040
	0.8	9.53	9.6	3.97	1.8	0.2	CCHX09T308(R/L)118		93,080
	0.2	12.90	12.9	4.76	1.6	0.2	CCHX120402(R/L)116		124,020
	0.4	12.90	12.9	4.76	1.6	0.2	CCHX120404(R/L)116		124,040
	0.8	12.90	12.9	4.76	1.6	0.2	CCHX120408(R/L)116		124,080

○ bright

● S TiN

● A TiAlN

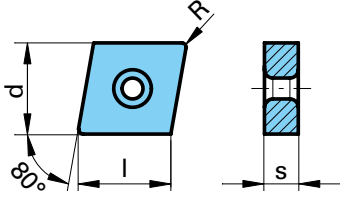
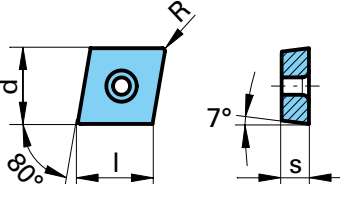
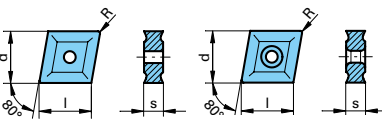
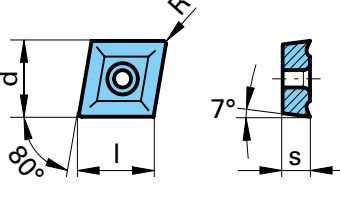
● A AlTiN

● C TiCN

● on stock

○ on request

Indexable inserts

Indexable insert type	Dimensions indexable inserts mm				Carbide grade	Surface finish	Cutting direction
Indexable insert without chipbreaker and 4 cutting edges	R	d	l	s	ISO code*	Guhring no. Code no.	
	0.0	12.70	12.9	4.76	CNHQ120400N	124,000	
	0.4	12.70	12.9	4.76	CNHQ120404N	124,040	
	0.8	12.70	12.9	4.76	CNHQ120408N	124,080	
	0.2	15.88	16.1	06.35	CNHQ160602N	166,020	
	0.4	15.88	16.1	6.35	CNHQ160604N	166,040	
	0.8	15.88	16.1	6.35	CNHQ160608N	166,080	
	0.4	19.05	19.3	6.35	CNHQ190604N	196,040	
	0.8	19.05	19.3	6.35	CNHQ190608N	196,080	
Indexable insert without chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	Guhring no. Code no.	Cutting direction
	0.2	6.35	6.4	2.38	CCHW060202N	62,020	
	0.4	6.35	6.4	2.38	CCHW060204N	62,040	
	0.8	6.35	6.4	2.38	CCHW060208N	62,080	
	0.2	9.53	9.6	3.97	CCHW09T302N	93,020	
	0.4	9.53	9.6	3.97	CCHW09T304N	93,040	
	0.8	9.53	9.6	3.97	CCHW09T308N	93,080	
	0.2	12.70	12.9	4.76	CCHW120402 N	124,020	
	0.4	12.70	12.9	4.76	CCHW120404 N	124,040	
	0.8	12.70	12.9	4.76	CCHW120408 N	124,080	
Indexable insert with chipbreaker and 4 cutting edges	R	d	l	s	ISO code*	Guhring no. Code no.	Cutting direction
	0.2	12.70	12.9	4.76	CNMU120402N	124,020	
	0.4	12.70	12.9	4.76	CNMG120404N	124,040	
	0.8	12.70	12.9	4.76	CNMG120408N	124,080	
	0.4	15.88	16.1	6.35	CNMU160604N	166,040	
	0.8	15.88	16.1	6.35	CNMG160608N	166,080	
Indexable insert with chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	Guhring no. Code no.	Cutting direction
	0.2	6.35	6.4	2.38	CCMT060202N	62,020	
	0.4	6.35	6.4	2.38	CCMT060204N	62,040	
	0.6	6.35	6.4	2.38	CCMT060208N	62,080	
	0.2	9.53	9.6	3.97	CCMT09T302N	93,020	
	0.4	9.53	9.6	3.97	CCMT09T304N	93,040	
	0.6	9.53	9.6	3.97	CCMT09T308N	93,080	
	0.4	12.70	12.9	4.76	CCMT120404N	124,040	
	0.6	12.70	12.9	4.76	CCMT120408N	124,080	

○ blank

● S TiN

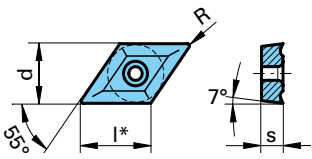
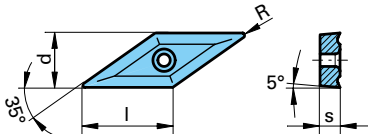
● on stock

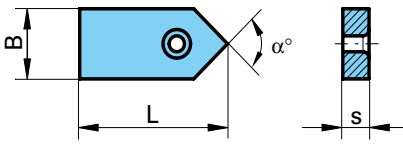
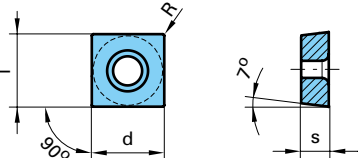
○ on request

	K10	P40	P40	P40
	○ left/right	○ left/right		
	6215	6236		
	Availability			
	●	●		
	●	●		
	●	●		
	●	●		
	●	●		
	●	●		
	○ left/right	○ neutral		
	6287	6289		
	Availability			
	●	●		
	●	●		
	●	●		
	●	●		
	●	●		
	●	●		
	●	●		
	○ left/right	○ left/right	Ⓢ left/right	Ⓢ left/right
	6294	6275	6276	6297
	Availability			
	●	●	●	●
	○			○
	○ left/right		Ⓢ left/right	
	6271		6273	
	Availability			
	●		●	
	●		●	
	●		●	
	●		●	
	●		●	
	●		●	
	●		●	

*) When ordering, please always state ISO code, carbide grade, Guhring no. and code no.! (example: CNHX120400R226 K10 6208 124.000)
Further coatings on request (p. 50)!

Indexable inserts, and insert blanks

Indexable insert type	Dimensions indexable inserts mm				Carbide grade	Surface finish	Cutting direction
Indexable insert with chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	Guhring no.	Code no.
	0.2	6.35	7.8	2.38	DCMT070202N		72,020
	0.4	6.35	7.8	2.38	DCMT070204N		72,040
	0.4	9.53	11.0	3.97	DCMT11T304N		11,040
Indexable insert with chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	Guhring no.	Code no.
	0.2	6.35	11.0	2.38	VBMT110202N		11,020

Indexable insert type	Dimensions indexable inserts mm				Clamping screw	Carbide grade	Surface finish	Cutting direction
Insert blank	B	L	α°	s	Guhring no, 6128	Drawing no,	Guhring no,	Code no,
	6,4	13,25	90,0	2,40	2,501	ES060001		6,000
	7,4	16,70	60,0	2,50	2,501	ES070001		7,000
	8,4	20,70	60,0	3,00	3,500	ES080001		8,000
	9,4	18,65	90,0	4,00	4,000/4,001	ES090001		9,000
	10,4	18,70	90,0	4,00	4,000/4,001	ES100001		10,000
	13,4	23,50	90,0	4,00	4,000/4,001	ES130001		13,000
Indexable insert form S without chipbreaker 1 cutting edge	R	d	l	s	Clamping screw	Surface finish	Cutting direction	Guhring no,
	0,2	9,53	3,97	9,53	3,501	SCHW 09T302 N		93,020
	0,4	9,53	3,97	9,53	3,501	SCHW 09T304 N		93,040
	0,8	9,53	3,97	9,53	3,501	SCHW 09T308 N		93,080
	0,2	12,70	12,70	4,76	4,000	SCHW 120402 N		124,020
	0,4	12,70	12,70	4,76	4,000	SCHW 120404 N		124,040
	0,8	12,70	12,70	4,76	4,000	SCHW 120408 N		124,080

○ bright

● S TiN

● on stock

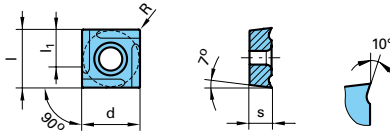
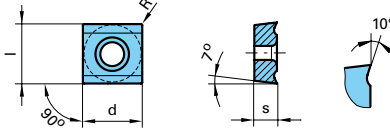
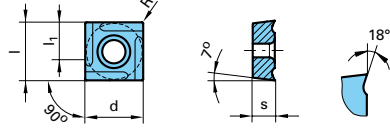
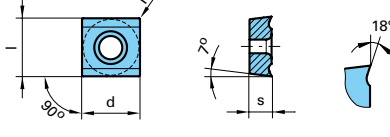
○ on request

K10	P40	P40	P40
○ left/right		Ⓢ left/right	
6290		6231	
Availability			
●		●	
●		●	
●		●	
○ left/right		Ⓢ left/right	
6291		6292	
Availability			
●		●	

K10	P40
○ left/right	○ left/right
6285	6286
Availability	
●	●
●	●
●	●
●	●
●	●
●	●
○ left/right	○ left/right
6300	6350
Availability	
●	●
●	●
●	●
●	●
●	●
●	●

*) When ordering, please always state ISO code, carbide grade, Guhring no. and code no.! (example: CNHX120400R226 K10 6208 124.000)
Further coatings on request (p. 50)!

