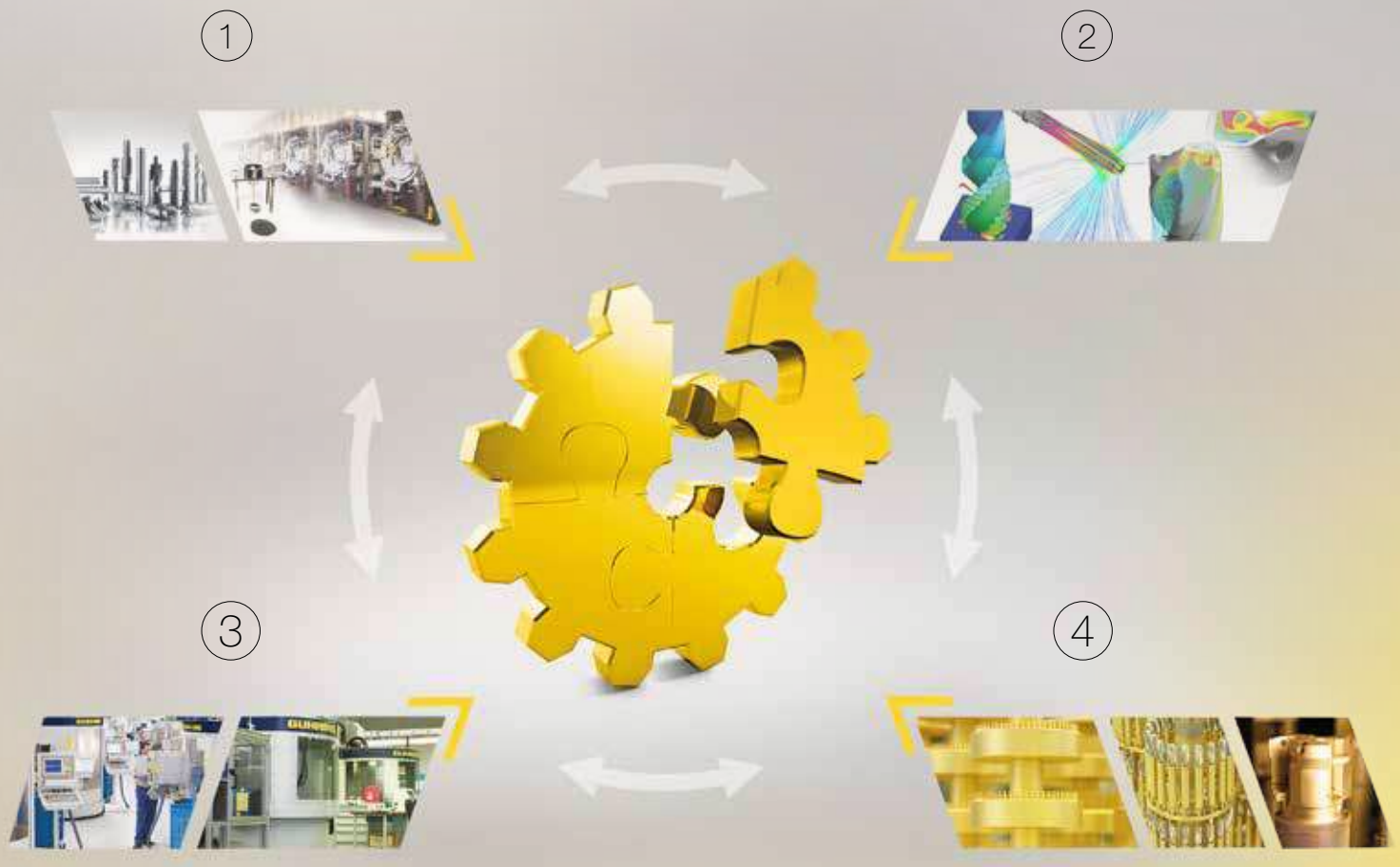
GUHRING

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

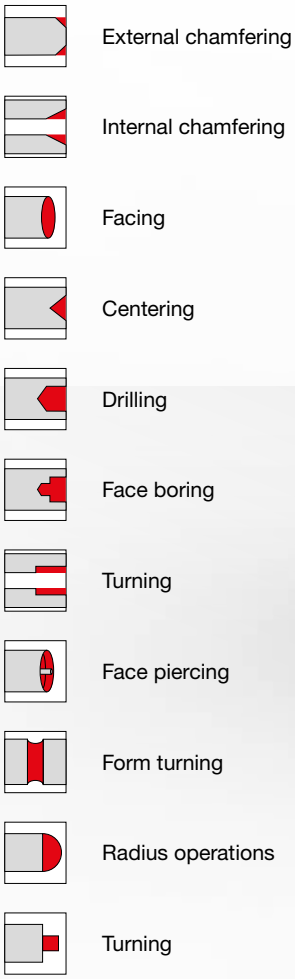
GE 100

+ 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



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

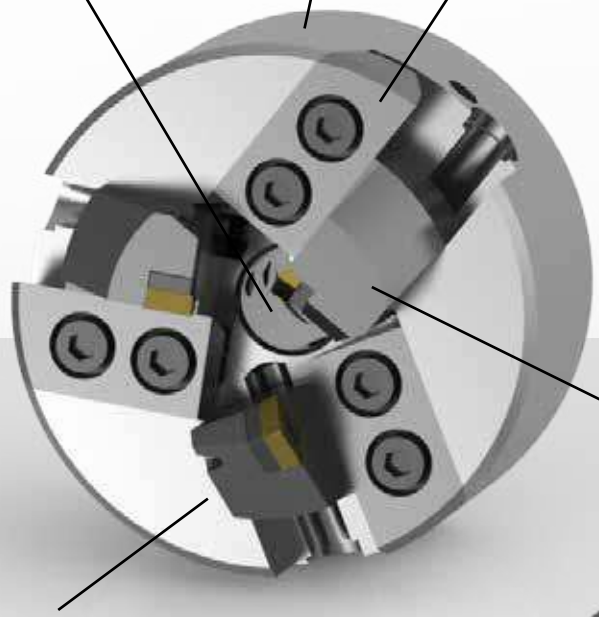
USERS

- 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

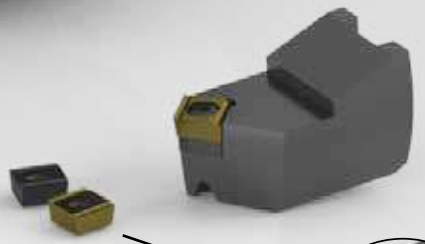
Clamping wedge

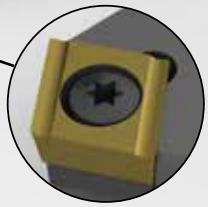


Our clamping holders (p. 24) are **axially and radially adjustable,** via adjusting screws, making the machining of different workpiece diameters possible with only one tool.

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 ± 0.013mm).

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

CONTENT

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

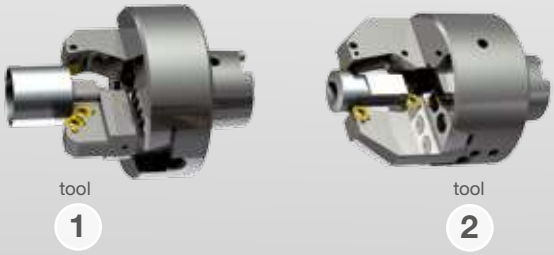
CHALLENGE

Seat cross strut

CHALLENGE

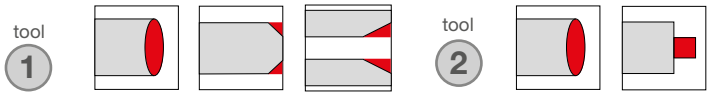
When machining hardened and tempered tubes for vehicle seats special conditions demand that the finished diameters and lengths are provided with corresponding chamfers and tolerances. The process requires DIN ISO indexable inserts as well as good chip evacuation.

OUR SOLUTION



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.



ADVANTAGES

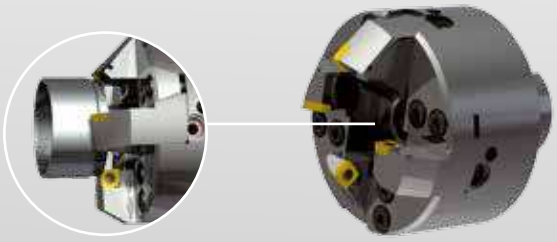
- Standard DIN ISO indexable insert
- Quick-change system on tool head
- Short chips and good chip flow guarantee process reliability
- Uncomplicated and simple re-adjustment of tools
- Wear parts replaceable

Shock absorber

CHALLENGE

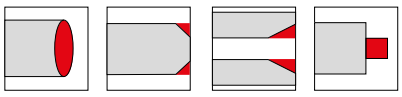
Facing, internal and external chamfering as well as turning a shock absorber reservoir tube in one operating step – and this with varying tube diameters,

OUR SOLUTION



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.



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

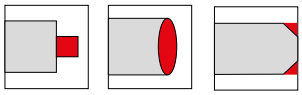
CHALLENGE

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

OUR SOLUTION

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.



ADVANTAGES

- 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

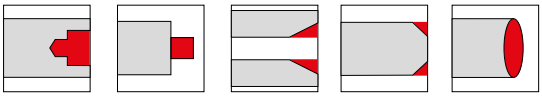
CHALLENGE

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.