Indexable insert ISO

Indexable insert type	Dimensions Indexable insert mm				Clamping screw  Guhring no. 6128		Carbide grade	Surface finish	Cutting direction
Indexable insert form S with chipbreaker 10°	R	d	l	s	l ₁	Code no.	ISO code*	Guhring no. Code no.	
	0.2	9.53	3.97	9.53	4.0	3.501	SCHX 09T302 (R/L) 116	93,020	
	0.4	9.53	3.97	9.53	4.0	3.501	SCHX 09T304 (R/L) 116	93,040	
	0.8	9.53	3.97	9.53	4.0	3.501	SCHX 09T308 (R/L) 118	93,080	
	0.2	12.70	4.76	12.70	5.0	4.000	SCHX 120402 (R/L) 126	124,020	
	0.4	12.70	4.76	12.70	5.0	4.000	SCHX 120404 (R/L) 126	124,040	
	0.8	12.70	4.76	12.70	5.0	4.000	SCHX 120408 (R/L) 126	124,080	
Indexable insert form S with chipbreaker 10° 2 cutting edges	Indexable insert mm				Clamping screw Guhring no. 6128		ISO code*	Guhring no. Code no.	Surface finish Cutting direction
	0.2	9.53	3.97	9.53		3.501	SCHX 09T302 N 116	93,020	
	0.4	9.53	3.97	9.53		3.501	SCHX 09T304 N 116	93,040	
	0.8	9.53	3.97	9.53		3.501	SCHX 09T308 N 116	93,080	
	0.2	12.70	4.76	12.70		4.000	SCHX 120402 N 126	124,020	
	0.4	12.70	4.76	12.70		4.000	SCHX 120404 N 126	124,040	
	0.8	12.70	4.76	12.70		4.000	SCHX 120408 N 126	124,080	
Indexable insert form S with chipbreaker 18°	Indexable insert mm				Clamping screw Guhring no. 6128		ISO code*	Guhring no. Code no.	Surface finish Cutting direction
	0.2	9.53	3.97	9.53	4.0	3.501	SCHX 09T302 (R/L) 216	93,020	
	0.4	9.53	3.97	9.53	4.0	3.501	SCHX 09T304 (R/L) 216	93,040	
	0.8	9.53	3.97	9.53	4.0	3.501	SCHX 09T308 (R/L) 218	93,080	
	0.2	12.70	4.76	12.70	5.0	4.000	SCHX 120402 (R/L) 226	124,020	
	0.4	12.70	4.76	12.70	5.0	4.000	SCHX 120404 (R/L) 226	124,040	
	0.8	12.70	4.76	12.70	5.0	4.000	SCHX 120408 (R/L) 226	124,080	
Indexable insert form S with chipbreaker 18° 2 cutting edges	Dimensions Indexable insert mm				Clamping screw Guhring no. 6128		ISO code*	Guhring no. Code no.	Surface finish Cutting direction
	0.2	9.53	3.97	9.53		3.501	SCHX 09T302 N 216	93,020	
	0.4	9.53	3.97	9.53		3.501	SCHX 09T304 N 216	93,040	
	0.8	9.53	3.97	9.53		3.501	SCHX 09T308 N 218	93,080	
	0.2	12.70	4.76	12.70		4.000	SCHX 120402 N 226	124,020	
	0.4	12.70	4.76	12.70		4.000	SCHX 120404 N 226	124,040	
	0.8	12.70	4.76	12.70		4.000	SCHX 120408 N 226	124,080	

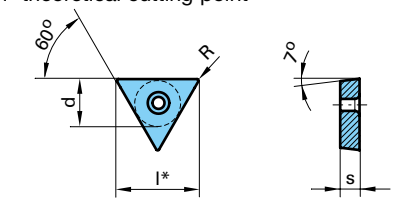
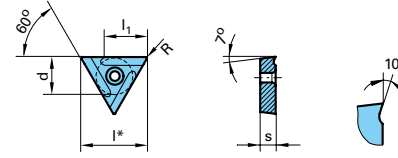
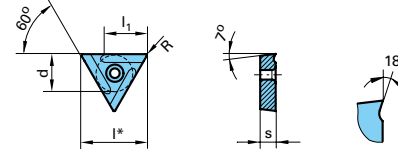
○ bright

● S TiN

● A AlTiN

● on stock

○ on request

Indexable insert type	Dimensions indexable inserts mm				Clamping screw  Guhring no. 6128	Carbide grade Surface finish Cutting direction Guhring no.	
Indexable insert form T without chipbreaker	R	d	l*	s	Code no.	Drawing no.	Code no.
l* theoretical cutting point 	0.2	6.35	11.0	2.38	2,501	TCHW 110202 N	112,020
	0.4	6.35	11.0	2.38	2,501	TCHW 110204 N	112,040
	0.8	6.35	11.0	2.38	2,501	TCHW 110208 N	112,060
	0.2	9.53	16.5	3.97	3,501	TCHW 16T302 N	163,020
	0.4	9.53	16.5	3.97	3,501	TCHW 16T304 N	163,040
	0.8	9.53	16.5	3.97	3,501	SCHW 16T308 N	163,080
Indexable insert form T with chipbreaker 10° 2 cutting edges	indexable inserts mm				Clamping screw Guhring no. 6128	Surface finish Cutting direction Guhring no.	
	R	d	l*	s	l ₁	Code no.	ISO code* Code no.
l* theoretical cutting point 	0.2	6.35	11.0	2.38	6.0	2,501	TCHX 110202 (R/L) 112
	0.4	6.35	11.0	2.38	6.0	2,501	TCHX 110204 (R/L) 112
	0.8	6.35	11.0	2.38	6.0	2,501	TCHX 110208 (R/L) 114
	0.2	9.53	16.5	3.97	9.5	3,501	TCHX 16T302 (R/L) 116
	0.4	9.53	16.5	3.97	9.5	3,501	TCHX 16T304 (R/L) 116
	0.8	9.53	16.5	3.97	9.5	3,501	TCHX 16T308 (R/L) 118
WSP form T with chipbreaker 18° 2 cutting edges	indexable inserts mm				Clamping screw Guhring no. 6128	Surface finish Cutting direction Guhring no.	
	R	d	l*	s	l ₁	Code no.	ISO code* Code no.
l* theoretical cutting point 	0.2	6.35	11.0	2.38	6.0	2,501	TCHX 110202 (R/L) 112
	0.4	6.35	11.0	2.38	6.0	2,501	TCHX 110204 (R/L) 112
	0.8	6.35	11.0	2.38	6.0	2,501	TCHX 110208 (R/L) 114
	0.2	9.53	16.5	3.97	9.5	3,501	TCHX 16T302 (R/L) 116
	0.4	9.53	16.5	3.97	9.5	3,501	TCHX 16T304 (R/L) 116
	0.8	9.53	16.5	3.97	9.5	3,501	TCHX 16T308 (R/L) 118