OUR SOLUTION

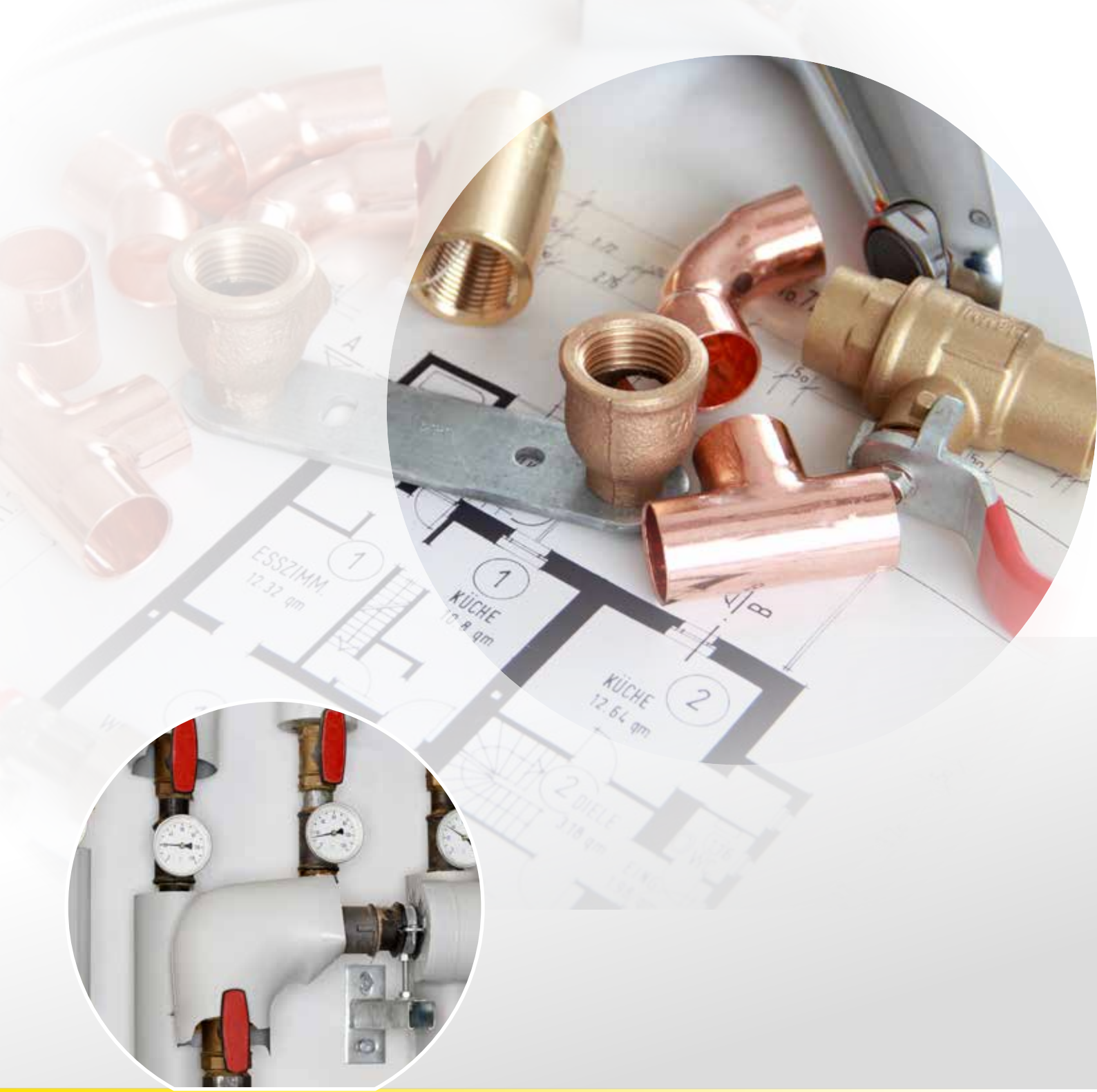
V_c: 250 m/min
f_n: 0,3 mm/rev.
a_p: 5 mm

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.



ADVANTAGES

- 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

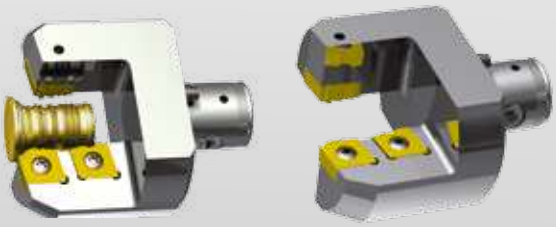
- Water pipelines
- Pipe fittings
- Armatures
- Toilet seat fittings
- Heating manifolds
- Water cylinders

Pipe fittings and pipes

CHALLENGE

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

OUR SOLUTION



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.

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

Pipes for flushing cisterns

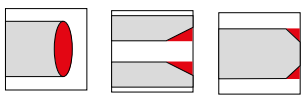
CHALLENGE

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%.

OUR SOLUTION

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.**



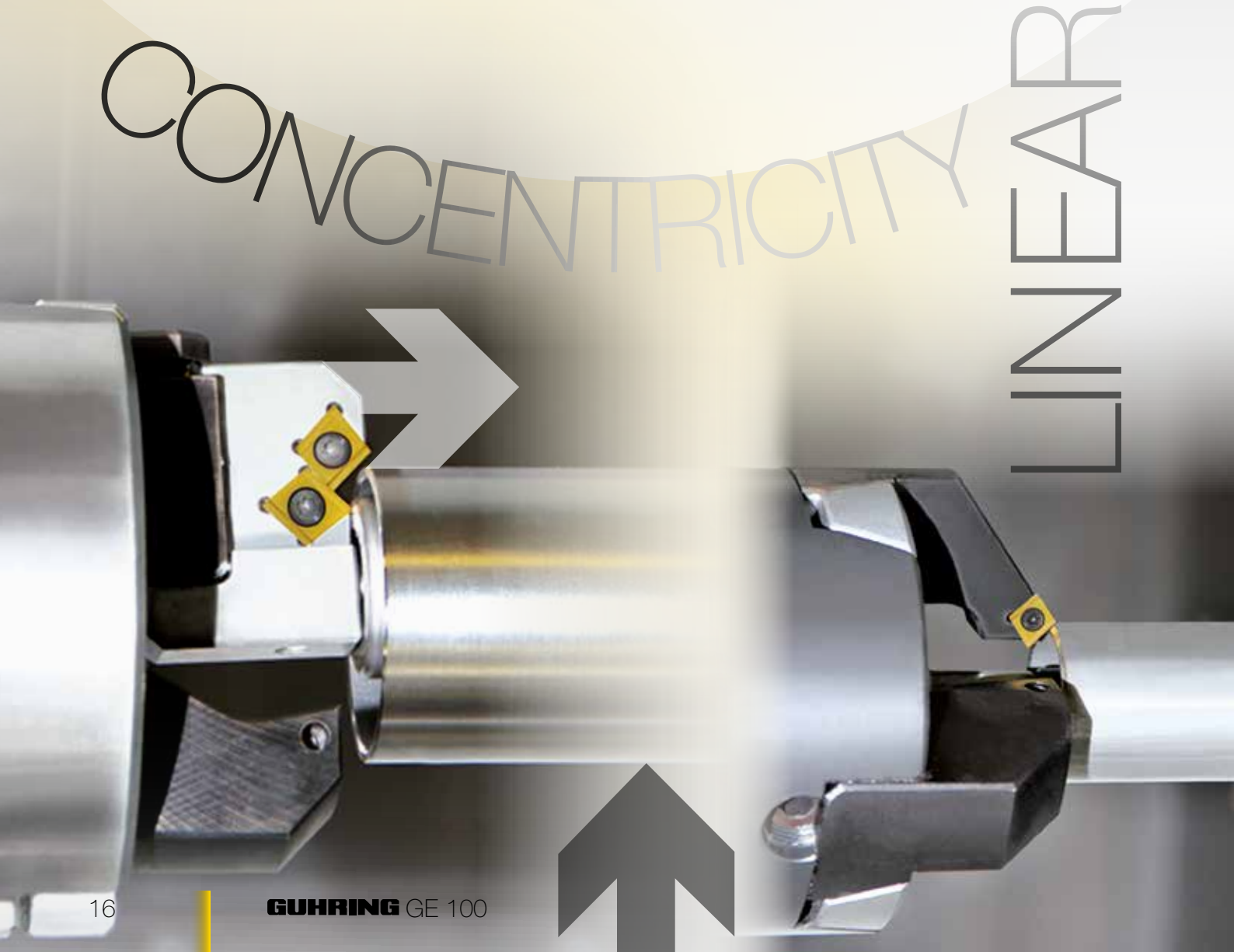
ADVANTAGE

- 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.

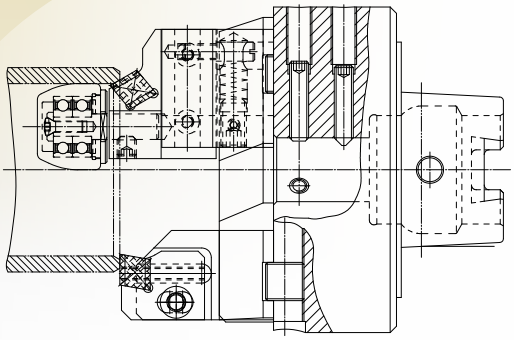
- Compensates for out-of-roundness and wall thickness differences of pipes
- Consistent chamfer width especially with small chamfers
- Compensates inaccuracies of rotating axis to clamping axis
- Combines several operating steps
- More floating travel possible
- Suitable for extremely thin pipes
- Thanks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



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.

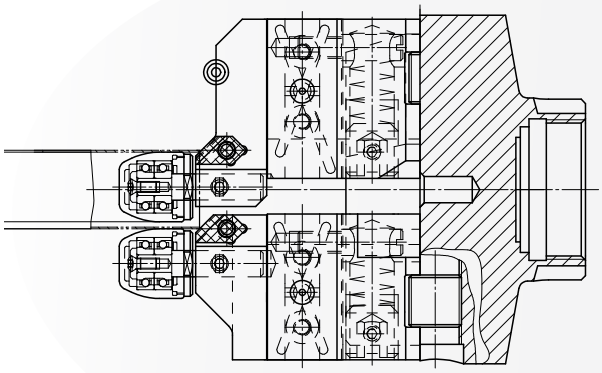
Linear floating holders are currently available as a special tool.



Linear sprung floating holder

EXTERNAL AND INTERNAL FLOATING HOLDERS

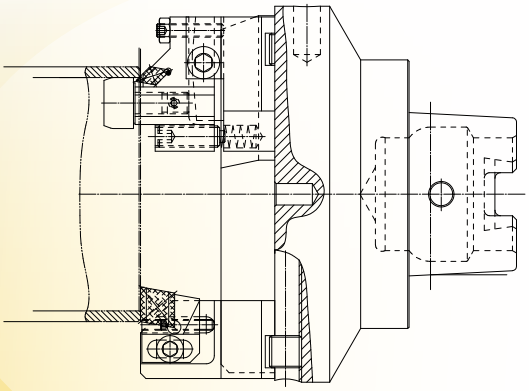
For extremely thin-walled pipes and small chamfers – the newly developed external and internal floating holder. Pipes with Ø 18 x 1 and max. 0.05 x 45° chamfer are not a problem.