○ bright

● TiN

● AlTiN

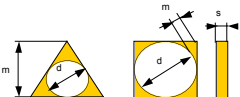
● on stock

○ on request

K10		K10		K10		K10		P40		P40		P40		P40	
○ left/right								○ left/right							
6307								6357							
Availability															
●								●							
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6309	6311	6319	6321	6329	6331	6339	6341	6359	6361	6369	6371	6379	6381	6389	6391
Availability															
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6308	6310	6318	6320	6328	6330	6338	6340	6358	6360	6368	6370	6378	6380	6388	6390
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6307	6309	6317	6319	6327	6329	6337	6339	6347	6349	6357	6359	6367	6369	6377	6379
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6306	6308	6316	6318	6326	6328	6336	6338	6346	6348	6356	6358	6366	6368	6376	6378
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6305	6307	6315	6317	6325	6327	6335	6337	6345	6347	6355	6357	6365	6367	6375	6377
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6304	6306	6314	6316	6324	6326	6334	6336	6344	6346	6354	6356	6364	6366	6374	6376
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6303	6305	6313	6315	6323	6325	6333	6335	6343	6345	6353	6355	6363	6365	6373	6375
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6302	6304	6312	6314	6322	6324	6332	6334	6342	6344	6352	6354	6362	6364	6372	6374
Availability															
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6301	6303	6311	6313	6321	6323	6331	6333	6341	6343	6351	6353	6361	6363	6371	6373
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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○		S		A		Proton		○		S		A		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6300	6302	6310	6312	6320	6322	6330	6332	6340	6342	6350	6352	6360	6362	6370	6372
Availability															
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○		S		A		Proton		○		S		A		Proton	
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6299	6301	6309	6311	6319	6321	6329	6331	6339	6341	6349	6351	6359	6361	6369	6371
Availability															
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6298	6299	6307	6309	6317	6319	6327	6329	6337	6339	6347	6349</				

*) When ordering, please always state ISO code, carbide grade, Guhring no. and code no.! (example: CNHX120400R226 K10 6208 124.000)
Further coatings on request (p. 50)!

Indexable insert description to DIN ISO 1832:2005-11

Insert form			Clearance angle		Tolerance					Insert type		Insert size / I/C diameter / edge									
																					
De-scrip-tion	Angle	Form	De-scrip-tion	Angle	Tolerance class in relation to inscribed circle		Limit dimensions			De-scrip-tion	form	Size	form	C	D	E	H	M	O		
A	85°		A	3°	A	-	0.025	0.005	0.025	A		03	I/C edge l. x)				6.350 3.666		7.938 3.288		
B	82°				C	-	0.025	0.013	0.025	B		04	I/C edge l. x)	4.760 4.833	3.970 4.853	4.760 4.928	7.938 4.583	4.760 4.772	9.53 3.945		
C	80°		B	5°	D	-	0.010	0.010	0.010	C		05	I/C edge l. x)	5.560 5.646	4.760 5.811	5.560 5.756	9.53 5.499	5.560 5.574	12.700 5.261		
D	55°				E	-	0.025	0.025	0.025	F		06	I/C edge l. x)	6.350 6.448	5.560 6.788	6.350 6.574		6.350 6.366	15.875 6.576		
E	75°		C	7°	F	-	0.013	0.005	0.025	G		07	I/C edge l. x)		6.350 7.752		12.700 7.332	7.938 7.957	19.050 7.891		
H	120°		D	15°	G	-	0.025	0.025	0.130	H		08	I/C edge l. x)	7.938 8.060		7.938 8.218					
K	55°				H	-	0.013	0.013	0.025	J		09	I/C edge l. x)	9.53 9.672	7.938 9.691	9.53 9.861	15.875 9.165	9.53 9.548			
L	90°		E	20°	J	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 0.130	0.005	0.025	M		10	I/C edge l. x)						25.400 10.521		
M	86°		F	25°	K	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 0.130	0.013	0.025	N		11	I/C edge l. x)		9.53 11.628		19.050 10.999				
O	135°				L	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 0.130	0.025	0.025	Q		12	I/C edge l. x)	12.700 12.896				12.700 12.731			
P	108°		G	30°	M	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 0.130	0.080 0.130 0.150 0.180	0.130	R		13	I/C edge l. x)			12.700 13.148			31.75 13.151		
R			N	0°	N	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 0.130	0.080 0.130 0.150 0.180	0.025	T		15	I/C edge l. x)		12.700 15.504			15.875 15.914			
S	90°		P	11°	U	4.76 - 9.25 12.7 15.875-19.05 25.4	0.080 0.130 0.200 0.270 0.380	0.130	0.130	U		16	I/C edge l. x)	15.875 16.120		15.875 16.435					
T	60°				X					W		17	I/C edge l. x)								
V	35°		O	others						X	Special design	19	I/C edge l. x)	19.050 19.826	15.875 19.380	19.050 19.722		19.050 19.097			
W	80°																				
C			C		G					W											
											</										

Exceptions					
M+N form D	4.76 - 9.25 12.7 15.875-19.05 25.4	0.050 0.080 0.100 -	0.110	as above	
M+N form V	6.35 7.94 9.53	0.050	0.160	as above	

x) mathematical, theoretical value for a corner radius of 0.00 mm see also DIN 4988

Hole diameter/countersink diameter			
Indexable insert with countersink (40° - 60°) to DIN/ISO 6987 insert type Q, T, W		Indexable insert with cylindrical hole to DIN 4988 insert type A, G, M	
Diameter	d1	d2	d1
Inner Circle			
4.760	2.150	2.700	-
5.560	2.500	3.300	-
6.000	2.800	3.750	-
6.350	2.800	3.750	2.260
7.940	3.400	4.500	-
8.000	3.400	4.500	-
9.525	4.400	6.000	3.810
10.000	4.400	6.000	-
12.000	4.400	6.000	-
12.700	5.500	7.500	5.160
15.875	5.500	7.500	6.350
16.000	5.500	7.500	-
19.050	6.500	9.000	7.940
20.000	6.500	9.000	-
25.000	8.600	12.000	-
25.400	8.600	12.000	9.120

length						
P	R	S	T	V	W	
						5.560 2.716
6.350 4.614		4.760 4.760				6.350 4.344
7.938 5.765		5.560 5.560				7.938 5.430
9.53 6.920	6.350 6.00*)	6.350 6.350	3.970 6.876	3.970 6.921		9.53 6.515
	7.938	7.938 7.938				
	8.00*)		4.760 8.245	4.760 8.299		12.700 8.687
12.700 9.227	9.53	9.53 9.53	5.560 9.630	5.560 9.694		
	10.00*)					15.875 10.859
15.875 11.534			6.350 10.999	6.350 11.071		
	12.700 12.00*)	12.700 12.700				
19.050 13.841			7.938 13.749	7.938 13.839		19.050 13.031
	15.875	15.875 15.875				
	16.00*)		9.53 16.498	9.53 16.606		
						25.400 17.375
	19.050	19.050 19.050				

Insert thickness	
Description	s mm
01	1.59
T1	1.98
02	2.38
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52
12	12.7

Cutting edge corner	
Description	Radius mm
00	sharp point / indication for round insert inch
M0	Indication for round insert metric
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0

Cutting edge corner design	
Description	form
F	sharp
E	rounded
T	chamfered
S	chamfered + rounded
K	double chamfered
P	double chamfered + rounded

Cutting direction	
Description	form
R	right-hand
L	left-hand
N	neutral

Fitting form	
Corner fitting (choice) S = short cutting edge	
AS	1 corner on one side e.g. C insert (1 cutting edge)
DS	2 corners on one side e.g. V insert (2 cutting edges)
CS	3 corners on one side e.g. T insert (3 cutting edges)
DS	4 corners on one side e.g. S insert (4 cutting edges)
KS	1 corner on two sides e.g. C insert (2 cutting edges)
LS	2 corners on two sides e.g. D insert (4 cutting edges)
MS	3 corners on two sides e.g. T insert (6 cutting edges)
NS	4 corners on two sides e.g. S insert (8 cutting edges)
Shank fitting (choice) L = long cutting edge	
AL	One cutting edge along the entire length
Entire surface	
S	Solid
F	Full-face

*) = Size to ISO 1832:2005-11 table A.2.
Round cutting inserts "metric" design.
Distinction see column cutting edge corner
(M0 = metric, 00 = inch)

	Planar chamfer
Setting angle K_r of main cutting edge in feed direction	Clearance angle of planar chamfer
A 45°	A 3°
D 60°	B 5°
E 75°	C 7°
F 85°	D 15°
P 90°	E 20°
Z *	F 25°
	G 30°
	N 0°
	P 11°
	Z *

*Special design

Note:
Overview is for information only.
No liability is accepted for the correctness of the contents. Is not subject to modification.
Definitive data can be found in the respective standards.