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:

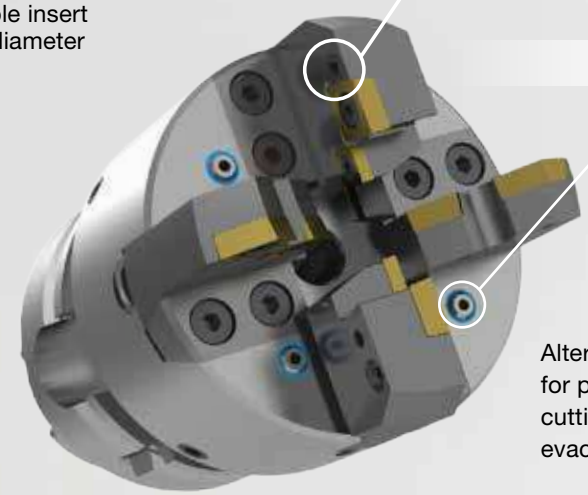
- Machining of long, slender components
- Protrusion length 10xD
- Large material removal in one operating step
- Tool and workpiece stabilise each other
- Rigid clamping for minimal indexable insert wear

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.

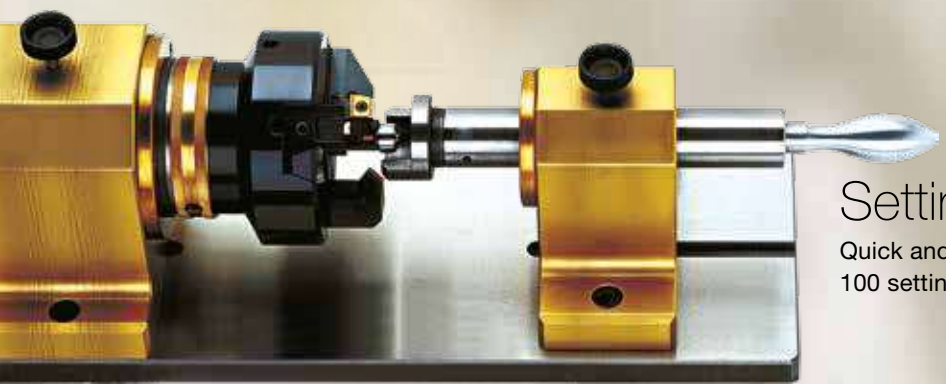
Flexible positioning of indexable inserts to flute geometries of drilling tools in order to provide good chip evacuation.

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

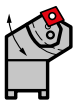
Radially adjustable tool holders

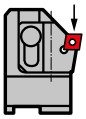

Internal chamfering

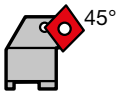

External chamfering


Turning

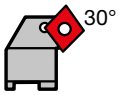

Facing


Angle adjustable
15°-60°


axial adjustment

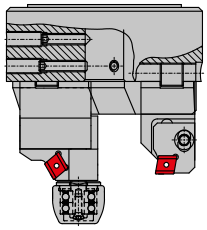

45°


45°


30°

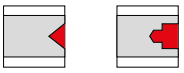

30°

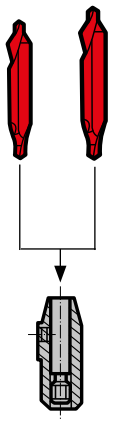
Special solutions



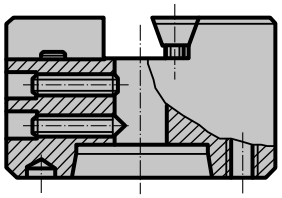
Floating holder p. 30/31
BF 100 p. 32/33

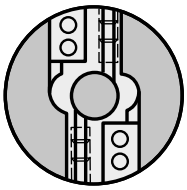
Clamping sleeves

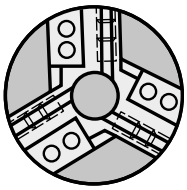

centering, Turning

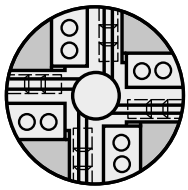


Tool heads



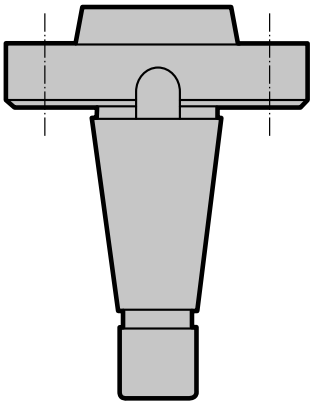

with 2 holders


with 3 holders

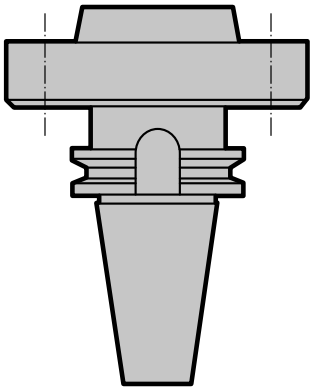

with 4 holders

Adaptors

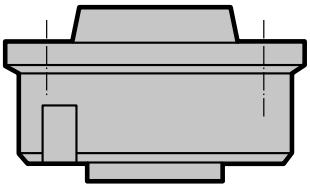
with taper to DIN 2080



with taper to DIN 69 871

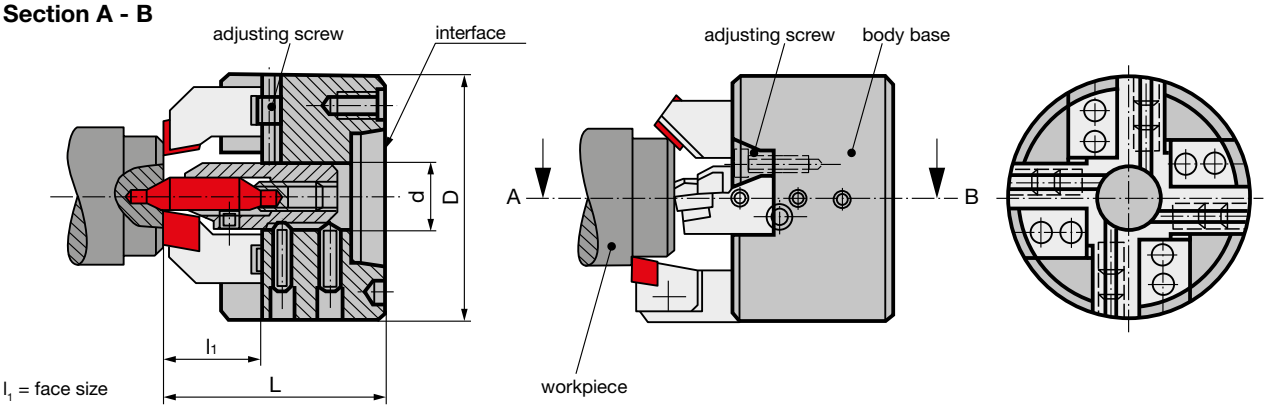


for UMA Ø 45, 88.88*

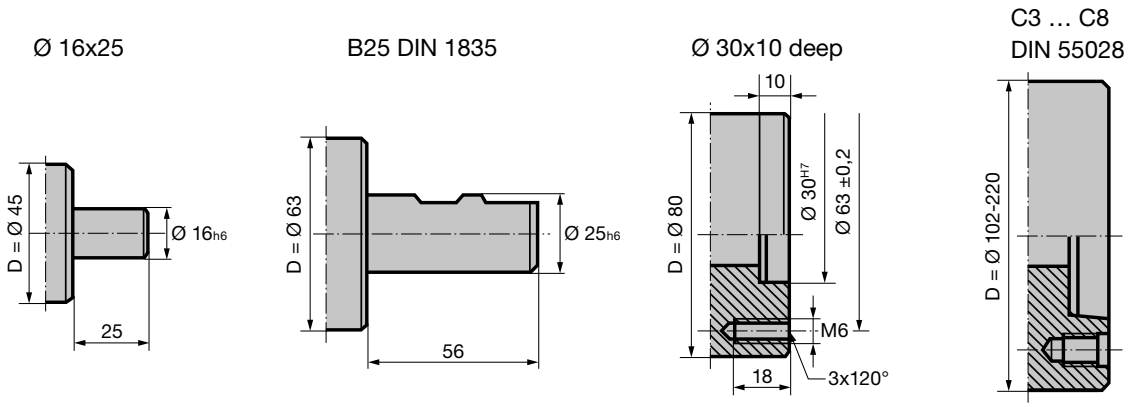


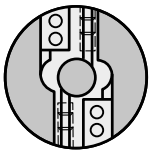
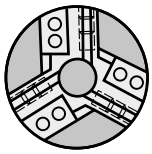
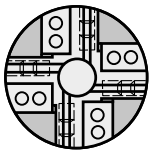
*other systems on request

Section A - B



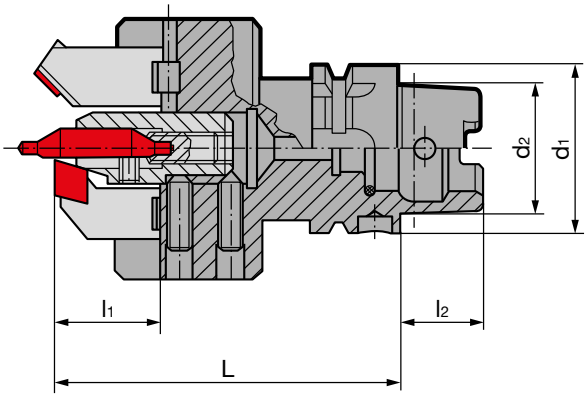
Adaptor
(interface)

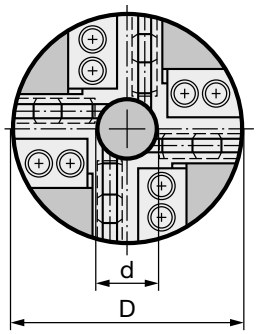


Tool head	Size	Code no.*	Availability	Dimensions D mm	d mm	L mm	l1 mm	Adaptor (Interface)	V-wedge **Guh. no. 6021** Code no.*	Adjust. screw **Guh. no. 6022** Code no.*
2 Clamp. holders	I	45,002	●	45	10.0	50	27	Ø 16 x 25	45,000	8,000
Guh. no. 6001									54,000	
									63,001	
		63,002	●	63	10.0	50	27	B25 DIN 1835	63,000	8,000
	II	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
		140,002	●	140	31.5	105	45	C5 DIN 55028	140,000	12,000
3 Clamp. holders	I								63,001	
Guh. no. 6002		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
4 Clamp. holders	II	102,004	●	102	20.0	80	35	C3 DIN 55028	102,001	12,000
Guh. no. 6003		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

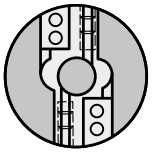
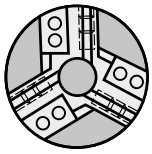
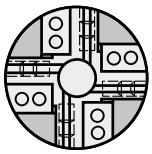
*) When ordering. please always state Guhring no. and code no.!

● on stock ○ on request

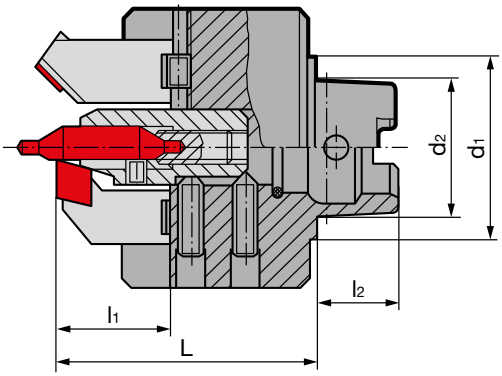


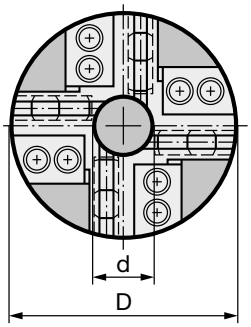


Tool head
with HSK-holder,
form **A**
automatic

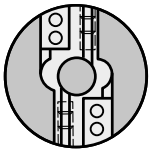
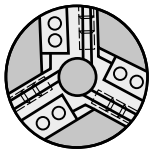
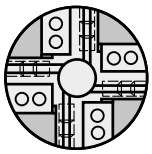
Tool head	Size	Code no.*	Dimensions D mm	d mm	d_1 mm form **A**	d2 mm	L mm form **A**	l1 mm	l2 mm	HSK-holder
2 Clamp. holders	I	45,032	45	10.0	32	24	85	27	16	32
form A Guh. no. 6041		63,040	63	10.0	40	30	85	27	20	40
	II	80,050	80	20.0	50	38	105	35	25	50
		102,063	102	20.0	63	48	105	35	32	63
	III	112,080	112	31.5	80	60	131	45	40	80
		140,100	140	31.5	100	75	131	45	50	100
3 Clamp. holders	I	63,040	63	10.0	40	30	85	27	20	40
form A Guh. no. 6042	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	II	102,063	102	20.0	63	48	105	35	32	63
form A Guh. no. 6043	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.!

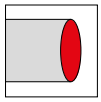
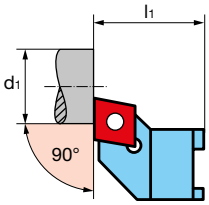
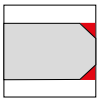
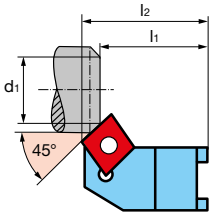




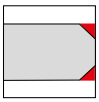
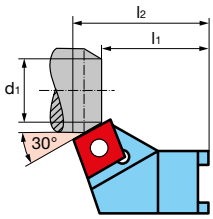
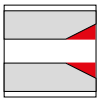
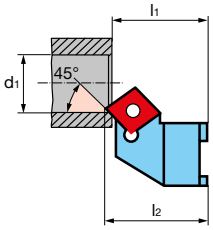
Tool head
with HSK-holder.
form C
manual
with increased
locating face

Tool head	Size	Code no.*	Dimensions D mm	d mm	d1 mm form **C**	d2 mm	L mm form **C**	l1 mm	l2 mm	HSK-holder
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.!

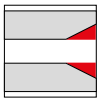
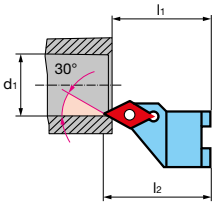
Clamp. holders type	Code no.*	Facing size l1 mm	Total length l2 mm	Machining dia. range d1 min. d1 max. mm	for Tool head D mm	for Tool head Size	for insert type	Spare parts: Tungst. carb. base Guh. no. 6126 Code no.	Spare parts: Threaded ring Guh. no. 6127 Code no.	Spare parts: Clamp. screw Guh. no. 6128 Code no.
Guh. no. 6101  Holder for facing operations 	11,006	27	–	0 - 20	45	I	CCH…0602	–	–	2,501
				5 - 35	63					
	12,006			0 - 30	63					3,500
	11,009			0 - 22	45		CCH…0973			
				0 - 40	63					
	21,009	35	–	0 - 25	80	II		9,000	5,000	3,501
				0(8**) - 44	102					
	22,009			10 - 40	80					
				10(17**) - 62	102					
	21,012			0 - 30	80		CNH…1204	12,000	6,000	4,000
				0(8**) - 50	102					
	22,012			12 - 40	80					
				13 - 62	102					
	31,012	45	–	0 - 40	112	III				
				0 - 70	140					
	32,012			35 - 70	112					
				35 - 100	140					
	31,016		–	0 - 46	112		CNH…1606	16,000	8,000	5,000
				0 - 76	140					
	32,016			35 - 80	112					
				35 - 110	140					
	41,016	60	–	0 - 80	170	IV				
				0 - 130	220					
	42,016			50 - 130	170					
				50 - 180	220					
	41,019		–	0 - 86	170		CNH…1606	19,000	8,000	5,000
				0 - 138	220					
	42,019			50 - 130	170					
				50 - 180	220					
Guh. no. 6102  Holder for ext. chamfering operations 	11,006	27	30.4	8 - 13	45	I	CCH…0602	–	–	2,501
				10 - 30	63					
	12,006			12 - 17	45					
				15 - 34	63					
	11,009		32.7	8 - 12	45		CCH…0973	–	–	3,500
				9 - 30	63					
	12,009			12 - 16	45					
				13 - 34	63					
	21,009	35	40.7	9 - 23	80	II		9,000	5,000	3,501
				9(18**) - 45	102					
	22,009			20 - 33	80					
				20(29**) - 55	102					
	21,012		43.0	9 - 20	80		CNH…1204	12,000	6,000	4,000
				9(17**) - 44	102					
	22,012			20 - 31	80					
				20(29**) - 55	102					
	31,012	45	53.0	15 - 38	112	III				
				15 - 68	140					
	32,012			38 - 60	112					
				38 - 90	140					
	31,016		53.3	15 - 38	112		CNH…1606	16,000	8,000	5,000
				15 - 68	140					
	32,016			38 - 60	112					
				38 - 90	140					
	41,016	60	63.3	36 - 74	170	IV				
				36 - 127	220					
	42,016			73 - 114	170					
				73 - 167	220					

*) When ordering. please always state Guhring no. and code no.!
**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

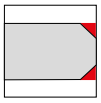
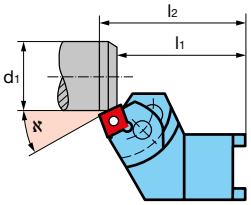
Clamp. holders type	Code no.*	Facing size l1 mm	Total length l2 mm	Machining dia. range d1 min. d1 max. mm	for Tool head D mm	Size	for insert type	Spare parts: Tungst. carb. base Guh. no. 6126 Code no.	Spare parts: Threaded ring Guh. no. 6127 Code no.	Spare parts: Clamp. screw Guh. no. 6128 Code no.
Guh. no. 6103  Holder for ext. chamfering operations 	11,006	27	31.5	8 - 13 10 - 30	45 63	I	CCH...0602	–	–	2,501
	12,006			12 - 17 15 - 34	45 63					
	11,009		34.3	8 - 12 10 - 30	45 63		CCH...0973	–	–	3,500
	12,009			12 - 16 14 - 34	45 63			9,000	5,000	3,501
	21,009	35	42.3	8 - 21 8(17**) - 43	60 102	II				
	22,009			20 - 32 20(29**) - 54	60 102					
	21,012		45.0	8 - 20 8(17**) - 43	80 102		CNH...1204	12,000	6,000	4,000
	22,012			20 - 32 20(28**) - 54	80 102					
	31,012	45	55.1	15 - 38 15 - 68	112 140	III				
	32,012			38 - 60 38 - 90	112 140					
	31,016		57.9	15 - 38 15 - 68	112 140		CNH...1606	16,000	8,000	5,000
	32,016		55.9	38 - 60 38 - 90	112 140					
	41,016	60	70.9	36 - 72 36 - 124	170 220	IV				
	42,016			71 - 114 71 - 166	170 220					
Guh. no. 6104  Holder for int. chamfering operations 	11,006	27	29.0	7 - 15 14 - 30	45 63	I	CCH...0602	–	–	2,501
	12,006			7 - 25	63					
	11,007			7 - 15 14 - 30	45 63		DCM...0702			
	12,007			7 - 22	63					
	11,009			14 - 16 18 - 34	45 63		CCH...0973	–	–	3,500
	21,009	35	36.5	15 - 27 15(23**) - 49	80 102	II		9,001	5,000	3,501
	22,009			25 - 35 25(30**) - 57	80 102					
	21,012		38.0	16 - 25 16(24**) - 46	80 102		CNH...1204	12,001	6,000	4,000
	22,012			25 - 35 25(30**) - 53	80 102					
	31,012	45	47.0	15 - 40 15 - 70	112 140	III				
	32,012		48.0	40 - 60 40 - 90	112 140			12,000		
	31,016		47.0	20 - 40 20 - 70	112 140		CNH...1606	16,001	8,000	5,000
	32,016		48.0	40 - 60 40 - 90	112 140			16,000		
	41,016	60	68.0	40 - 82 40 - 132	170 220	IV		–	–	
	42,016			78 - 120 78 - 170	170 220			16,000	8,000	

*) When ordering. please always state Guhring no. and code no.!
**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

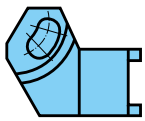
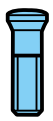
Clamp. holders, radially adjustable

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

Clamping holders, axially, radially and angular adjustable

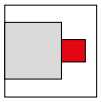
Clamp. holders type	Code no.*	Angle adjustment range ϰ min. max	Dimensions l1 mm	Dimensions l2 mm	Machining dia. range d1 min. d1 max. mm	for Tool head D mm	for Tool head Size	for insert type
Guh. no. 6111  Holder with adjustable angle for external chamfering 	80,000	15° - 60°	35	39.5	12 - 21	80	II	CCH…0602
					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**

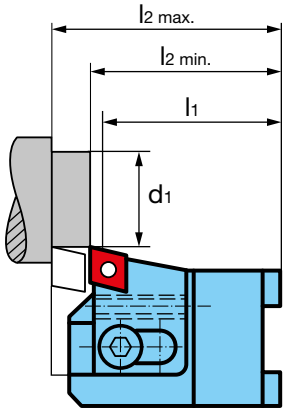
Basic holder **Guh. no. 6112**	Code no.*	Holder inserts **Guh. no. 6113**	Code no.*	Clamping screw **Guh. no. 6128**	Code no.*	for holder **Guh. no. 6111** Code no.*
	80,000		20,006		2,501	80,000
	112,000		30,012		4,002	112,000
	170,000		40,019		5,000	170,000

*) When ordering. please always state Guhring no. and code no.!
**) Dimensions for tool head with 4 adaptors, Ø 102 mm (6003 102,004)!