Indexable insert description to ANSI (inch dimensions)

Insert form			Clearance angle		Tolerance				Insert type		Insert size /						
Description	Angle	form	Description	Angle	Tolerance class	Limit dim. (inch/mm)			Description	form	Size	IC inch mm	C	D	E	H	
A	85°		A	3°	A	0.0002" 0.005	0.0010" 0.025	0.0010" 0.025	A		1.25	5/32"	3.969	4.030	4.845	4.109	2.292
B	82°		B	5°	B	0.0002" 0.005	0.0010" 0.025	0.0050" 0.125	B		1.5	3/16"	4.763	4.836	5.815	4.931	2.750
C	80°		C	7°	C	0.0005" 0.013	0.0010" 0.025	0.0010" 0.025	C		1.75	7/32"	5.556	5.642	6.783	5.752	3.208
D	55°		D	15°	D	0.0005" 0.013	0.0010" 0.025	0.0050" 0.125	F		2	1/4"	6.350	6.448	7.752	6.574	3.666
E	75°		E	20°	E	0.0010" 0.025	0.0010" 0.025	0.0010" 0.025	G		2.5	5/16"	7.938	8.060	9.691	8.218	4.583
H	120°		F	25°	F	0.0002" 0.005	0.0005" 0.013	0.0010" 0.025	H		3	3/8"	9.53	9.672	11.628	9.861	5.499
K	55°		G	30°	G	0.0010" 0.025	0.0010" 0.025	0.0050" 0.125	J		4	1/2"	12.700	12.896	15.504	13.148	7.332
L	90°		N	0°	H	0.0005" 0.013	0.0005" 0.013	0.0010" 0.025	M		5	5/8"	15.875	16.120	19.380	16.435	9.165
M	86°		P	11°	J	0.0002" 0.005	*	0.0010" 0.025	N		6	3/4"	19.050	19.826	23.256	19.722	10.999
O	135°		O	other	K	0.0010" 0.025	*	0.0010" 0.025	Q		8	1"	25.400	24.878	29.909	25.364	14.145
P	108°				L	0.0010" 0.025	*	0.0010" 0.025	R		10	1 1/4"	31.750	32.240	38.760	32.870	18.331
R					M	*	*	0.0050" 0.125	T								
S	90°				N	*	*	0.0010" 0.025	U								
T	60°				U	*	*	0.0050" 0.125	W								
V	35°				X	Special design			X	Special design							
W	80°																
C			C		G				W								

Edge length in mm

Extended tolerance specifications *

Insert form	Clear.- angle	Tolerance	3/16"	7/32"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/2"
C, E, H, M, O, P, S, T, R, W	A	J, K, L, M, N	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.003" 0.076	0.004" 0.102	0.004" 0.102	0.005" 0.127	0.006" 0.152
		U	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.005" 0.127	0.007" 0.178	0.007" 0.178	0.010" 0.254	0.010" 0.254
	B	M, N	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.003" 0.076	0.005" 0.127	0.006" 0.152	0.006" 0.152	0.007" 0.178	0.008" 0.203
		U	0.005" 0.127	0.005" 0.127	0.005" 0.127	0.005" 0.127	0.005" 0.127	0.008" 0.203	0.011" 0.279	0.011" 0.279	0.015" 0.381	0.015" 0.381
D	A	J, K, L, M, N, U	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.002" 0.051	0.003" 0.076	0.004" 0.102	0.004" 0.102	0.004" 0.102	0.004" 0.102
	B	M, N, U	0.004" 0.102	0.004" 0.102	0.004" 0.102	0.004" 0.102	0.004" 0.102	0.006" 0.152	0.007" 0.178	0.007" 0.178	0.007" 0.178	0.007" 0.178

I/C diameter / edge length							
M 	O 	P 	R 	S 	T 	V 	W 
3.979	1.644	2.884	3.969	3.969	6.875	6.920	2.715
4.775	1.973	3.461	4.763	4.763	8.250	8.304	3.258
5.570	2.301	4.037	5.556	5.556	9.623	9.687	3.801
6.366	2.630	4.614	6.350	6.350	10.999	11.071	4.344
7.957	3.288	5.765	7.938	7.938	13.749	13.839	5.430
9.548	3.945	6.920	9.53	9.53	16.498	16.606	6.515
12.731	5.261	9.227	12.700	12.700	21.997	22.142	8.687
15.914	6.576	11.534	15.875	15.875	27.496	27.677	10.859
19.097	7.891	13.841	19.050	19.050	32.996	33.296	13.031
24.560	10.148	17.800	25.400	25.400	42.435	42.714	17.375
31.828	13.151	23.068	31.750	31.750	54.993	55.354	21.718
4							

Insert thickness		
Description	s inch	s mm
1	1/16"	1.59
1.2	5/64"	1.98
1.5	3/32"	2.38
2	1/8"	3.175
2.5	5/32"	3.97
3	3/16"	4.763
3.5	7/32"	5.56
4	1/4"	6.35
5	5/16"	7.938
6	3/8"	9.53
3		

Cutting edge corner		
Description	Radius inch	Radius mm
0	0"	0
0.2	0.004"	0.102
0.5	0.008"	0.203
1	1/64"	0.397
2	1/32"	0.798
3	3/64"	1.191
4	1/16"	1.588
5	5/64"	1.984
6	3/32"	2.381
7	7/64"	2.778
8	1/8"	3.175
1		

Cutting direction	
Description	form
R	right-hand
L	left-hand
N	neutral
R	

Cutt. edge corner design	
Description	form
F	sharp
E	rounded
T	chamfered
S	chamfered + rounded
K	double chamfered
P	double chamfered + rounded
F	

Comparison insert thickness		
Descr. ANSI	Descr. ISO	s mm
1	01	1.59
1.2	T1	1.98
1.5	02	2.38
2	03	3.18
2.5	T3	3.97
3	04	4.76
3.5	06	5.56
4	05	6.35
5	07	7.94

Comparison ANSI ISO - Radius		
Descr. ANSI	Descr. ISO	Radius mm
0	00	0
0.5	02	0.2
1	04	0.4
2	08	0.8
3	12	1.2
4	16	1.6
5	20	2.0
6	24	2.4
7	28	2.8

Surface refining processes, coating

Besides the selection of the optimum tool material and geometry, the tool can be adapted further to the respective machining task by various surface technology processes. Regarding this, Guhring differentiates the following options:

Bright: ○

Our high speed steel or own carbide produced tools provide good basic characteristics for the machining of different materials.

Steam tempered / nitrided / nitrided lands surface finish: ●●●

Steam tempering chemically modifies the peripheral zones of steel surfaces in the μm -range, generating a crystalline iron oxide coating 3-10 μm . These surface finishes improve the tribological characteristics of the tools. Thanks to this surface treatment, the lubricant / coolant adheres better to the tool. This process is generally applied for the machining of carbon steels, that at low cutting speeds tends to create built up edges and cold welding. Additional nitriding of bright tools ensures the dispersion of nitrogen increasing the surface hardness making abrasive applications possible.

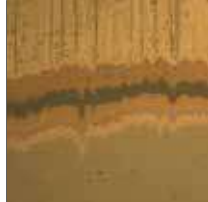
Hard material coatings:

Only 1 to 10 μm thin hard material coatings excel thanks to high hardness, low friction coefficients as well as a high thermo-chemical resistance. Their composition is made-to-measure for the respective application task and the material to be machined.