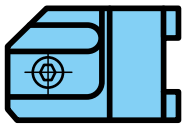
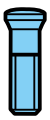
Clamp. holders type	Length adjustment range l2 min. l2 max. mm	Code no.*	Facing size l1 mm	Machining dia. range** d1 min. d1 max. mm	for Tool head D mm	for Tool head Size	for insert type
Guh. no. 6114	35 - 42	80,000	35	11.0 - 25.0	80	II	CCH...0602
	42 - 49	80,001					
	49 - 56	80,002					
	35 - 45	102,000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



Holder for turning operations axially and radially adjustable

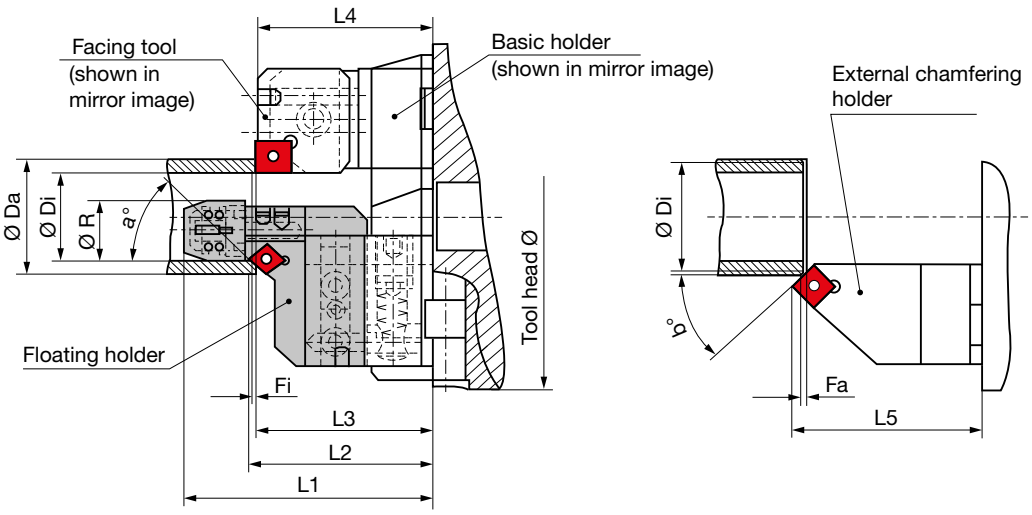


Components for **Guhring no. 6114**

Basic holder **Guh. no. 6115**	Code no.*	Holder inserts **Guh. no. 6116**	Code no.*	Clamping screw **Guh. no. 6128**	Code no.*	for holder **Guh. no. 6114** Code no.*
	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

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



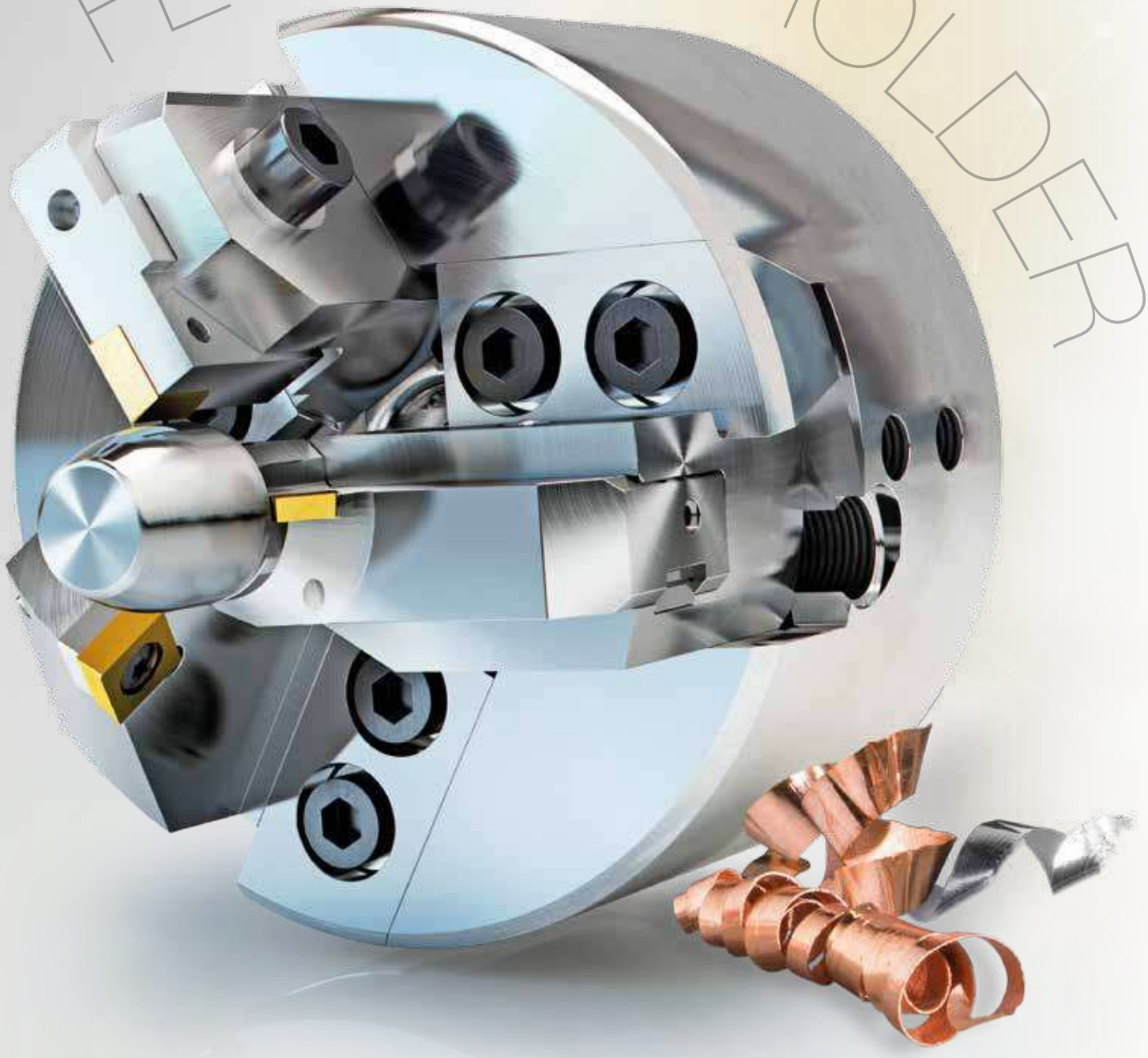
Floating holder											
Drawing no.	Material No.	Size	ØDi	ØR	α°	Fi max.	L1	L2	L3	Insert	Tool head Ø
GI 0602 2059 R	302 731 463	II	20-40	18	45°	3	69	50.5	47-50	CC .. 0602..	102
GI 0602 2061 R	302 731 464	II	20-40	18	30°	3	69	50.5	47-50	CC .. 0602..	102
GI SC09 2027 R	302 731 465	II	40-60	27	45°	3	70.5	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

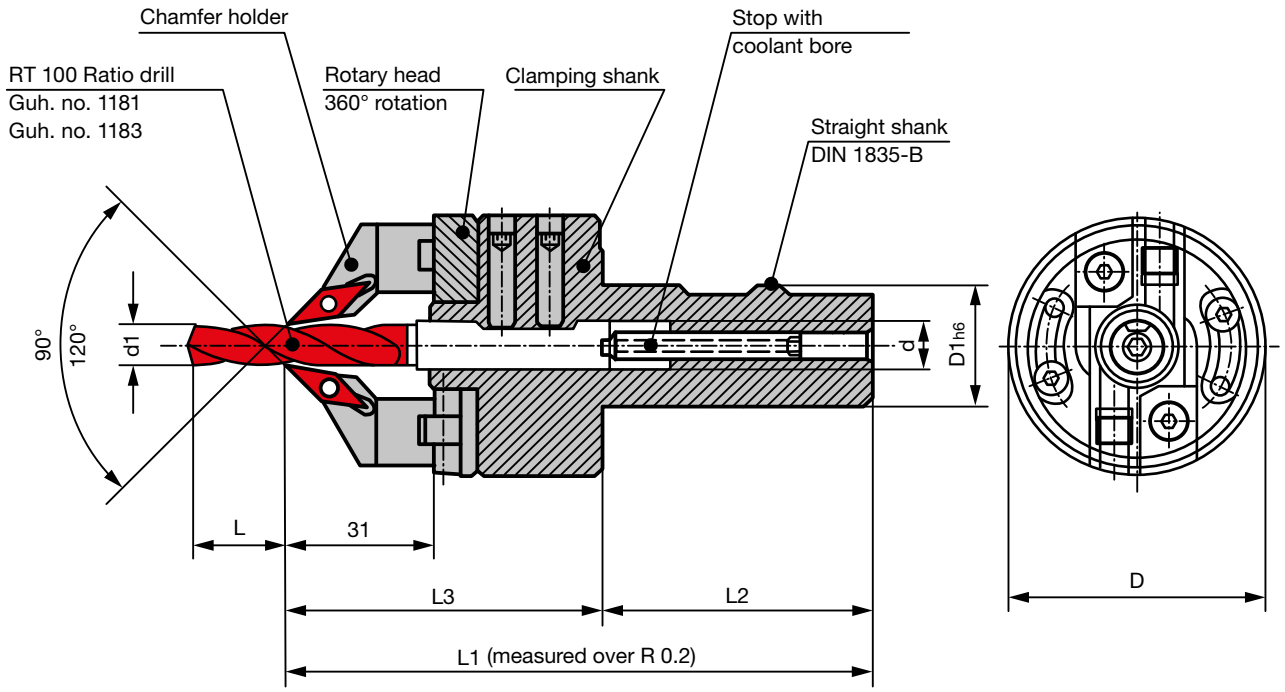
Facing tool						
Drawing no.	Material No.	Size	ØDa -ØDi	L4	Insert	Tool head Ø
GP SC09 2013 R	302 732 245	II	20-57	47-50	SC .. 09T3..	102
GP SC09 2014 R	302 732 246	II	40-74	47-50	SC .. 09T3..	102
GP SC09 2013 R	302 732 245	III	48-115	49-52	SC .. 09T3..	140

Basic holder						
Drawing no.	Material No.	Size	ØDa -ØDi	L3	Insert	Tool head Ø
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	ØDi	β°	L5	Fa max.	Insert	Tool head Ø
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

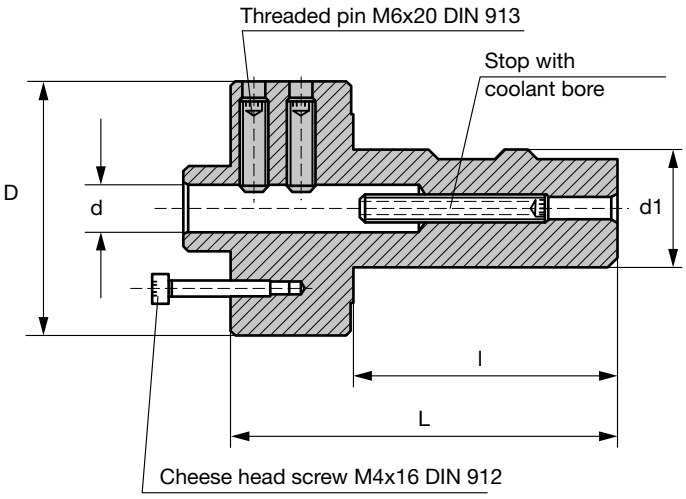
FLOATING HOLDER





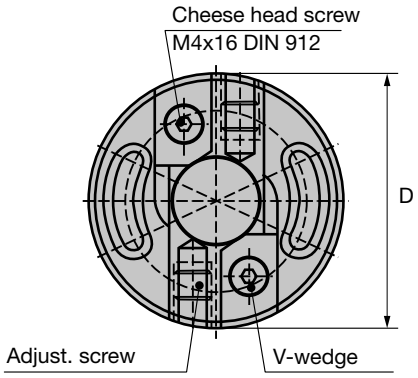
Size	Shank	Drilling Ø d1		Drilling depth L Guhring no.				Dimensions				
				1181		1183						
	d Ø h6	from	up to	from	up to	from	up to	D1	D	L1	L2	L3
106	6	5.0	6.0			12	17	25	54	122	56	66
108	8	6.1	8.0	2	14	14	26					
110	10	8.1	10.0	15	24	29	38					
112	12	10.1	12.0	22	36	38	52					
114	14	12.1	14.0	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	l	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				

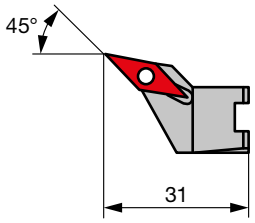
Rotary head 360°
Guh. no. 6510



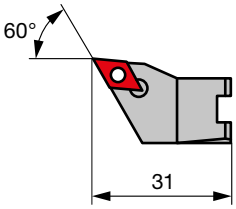
Size	Code no.	Price €	Dimensions mm
			D
106-114	54,000	317.00	54
214-220	63,000	351.00	63

	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

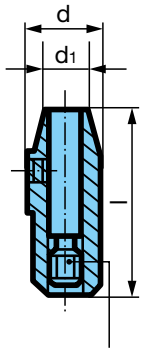
Chamfer holder 90°
Guh. no. 6520



Chamfer holder 120°
Guh. no. 6521

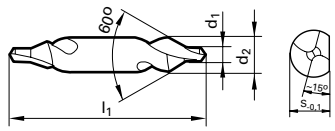


			Spare parts clamping screws		
Size	Code no.	Price €	Guh. no. 6128 Code no.	Price €	Insert type
for all sizes	12,090	228.00	2.501	2.10	VBM..1102..
	12,120	228.00	2.501	2.10	DCM..0702..

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

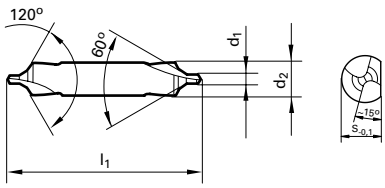
*) When ordering. please always state Guhring no. and code no.!

Guhring no.	587	588
Standard	DIN 333	
Tool material	HSS	
Surface	◯	◯
Form	A	R
Cutting direction	right	right
Discount group	138	138



d1	d2	l1	s	Availability
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	● ●

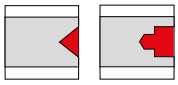
Guhring no.	589
Standard	DIN 333
Tool material	HSS
Surface	◯
Form	B
Cutting direction	right
Discount group	138



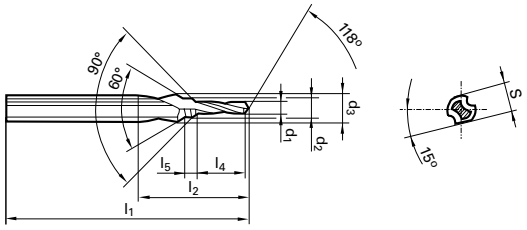
d1	d2	l1	s	Availability
mm	mm	mm	mm	
1.600	6.300	45.00	5.35	●
2.000	8.000	50.00	6.95	●
2.500	10.000	56.00	8.40	●
3.150	11.200	60.00	10.00	●
4.000	14.000	67.00	12.65	●
5.000	18.000	75.00	16.40	●
6.300	20.000	80.00	17.90	●
8.000	25.000	100.00	22.50	●

◯ bright

● on stock ◯ on request



Guhring no.	274	574
Standard	Guhring standard	
Tool material	HSS	
Surface	●	●
Type	N	N
Form	for countersinks form D	for countersinks form DR
Cutting direction	right	right
Discount group	138	138

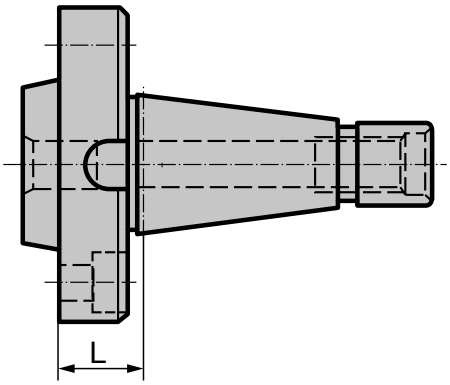


d3 h7	d2	d1 h8	s	l1	l2	l4	l5	for	Availability	
mm	mm	mm	mm	mm	mm	mm	mm	thread		
8.000	4.300	3.300	6.75	63.00	23.00	11.00	1.60	M 4	●	●
10.000	5.300	4.200	8.45	67.00	27.00	13.00	2.15	M 5	●	●
12.500	6.400	5.000	10.45	71.00	33.00	16.00	2.90	M 6	●	●
14.000	8.400	6.800	12.50	88.00	41.00	19.50	3.50	M 8	●	●
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	●	●

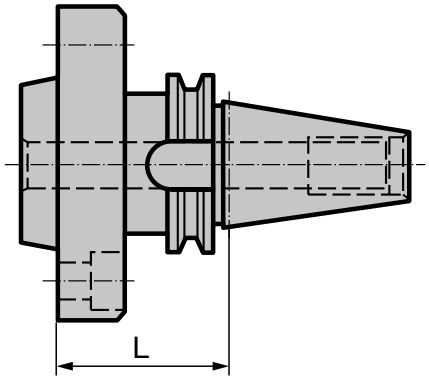
● steam tempered

● on stock ○ on request

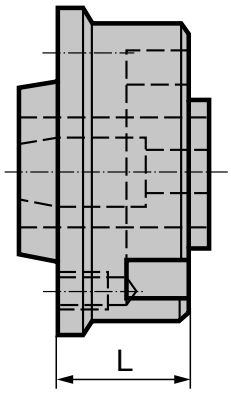
Adaptors with ISO taper to DIN 2080	Code no.*	Size	Tool head size	Interface	Size L mm	Head Ø
Guh. no. 6051	30,080	SK 30	II	Ø 30^{H6} x 10	16.6	80
	40,080	SK 40	II	Ø 30^{H6} x 10	16.6	80
	40,102	SK 40	II	C 3 DIN 55028	21.6	102
	40,112	SK 40	III	C 4 DIN 55028	21.6	112
	40,140	SK 40	III	C 5 DIN 55028	21.6	140
	50,140	SK 50	III	C 5 DIN 55028	23.2	140



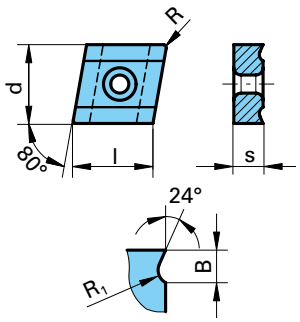
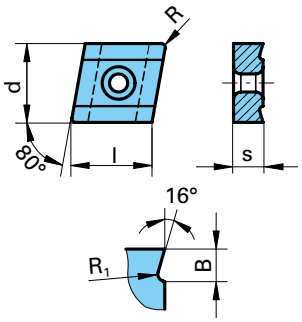
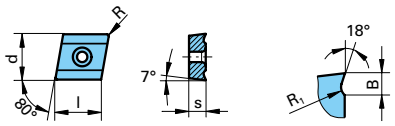
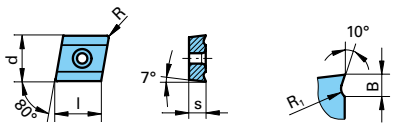
Adaptors with ISO taper to DIN 69871-1 AD	Code no.*	Size	Tool head size	Interface	Size L mm	head Ø
Guh. no. 6052	40,102	SK 40	II	C 3 DIN 55028	55	102
	40,112	SK 40	III	C 4 DIN 55028	55	112
	40,140	SK 40	III	C 5 DIN 55028	55	140
	45,112	SK 45	III	C 4 DIN 55028	55	112
	45,140	SK 45	III	C 5 DIN 55028	55	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 insert type	Dimensions of basic body mm				Dimensions of chipbreaker mm		Carbide grade Surface finish Cutting direction **Guhring no.**	
Indexable insert with high radius chipbreaker and 4 cutting edges	R	d	l	s	B	R_1	ISO code*	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	Dimensions of basic body mm				Dimensions of chipbreaker mm		Surface finish Cutting direction **Guhring no.**	
	R	d	l	s	B	R_1	ISO code*	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	Dimensions of basic body mm				Dimensions of chipbreaker mm		Surface finish Cutting direction **Guhring no.**	
	R	d	l	s	B	R_1	ISO code*	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	Dimensions of basic body mm				Dimensions of chipbreaker mm		Surface finish Cutting direction **Guhring no.**	
	R	d	l	s	B	R_1	ISO code*	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