Overview of the main Guhring coatings

	TiN	TiCN	TiAlN	FIRE/nano FIRE	TiAlN SuperA/nanoA
					
Colour	golden yellow	grey violet	blue violet	violet	blue anthracite
Hardness HV [0.05]	2300	3000	3200	3300	3400
Friction coefficient	0.5 ¹	0.4 ¹	0.55 ¹	0.6 ¹	0.6 ¹
max. application temperature [°C]	< 600	< 400	< 800	< 800	< 900
Brief description	Cost-efficient standard coating	Tough hard coating	Hard coating for abrasive applications, HPC and MQL	Wear-resistant multi-layer coating, also for MQL	Hard coating for difficult and hard machining, HPC as well as MQL

Special coatings

	Signum	Carbo	Cristall	Zenit	ICE
					
Colour	bronze	black	anthrazite	pale gold	grey metallic
Hardness HV [0.05]	5500	> 5000	> 8000	2500	3500
Friction coefficient	0.55 ¹	< 0.1 ²	< 0.1 ²	0.4 ¹	0.6 ¹
max. application temperature [°C]	< 800	< 700	< 700	< 800	< 1000
Brief description	Extremely hard, heat-resistant multi-layer coating	Extremely hard coating	Extremely hard diamond coating	nanstructured multi-layer coating for titanium-, aluminium-, nickel-based alloys	Hard, high heat-resistant coating

¹ .. against steel ² .. against aluminium

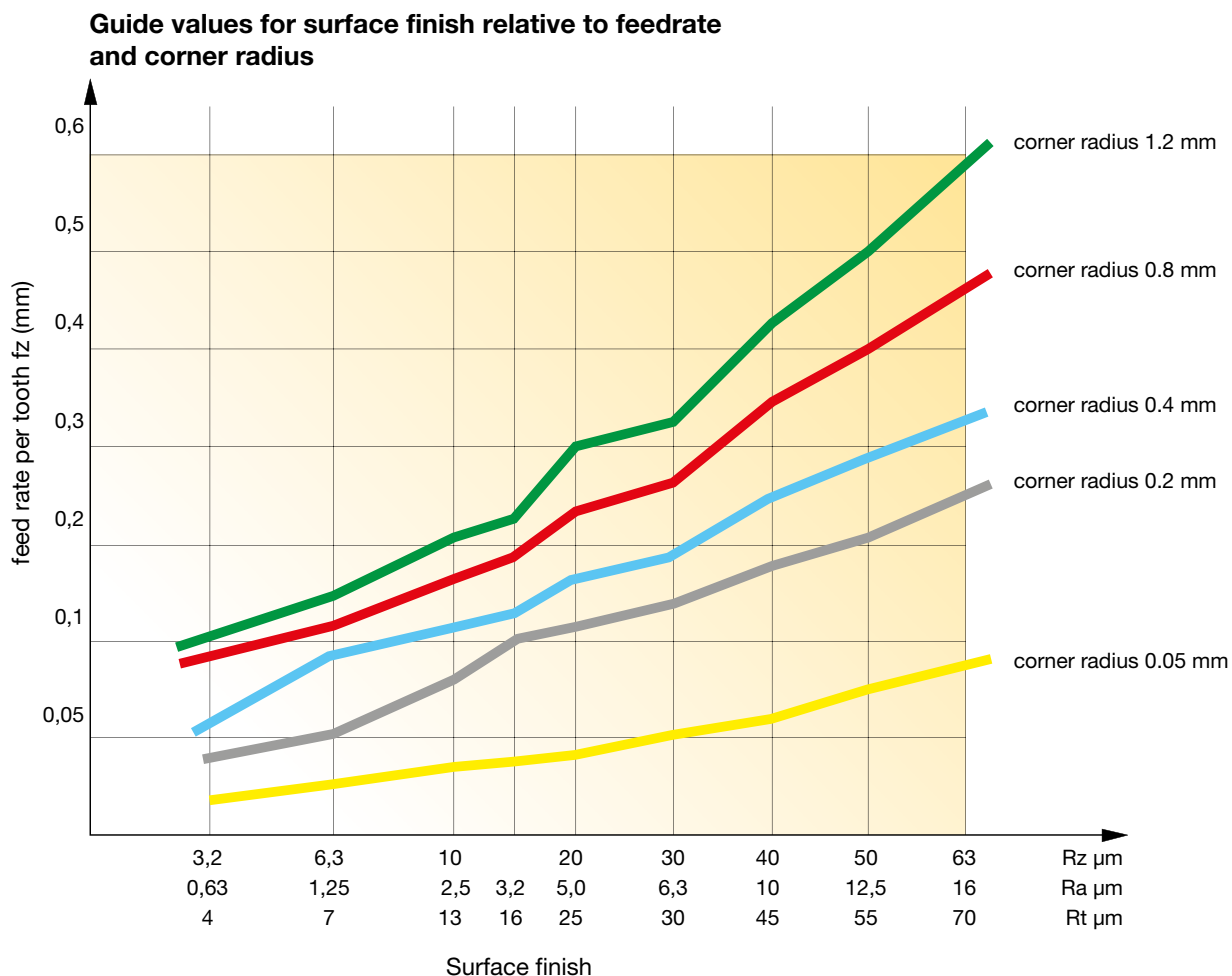
Cutting material grade	Carbide grade	Coating	Colour	Coating structure	Coating hardness	Application range
K10	K10	uncoated	-	-	-	aluminium and cast materials
K10-S	K10	TiN	golden yellow	single-layer	2300 HV	universal
K10-O	K10	AlTiN	blue anthracite	single-layer	3400 HV	HSC machining
K10-Proton	K10	TiAlN	blue violet	multi-layer	3200 HV	cast materials
K20-A	K20	TiAlN	blue violet	single-layer	3200 HV	universal
P10	P10	uncoated	-	-	-	unalloyed steels
P40	P40	uncoated	-	-	-	unalloyed steels
P40-S	P40	TiN	golden yellow	single-layer	2300 HV	steel materials
P40-O	P40	AlTiN	blue anthracite	single-layer	3400 HV	steel materials
P40-Proton	P40	TiAlN	blue violet	multi-layer	3200 HV	steel and cast materials

Application recommendations for inserts

Guide values for surface finish

In order to select the right feedrate per tooth (fz) please pay also attention to the table below „Guide values for surface finish“.

Wiper geometries lead in many cases to better surface finish and higher feed rates along with a constant high accuracy.



Cutting recommendations for inserts

Cutting groups	Material groups	Composition / Structure	Tensile strength RM (MPa)	Hardness HB HRC	K10 	K10 	K10 	K10 Proton	K20 
1.1	unalloyed steel	C=0.1 -0.25 annealed, long chip.	420	125	-	-	-	-	120 - 180
1.2		C=0.1 -0.25 annealed, short chip.	420	125					120 - 180
2.1		C=0.25 -0.55 annealed, long chip.	620	190					120 - 180
2.2		C=0.25 -0.55 annealed, short chip.	640	190					120 - 180
3		C=0.25 -0.55 tempered	850	250					120 - 180
4		C=0.25 -0.8 annealed	915	270					120 - 180
5	Machining steel	C=0.25 -0.8 tempered	1020	300					120 - 180
6	Low-alloy steel	annealed	610	180	-	-	-	-	90 - 140
7		tempered	930	275					90 - 140
8		tempered	1020	300					90 - 140
9		tempered	1190	350					90 - 140
10	High-alloy steel	annealed	680	200	-	-	-	-	70 - 110
	Cast steel								
11	High-alloy tool steel	hardened and tempered	1100	325					70 - 110
12 - 13	Stainless steel and cast steel	ferritic/martensitic annealed	680	200	-	-	-	-	60 - 90
		martensitic	810	240					60 - 90
14.1	Stainless steel	austenitic quenched	610	180	-	40 - 60	40 - 80	40 - 80	80 - 220
14.2		austenitic/ferritic (duplex)	880	260		40 - 60	40 - 80	40 - 80	80 - 220
15	Grey cast iron	perlitic/ferritic		180	80 - 140	80 - 140	100 - 200	100 - 200	60 - 200
16		perlitic (martensitic)		260	80 - 140	80 - 140	100 - 200	100 - 150	60 - 200
17	Cast iron with nodular cast iron	ferritic		160	60 - 100	80 - 120	80 - 140	80 - 140	100 - 170
18		perlitic		250	60 - 100	80 - 120	80 - 140	80 - 140	100 - 170
19	Malleable cast	ferritic		130	-	60 - 120	80 - 140	80 - 140	60 - 100
20		perlitic		230		60 - 120	80 - 140	80 - 140	60 - 100
21	Aluminium	not heat treatable		60	80 - 400	100 - 500	-	-	-
22	Forging alloys	heat treatable/ heat treated		100	80 - 400	100 - 500			
23	Aluminium Casting alloys	<12% Si not heat treatable		75	80 - 400	100 - 500	-	-	-
24		<12% Si heat treatable/ heat treated		90	80 - 400	100 - 500			
25		>12% Si not heat treatable		130	80 - 400	100 - 500			
26	Copper	machined alloys, Pb>1%		110	80 - 300	100 - 300	-	-	-
27	Copper alloys	CuZn. CuSnZn		90	80 - 300	100 - 300			
28	(bronze, brass)	Cu lead free copper/electrolyte copper		100	80 - 300	100 - 300			
29	Non metallic materials	Duroplastic			-	-	-	-	-
30		Reinforced materials							
31	Heat resistant alloys	Fe-based annealed		200		30 - 80	30 - 90	30 - 100	40 - 100
32		heat treated		230		30 - 80	30 - 90	30 - 100	40 - 100
33		Ni- or Co-based annealed		250		30 - 80	30 - 90	30 - 100	40 - 100
34		heat treated		350		30 - 80	30 - 90	30 - 100	40 - 100
35		cast		320		30 - 80	30 - 90	30 - 100	40 - 100
36	Titanium alloys	Pure titanium	400		-	-	-	-	40 - 100
37		Alpha-beta alloys	1050						40 - 100
38	Hardened steels			50 - 62	-	-	-	-	-
39				50 - 62					