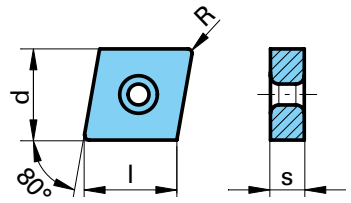
	K10		K10		K10		K10		P40		P40		P40		P40		P40		P40	
	○		S		A		Proton		○		S		A		A		C		Proton	
	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
	6208	6252							6211	6255	6212	6256	6213				6214			
	Availability																			
	●	○							●	●	●	●	○				○			
	●	●							●	●	●	●	●				●			
	●	○							●	○	●	○	○				○			
	●	●							●	●	●	●	○				○			
	●	○							●	●	●	●	○				○			
	●	○							●	○	●	○	○				○			
	●	●							●	●	●	●	○				○			
	○	○							●	○	●	○	○				○			
	●	●							●	●	●	●	○				○			
	●	○							●	○	●	○	○				○			
	●	●							●	●	●	●	○				○			
	●	○							●	●	●	●								

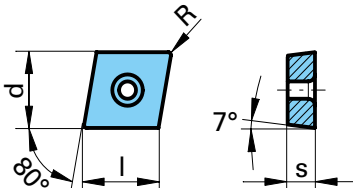
	○		S		A		Proton		○		S		A		A		C		Proton	
	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
	6201	6245							6204	6248	6205	6249	6206	6250			6207	6251		
	Availability																			
	●	○							●	●	●	○	○	○			○	○		
	○	○							●	●	●	○	○	○			○	○		
	○	○							●	○	●	○	○	○			○	○		
	●	●							●	●	●	●	○	○			○	○		
	○	○							●	○	○	○	○	○			○	○		
	●	○							○	●	○	●	○	○			○	○		
	●	○							●	○	●	○	○	○			○	○		
	○	○							●	○	●	●	○	○			○	○		
	●	○							●	○	●	○	○	○			○	○		
	○	○							●	○	○	○	○	○			○	○		
	○	○							○	○	○	○	○	○			○	○		
	●	○							●	○	●	○	○	○			○	○		
	●	●							○	○	○	○	○	○			○	○		

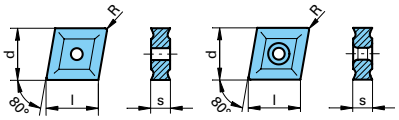
	○		S		A		Proton		○		S		A		A		C		Proton	
	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
	6277	6278	6293	6298			6661	6662	6281	6282	6283	6284							6663	6664
	Availability																			
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●
	●	●	●	●			●	●	●	●	●	●							●	●

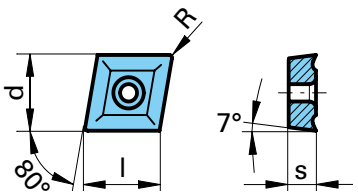
	○		S		A		Proton		○		S		A		A		C		Proton	
	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
	6677	6678	6693	6698	6679	6680	6685	6686	6681	6682	6683	6684			6675	6676			6687	6688
	Availability																			
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●
	●	●	●	●	●	●	●	●	●	●	●	●			●	●			●	●

*) 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 type	Dimensions indexable inserts mm					Carbide grade Surface finish Cutting direction **Guhring no.**
Indexable insert without chipbreaker and 4 cutting edges	R	d	l	s	ISO code*	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	Dimensions indexable inserts mm					Cutting direction **Guhring no.**
	R	d	l	s	ISO code*	Code no.
	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

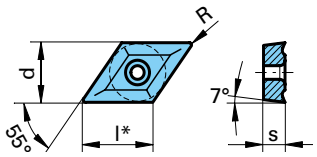
Indexable insert with chipbreaker and 4 cutting edges	Dimensions indexable inserts mm					Cutting direction **Guhring no.**
	R	d	l	s	ISO code*	Code no.
	0.2	12.70	12.9	4.76	CNMU120402N	124,020
	0.4	12.70	12.9	4.76	CNMG120404N	124,040
	0.8	12.70	12.9	4.76	CNMG120408N	124,080
	0.4	15.88	16.1	6.35	CNMU160604N	166,040
	0.8	15.88	16.1	6.35	CNMG160608N	166,080

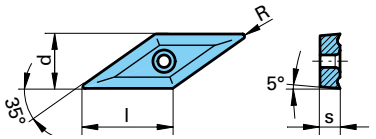
Indexable insert with chipbreaker and 2 cutting edges	Dimensions indexable inserts mm					Cutting direction **Guhring no.**
	R	d	l	s	ISO code*	Code no.
	0.2	6.35	6.4	2.38	CCMT060202N	62,020
	0.4	6.35	6.4	2.38	CCMT060204N	62,040
	0.6	6.35	6.4	2.38	CCMT060208N	62,080
	0.2	9.53	9.6	3.97	CCMT09T302N	93,020
	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

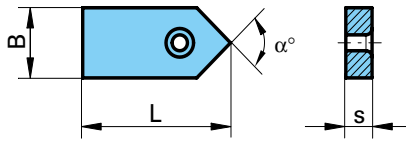
○ blank Ⓢ TiN ● on stock ○ on request

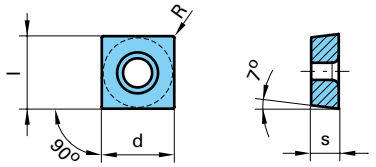
K10	P40	P40	P40
◯	◯		
left/right	left/right		
6215	**6236**		
Availability			
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
◯	◯		
left/right	neutral		
6287	**6289**		
Availability			
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
●	●		
◯	◯	Ⓢ	Ⓢ
left/right	left/right	left/right	left/right
6294	**6275**	**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 insert type	Dimensions indexable inserts mm					Carbide grade Surface finish Cutting direction **Guhring no.**
Indexable insert with chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	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

	Dimensions indexable inserts mm					Surface finish Cutting direction **Guhring no.**
Indexable insert with chipbreaker and 2 cutting edges	R	d	l	s	ISO code*	Code no.
	0.2	6.35	11.0	2.38	VBMT110202N	11,020

Indexable insert type	Dimensions indexable inserts mm				Clamping screw **Guhring no, 6128**		Carbide grade Surface finish Cutting direction **Guhring no,**
Insert blank	B	L	α°	s	Code no,	Drawing 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

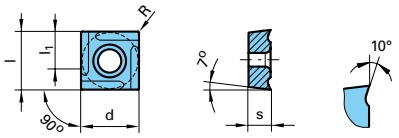
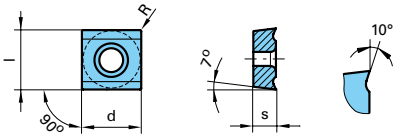
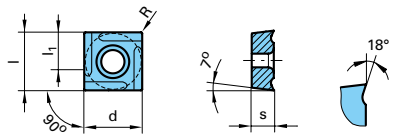
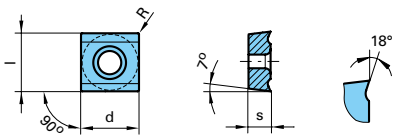
	Dimensions indexable inserts mm				Clamping screw **Guhring no, 6128**		Surface finish Cutting direction **Guhring no,**
Indexable insert form S without chipbreaker 1 cutting edge	R	d	l	s	Code no,	Drawing no,	Code no,
	0,2	9,53	3,97	9,53	3,501	SCHW 09T302 N	93,020
	0,4	9,53	3,97	9,53	3,501	SCHW 09T304 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 type	Dimensions Indexable insert mm				Clamping screw		Carbide grade Surface finish Cutting direction	
Indexable insert form S with chipbreaker 10°					**Guhring no. 6128**			**Guhring no.**
	R	d	l	s	l_1	Code no.	ISO code*	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**			Surface finish Cutting direction **Guhring no.**
	R	d	l	s		Code no.	ISO code*	Code no.
	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**			Surface finish Cutting direction **Guhring no.**
	R	d	l	s	l_1	Code no.	ISO code*	Code no.
	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**			Surface finish Cutting direction **Guhring no.**
	R	d	l	s		Code no.	ISO code*	Code no.
	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 Ⓢ TiN Ⓐ AlTiN ● on stock ○ on request

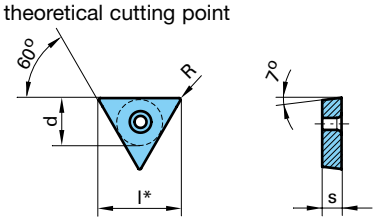
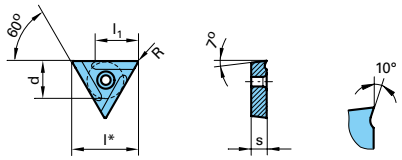
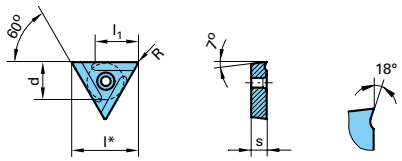
K10		K10		K10		K10		P40		P40		P40		P40	
○		(S)		(A)		Proton		○		(S)		(A)		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6304	**6306**	**6315**	**6317**	**6325**	**6327**	**6335**	**6337**	**6354**	**6356**	**6365**	**6367**	**6375**	**6377**	**6385**	**6387**
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○	(S)	(A)	Proton	○	(S)	(A)	Proton
left/right	left/right	left/right	left/right	left/right	left/right	left/right	left/right
6302	**6313**	**6323**	**6333**	**6352**	**6363**	**6373**	**6383**
Availability							
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●