t = dry machining
n = wet machining

 bright

 TiN

 TiAlN

 AlTiN

 TiCN

Cutting speed v_c in m/min												
	P10 ○	P10 ○	P40 ● S	P40 ● A	P40 Proton	CBN 1023	CBN 1024	CBN 1026	CBN 2026	CBN 2028	CBN 3018	PKD Mittelkorn
	80 - 120	60 - 100	100 - 140	120 - 160	100 - 160							
	80 - 120	60 - 100	100 - 140	120 - 160	100 - 160							
	80 - 120	60 - 100	100 - 140	120 - 160	90 - 150							
	80 - 120	60 - 100	100 - 140	120 - 160	100 - 160	-	-	-	-	-	-	-
	80 - 120	60 - 100	100 - 140	120 - 160	90 - 150							
	80 - 120	60 - 100	100 - 140	120 - 160	80 - 140							
	80 - 120	60 - 100	100 - 140	120 - 160	75 - 120							
	-	-	90 - 130	60 - 100	90 - 140							
	-	-	90 - 130	60 - 100	60 - 110	-	-	-	-	-	-	-
	-	-	90 - 130	60 - 100	60 - 110							
	-	-	90 - 130	60 - 100	60 - 110							
	-	-	60 - 100	60 - 100	60 - 110	-	-	-	-	-	-	-
	-	-	60 - 100	60 - 100	50 - 90	-	-	-	-	-	-	-
	-	-	40 - 80	40 - 80	40 - 90	-	-	-	-	-	-	-
	-	-	40 - 80	40 - 80	40 - 90	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	200 - 600	200 - 600	200 - 600	200 - 600	200 - 600	750 - 1100 t	-
	-	-	-	-	-	200 - 600	200 - 600	200 - 600	200 - 600	200 - 600	750 - 1100 t	-
	-	-	-	-	80 - 130	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	90 - 150	-	-	-	-	-	-	-
	-	-	-	-	80 - 140	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	900 - 3000
	-	-	-	-	-	-	-	-	-	-	-	900 - 3000
	-	-	-	-	-	-	-	-	-	-	-	600 - 2400
	-	-	-	-	-	-	-	-	-	-	-	600 - 2000
	-	-	-	-	-	-	-	-	-	-	-	300 - 700
	-	-	-	-	-	-	-	-	-	-	-	400 - 1300
	-	-	-	-	-	-	-	-	-	-	-	400 - 1300
	-	-	-	-	-	-	-	-	-	-	-	400 - 1300
	-	-	-	-	-	-	-	-	-	-	-	200 - 1000
	-	-	-	-	-	-	-	-	-	-	-	200 - 1000
	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	100 - 140 t	120 - 180 t	120 - 180 t	120 - 180 n	120 - 180 n	-	-
	-	-	-	-	-	110 - 240 t	180 - 280 t	180 - 280 t	180 - 230 n	180 - 280 n	-	-

Threaded key adjustment unit for direct installation of inserts

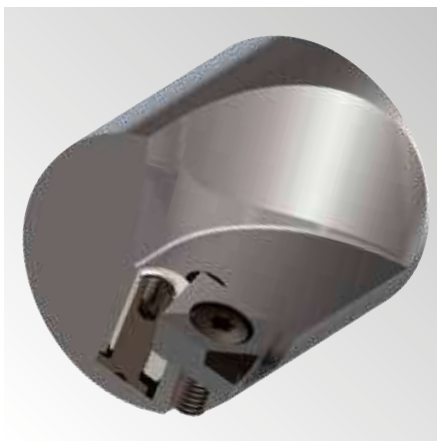
The threaded key adjustment enables the realisation of close stepped tools for finishing operations. A particular advantage is the simple adjustment possibility of the indexable inserts for the adjustment range 0.30 mm in diameter with every design. Depending on the insert position it is possible to carry out an axial as well as a radial adjustment, herewith adjusting the overall length as well as the diameter. Per right hand turn, the

fine adjustment forces the insert into the adjustment direction. Due to the small dimensions it is possible to produce tools from diameter 16.0 mm with insert size 06 (see table). Different basic insert forms can be applied, i.e. triangular, rhombic or square.

No. of edges	from tool Ø		
	index. insert 06	index. insert 09	index. insert 12
1	Ø 16 mm	Ø 29 mm	Ø 36 mm
2	Ø 23 mm	Ø 33 mm	Ø 44 mm
3	Ø 30 mm	Ø 44 mm	Ø 60 mm



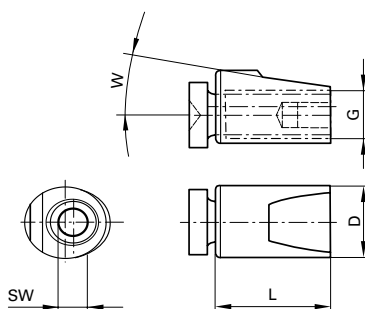
Easy:
The installation and fine adjustment...



...of a single fluted tool with indexable inserts...



...via threaded key.



Ordering no. = Guhring no. + Code no.		Size	for indexable inserts	D	G	L	W	SW	Price per piece € Discount group 122
4007	4,501	06	CC..06.. / SC..06..	4.5	M 3	5.5	7°	SW 1.5	45.00
4007	4,502	06	CP..06.. / SP..06..	4.5	M 3	5.5	11°	SW 1.5	45.00
4007	6,001	09	CC..09T3.. / SC..09T3.. / TC..1102..	6.0	M4x0.5	9.3	7°	SW 2.0	45.00
4007	6,002	09	CP..09T3.. / SP..09T3.. / TP..1102..	6.0	M4x0.5	9.3	11°	SW 2.0	45.00
4007	9,001	12	CC..1204.. / SC..1204.. / TC..16T3..	9.0	M6x0.5	12.7	7°	SW 3.0	45.00
4007	9,002	12	CP..1204.. / SP..1204.. / TP..16T3..	9.0	M6x0.5	12.7	11°	SW 3.0	45.00
4007	6,003	09	TC..0902..	6.0	M4x0.5	7.7	7°	SW 2.0	45.00
4007	6,004	09	TP..0902..	6.0	M4x0.5	5.8	11°	SW 2.0	45.00

1. ASSEMBLY

- 1.1 Lightly lubricate the bottom and the walls of the location bore of the TWA as well as the thread of the setting screw with MOS2 assembly paste.
- 1.2 Locate the hexagonal key through the wedge into the setting screw and insert together into the base of the location bore of the adjustment unit (fig.1).
- 1.3 Using the hexagonal key push the setting screw into the radial recess at the base of the bore and screw-in the wedge anticlockwise. When doing this the indexable insert contact surface on the wedge must be positioned towards the indexable insert seat (push the wedge from above onto the setting screw, so that the thread of the wedge can locate onto the setting screw). If when screwing in the wedge the collar of the setting screw "jams" in the location bore (noticeable through the setting screw being difficult to turn), push the entire adjustment unit fully into the location bore with the hexagonal key, if necessary resolve "jam" via clockwise rotation (fig. 2).
- 1.4 Lightly lubricate the indexable insert contact surface on the wedge with MOS2 assembly paste and screw in indexable insert in clockwise direction into the indexable insert seat with indexable insert clamping screw (lightly lubricate thread).
- 1.5 The disassembly is carried out in the reverse order

2. Operation

- 2.1 Using a Torx key lightly tighten the indexable insert clamping screw in a clockwise direction to the smallest diameter setting (wedge and setting screw).
- 2.2 Adjust indexable insert to 0.05 mm of diameter before the final dimension: Insert the hexagonal key in the setting screw and adjust the diameter in clockwise direction (fig. 3). Then tighten the indexable insert clamping screw to the specified tightening torque.
- 2.3 Adjust the indexable insert to the final dimension.
- 2.4 If the diameter has already been exceeded, loosen the adjustment in anti-clockwise direction until the wedge noticeably loosens and re-adjust in clockwise direction. To do this the indexable insert clamping screw does not require loosening.
- 2.5 When replacing the indexable insert or when required lubricate the contact surfaces and the thread of the TWA adjustment unit with MOS2 assembly paste.

3. TIGHTENING TORQUE INDEXABLE INSERT CLAMPING SCREW:



Thread size	Torx size	Tightening torque[Ncm]
M 4 / M4 x 0.5	15	515
3.5	15	345
M 2.5	8	128
M 2.5 / M2.2	7	101

4. KEY SIZES OF THE TWA ADJUSTMENT UNITS AND THE ADJUSTMENT TRAVEL OF THE INDEXABLE INSERTS:

Insert size	Socket	in radius (at ¼ rotation of setting screw)
0602..	SW 1.5	0.015 mm with indexable insert with 7° clearance angle or 0.024 with indexable insert with 11° clearance angle
09T3..	SW 2.5	
1204..	SW 3.0	

Fig. 1: Assembly (s. no. 1.2)

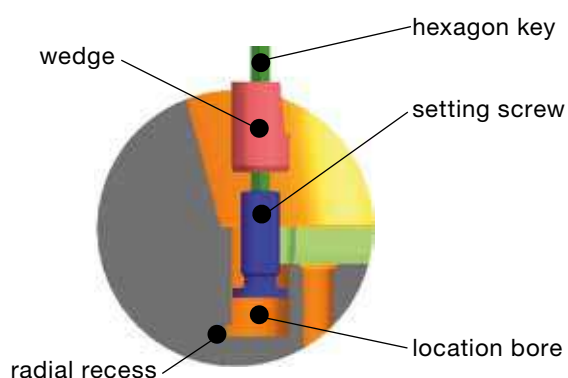


Fig. 2: Assembly (s. no. 1.3)

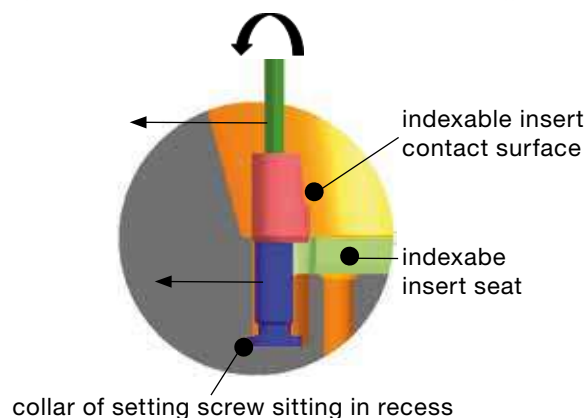


Fig. 3: Operation (s. no. 2.1)

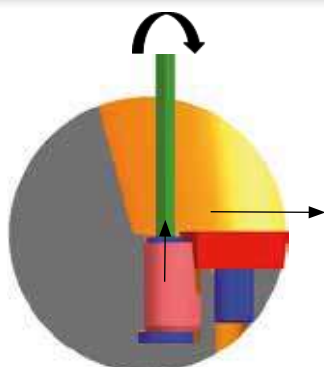
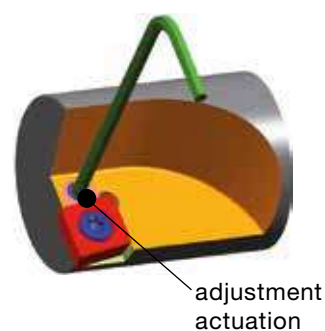


Fig. 4: Operation (s. no. 2.2)

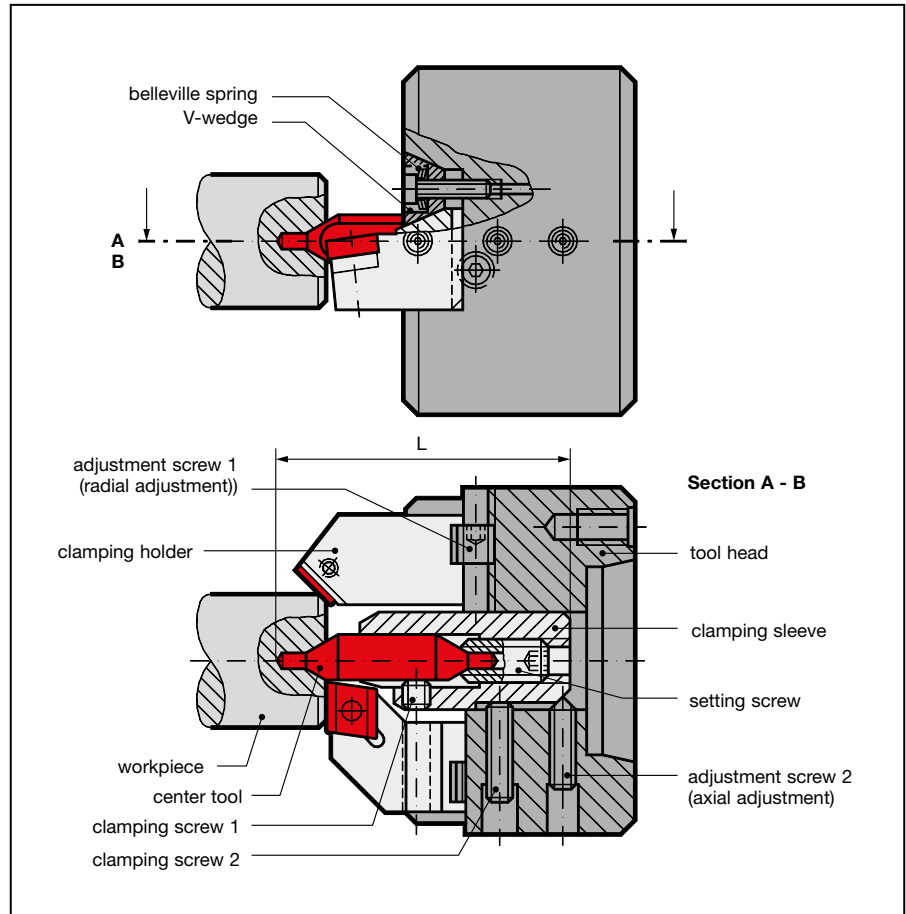


Setting of clamping holder

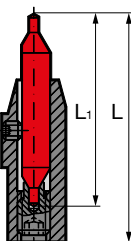
1. Turn the clamping holder adjustment screw 1 in direction of adjustment until stop.
2. Loosen V-wedge, then pretension again via Bellville spring (do not tighten!).
3. Using hexagonal spanner set adjustment screw 1 (1 mm increments) to the required dimension (1 turn = 2 mm in diameter).
4. Tighten V-wedge.

Setting and changing of center drills

1. Pre-set lengths L1 and L2 according to setting dimensions via setting screw.
2. Place clamping sleeve in the bore of the tool head and finely adjust via tool head adjustment screw 2 which acts axially on chamfer of clamping sleeve.
3. Set clamping sleeve position with clamping screw.
4. Tool change is achieved by loosening clamping screw 2 via hole in the clamping holder without adjusting clamping holder.



Setting dimensions „L“ for clamping sleeves with center drills or step drills with flats

		Guhring no. 587. 588				Guhring no. 589			Guhring no. 274. 574		
		Center drill with flat for center holes form A or R to DIN 332 sheet 1				Center drill with flat for center holes form B to DIN 332 sheet 1			Center drill with flat for center holes form D or DR to DIN 332 sheet 2		
		Clamping sleeve		Drill-Ø	Dimensions mm		Drill-Ø	Dimensions mm		Drill-Ø	Dimensions mm
	Guh. no.	Code no.*	mm	L	L1	mm	L	L1	mm	L	L2
 center drill	6151	4,000	1.60	47.5	35.5	-	-	-	-	-	-
		5,000	2.00	48.4	40.0	-	-	-	-	-	-
		6,300	2.50	49.5	45.0	-	-	-	-	-	-
	6152	4,000	1.60	62.5	35.5	-	-	-	-	-	-
		5,000	2.00	63.4	40.0	-	-	-	-	-	-
		6,300	2.50	64.5	45.0	1.60	64.5	45.0	-	-	-
		8,000	3.15	66.0	50.0	2.00	66.0	50.0	M 4	74.7	58.0**
6153	10,000	4.00	67.9	56.0	2.50	67.9	56.0	M 5	77.8	61.0**	
	6,300	2.50	83.0	45.0	1.60	83.0	45.0	-	-	-	
	8,000	3.15	87.0	50.0	2.00	87.0	50.0	M 4	95.7	58.0**	
	10,000	4.00	88.9	56.0	2.50	88.9	56.0	M 5	98.8	61.0**	
	11,200	-	-	-	3.15	87.0	60.0	-	-	-	
	12,500	5.00	91.1	63.0	-	-	-	M 6	103.2	71.0	
	14,000	-	-	-	4.00	90.1	67.0	M 8	108.3	77.0**	
	16,000	6.30	94.0	71.0	-	-	-	M 10	114.1	82.0**	
6154	18,000	-	-	-	5.00	92.7	75.0	-	-	-	
	18,000	-	-	-	5.00	148.7	75.0	-	-	-	
	20,000	8.00	153.9	80.0	6.30	151.4	80.0	M 12	174.9	105.0	
	25,000	10.00	158.5	100.0	8.00	155.4	100.0	M16	186.7	132.0	
	31,500	12.50	164.6	125.0	10.00	160.5	125.0	M 20	196.0	145.0	

*) When ordering, please always state Guhring no. and code no.!

**) reduced shank length

for the design of end operation tools

www.guehring.de
guehring-ge100@guehring.de

1. Tool

1.1 Technical data

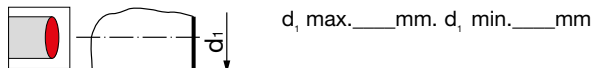
Tool Ø max. _____ mm
Tool length max. _____ mm
Tool holder _____
Suggestion for indexable insert _____

☐ Other machine operation

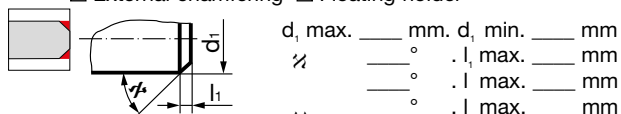
1.2 Required machining operations

(if possible, please enclose workpiece drawing)

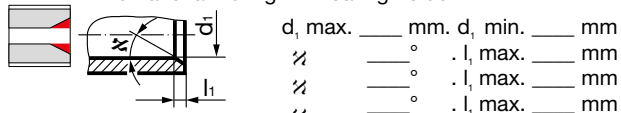
☐ Facing ☐ Floating holder



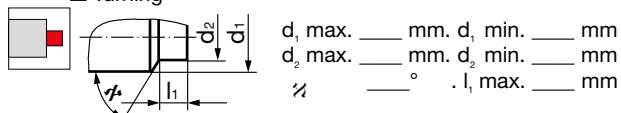
☐ External chamfering ☐ Floating holder



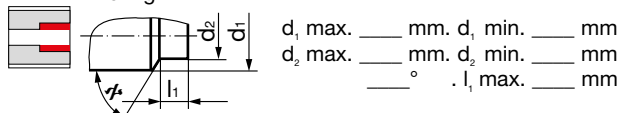
☐ Internal chamfering ☐ Floating holder



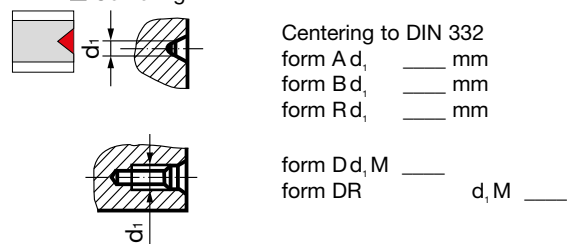
☐ Turning



☐ Boring



☐ Centering



Centering to DIN 332
form A d1 _____ mm
form B d1 _____ mm
form R d1 _____ mm

form D d1 M _____
form DR d1 M _____

1.3 Quantity required

Basic body _____ short clamping holder _____ pieces

Accessories _____

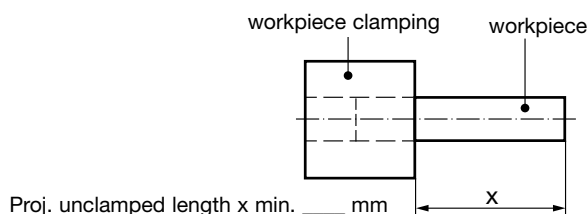
2. Workpiece

(if possible, please enclose workpiece drawing)

2.1 Material to be machined

Material designation (Mat. no. to DIN)

2.2 Position of workpiece



2.3 Other information

(please provide example drawing on reverse side)

Surface finish _____

Tolerances _____

3. Machine

3.1 Technical data

Machine type _____
Drive power _____ kW
Coolant
☐ wet ☐ MQL ☐ dry

For technical please contact Mr./Mrs.

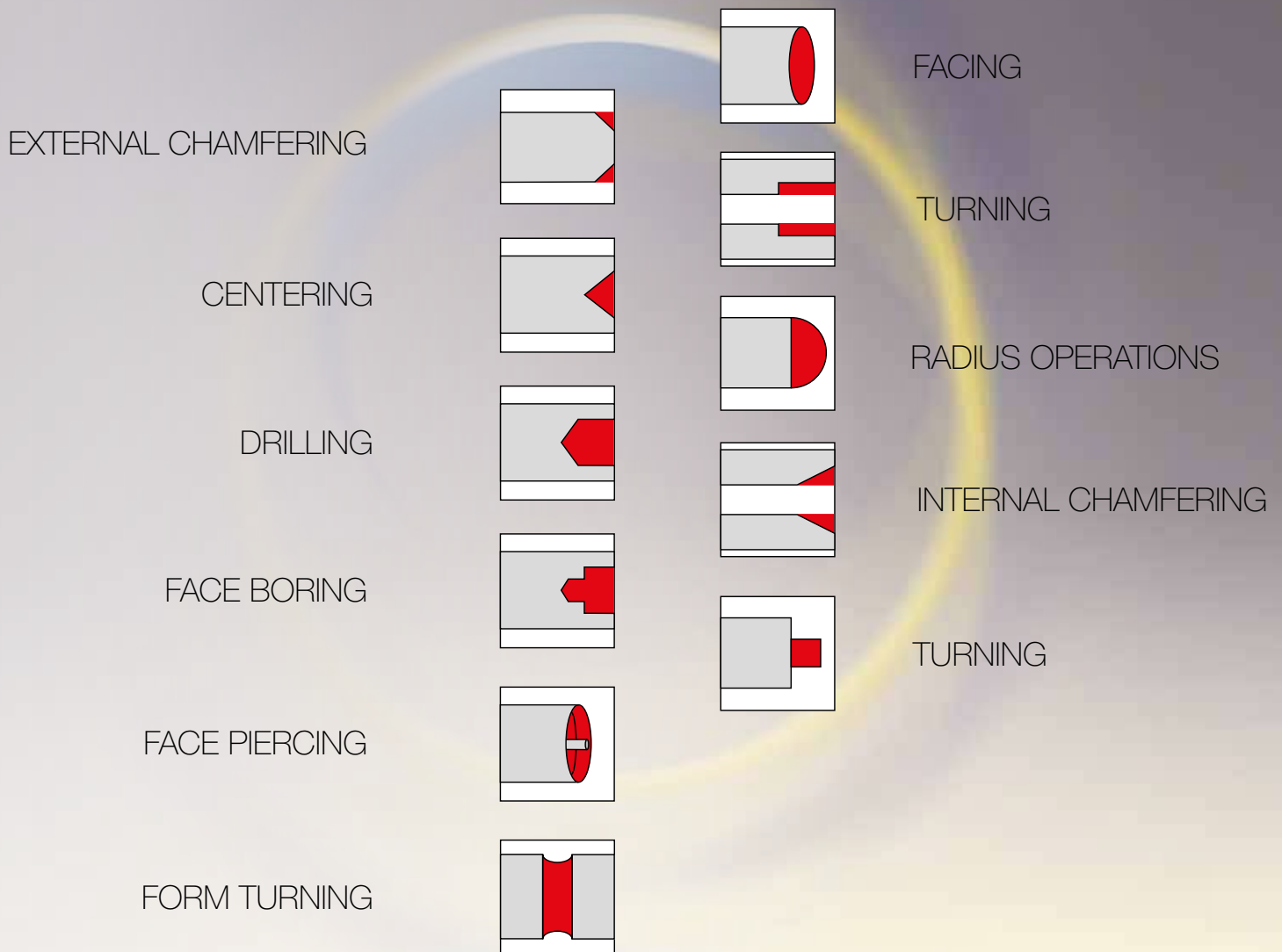
Tel.

Company name and address

Date, signature

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