○		(S)		(A)		Proton		○		(S)		(A)		Proton	
right	left	right	left	right	left	right	left	right	left	right	left	right	left	right	left
6303	**6305**	**6314**	**6316**	**6324**	**6326**	**6334**	**6336**	**6353**	**6355**	**6364**	**6366**	**6374**	**6376**	**6384**	**6386**
Availability															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○	(S)	(A)	Proton	○	(S)	(A)	Proton
left/right	left/right	left/right	left/right	left/right	left/right	left/right	left/right
6301	**6312**	**6322**	**6332**	**6351**	**6362**	**6372**	**6382**
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 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	112,020
	0.4	6.35	11.0	2.38	6.0	2,501	TCHX 110204 (R/L) 112	112,040
	0.8	6.35	11.0	2.38	6.0	2,501	TCHX 110208 (R/L) 114	112,080
	0.2	9.53	16.5	3.97	9.5	3,501	TCHX 16T302 (R/L) 116	163,020
	0.4	9.53	16.5	3.97	9.5	3,501	TCHX 16T304 (R/L) 116	163,040
	0.8	9.53	16.5	3.97	9.5	3,501	TCHX 16T308 (R/L) 118	163,080
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	112,020
	0.4	6.35	11.0	2.38	6.0	2,501	TCHX 110204 (R/L) 112	112,040
	0.8	6.35	11.0	2.38	6.0	2,501	TCHX 110208 (R/L) 114	112,080
	0.2	9.53	16.5	3.97	9.5	3,501	TCHX 16T302 (R/L) 116	163,020
	0.4	9.53	16.5	3.97	9.5	3,501	TCHX 16T304 (R/L) 116	163,040
	0.8	9.53	16.5	3.97	9.5	3,501	TCHX 16T308 (R/L) 118	163,080

○ bright Ⓢ TiN Ⓐ AlTiN ● on stock ○ on request

K10	K10	K10	K10	P40	P40	P40	P40
○				○			
left/right				left/right			
6307				**6357**			
Availability							
●				●			
●				●			
●				●			
●				●			
●				●			
●				●			

○		(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															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

○		(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															
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

*) 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

De-scription	Angle	Form
A	85°	
B	82°	
C	80°	
D	55°	
E	75°	
H	120°	
K	55°	
L	90°	
M	86°	
O	135°	
P	108°	
R		
S	90°	
T	60°	
V	35°	
W	80°	

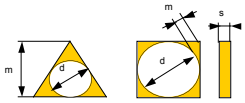
C

Clearance angle

De-scription	Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	others

C

Tolerance



Tolerance class in relation to inscribed circle		Limit dimensions d ± mm	m ± mm	s ± mm
A	-	0.025	0.005	0.025
C	-	0.025	0.013	0.025
D	-	0.010	0.010	0.010
E	-	0.025	0.025	0.025
F	-	0.013	0.005	0.025
G	-	0.025	0.025	0.130
H	-	0.013	0.013	0.025
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
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
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
M (not form D+V see exceptions)	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
N (not form D+V see exceptions)	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
U	4.76 -9.25 12.7 15.875-19.05 25.4	0.080 0.130 0.180 0.250	0.130 0.200 0.270 0.380	0.130
X				

G

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

Insert type

De-scription	form
A	
B	70° - 90°
C	70° - 90°
F	
G	
H	70° - 90°
J	70° - 90°
M	
N	
Q	40° - 60°
R	
T	40° - 60°
U	40° - 60°
W	40° - 60°
X	Special design

W

Insert size / I/C diameter / edge

Size	form	C	D	E	H	M	O
03	I/C edge l. x)				6.350 3.666		7.938 3.288
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
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
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
07	I/C edge l. x)		6.350 7.752		12.700 7.332	7.938 7.957	19.050 7.891
08	I/C edge l. x)	7.938 8.060		7.938 8.218			
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	
10	I/C edge l. x)						25.400 10.521
11	I/C edge l. x)		9.53 11.628		19.050 10.999		
12	I/C edge l. x)	12.700 12.896				12.700 12.731	
13	I/C edge l. x)			12.700 13.148			31.75 13.151
15	I/C edge l. x)		12.700 15.504			15.875 15.914	
16	I/C edge l. x)	15.875 16.120		15.875 16.435			
17	I/C edge l. x)						
19	I/C edge l. x)	19.050 19.826	15.875 19.380	19.050 19.722		19.050 19.097	

09

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

Hole diameter/countersink diameter

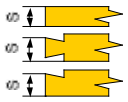
Diameter	Indexable insert with counter-sink (40° - 60°) to DIN/ISO 6987 insert type Q, T, W		Indexable insert with cylindrical hole to DIN 4988 insert type A, G, M
Inner Circle	d1	d2	d1
4.760	2.150	2.700	–
5.560	2.500	3.300	–
6.000	2.800	3.750	–
6.350	2.800	3.750	2.260
7.940	3.400	4.500	–
8.000	3.400	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			

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

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

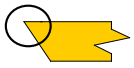
T3

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

04

Cutting edge corner design



Description	form
F	sharp
E	rounded
T	chamfer-red
S	chamfer-red + rounded
K	double chamfer-red
P	double chamfer-red + rounded

F

Cutting direction

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

R

Fitting form

Corner fitting (choice)
S = short cutting edge

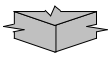
AS	1 corner on one side e.g. C insert (1 cutting edge)
DS	2 corners on one side e.g. V insert (2 cutting edges)
CS	3 corners on one side e.g. T insert (3 cutting edges)
DS	4 corners on one side e.g. S insert (4 cutting edges)
KS	1 corner on two sides e.g. C insert (2 cutting edges)
LS	2 corners on two 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

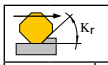
AL	One cutting edge along the entire length

Entire surface

S	Solid
F	Full-face



AS



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 decription to ANSI (inch dimensions)

Insert form

Description	Angle	form
A	85°	
B	82°	
C	80°	
D	55°	
E	75°	
H	120°	
K	55°	
L	90°	
M	86°	
O	135°	
P	108°	
R		
S	90°	
T	60°	
V	35°	
W	80°	

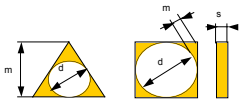
C

Clearance angle

Description	Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	other

C

Tolerance



Tolerance class	Limit dim. (inch/mm) B±	A±	T±
A	0.0002“ 0.005	0.0010“ 0.025	0.0010“ 0.025
B	0.0002“ 0.005	0.0010“ 0.025	0.0050“ 0.125
C	0.0005“ 0.013	0.0010“ 0.025	0.0010“ 0.025
D	0.0005“ 0.013	0.0010“ 0.025	0.0050“ 0.125
E	0.0010“ 0.025	0.0010“ 0.025	0.0010“ 0.025
F	0.0002“ 0.005	0.0005“ 0.013	0.0010“ 0.025
G	0.0010“ 0.025	0.0010“ 0.025	0.0050“ 0.125
H	0.0005“ 0.013	0.0005“ 0.013	0.0010“ 0.025
J	0.0002“ 0.005	*	0.0010“ 0.025
K	0.0010“ 0.025	*	0.0010“ 0.025
L	0.0010“ 0.025	*	0.0010“ 0.025
M	*	*	0.0050“ 0.125
N	*	*	0.0010“ 0.025
U	*	*	0.0050“ 0.125
X	Special design		

G

Insert type

Description	form
A	
B	 70° - 90°
C	 70° - 90°
F	
G	
H	 70° - 90°
J	 70° - 90°
M	
N	
Q	 40° - 60°
R	
T	 40° - 60°
U	 40° - 60°
W	 40° - 60°
X	Special design

W

Insert size /

Size	IC inch	IC mm	C	D	E	H
1.25	5/32“	3.969	4.030	4.845	4.109	2.292
1.5	3/16“	4.763	4.836	5.815	4.931	2.750
1.75	7/32“	5.556	5.642	6.783	5.752	3.208
2	1/4“	6.350	6.448	7.752	6.574	3.666
2.5	5/16“	7.938	8.060	9.691	8.218	4.583
3	3/8“	9.53	9.672	11.628	9.861	5.499
4	1/2“	12.700	12.896	15.504	13.148	7.332
5	5/8“	15.875	16.120	19.380	16.435	9.165
6	3/4“	19.050	19.826	23.256	19.722	10.999
8	1“	25.400	24.878	29.909	25.364	14.145
10	1 1/4“	31.750	32.240	38.760	32.870	18.331

Edge length in mm

Extended tolerance specifications *

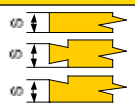
Insert form	Clear.-angle	Tolerance	3/16“	7/32“	1/4“	5/16“	3/8“	1/2“	5/8“	3/4“	1“	1/ ”
C, E, H, M, O, P, S, T, R, W	A	J, K, L, M, N	0.002“ 0.051	0.002“ 0.051	0.002“ 0.051	0.002“ 0.051	0.002“ 0.051	0.003“ 0.076	0.004“ 0.102	0.004“ 0.102	0.005“ 0.127	0.006“ 0.152
		U	0.003“ 0.076	0.003“ 0.076	0.003“ 0.076	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	19.050	32.996	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

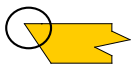
1

Cutting direction

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

R

Cutt. edge corner design



Description	form
F	sharp
E	rounded
T	chamferred
S	chamferred + rounded
K	double chamferred
P	double chamferred + 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

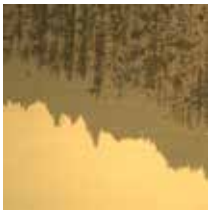
Besides the selection of the optimum tool material and geometry, the tool can be adapted further to the respective machining task by various surface technology processes. Regarding this, Guhring differentiates the following options:

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

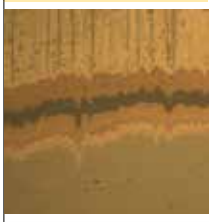
Steam tempered / nitrided / nitrided lands surface finish: ◍ ● ◓
Steam tempering chemically modifies the peripheral zones of steel surfaces in the µm-range, generating a crystalline iron oxide coating 3-10 µm. These surface finishes improve the tribological characteristics of the tools. Thanks to this 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	nanostructured multi-layer coating for titanium-. aluminium-. nickel-based alloys	Hard, high heat-resistant coating

[1] .. against steel [2] .. against aluminium

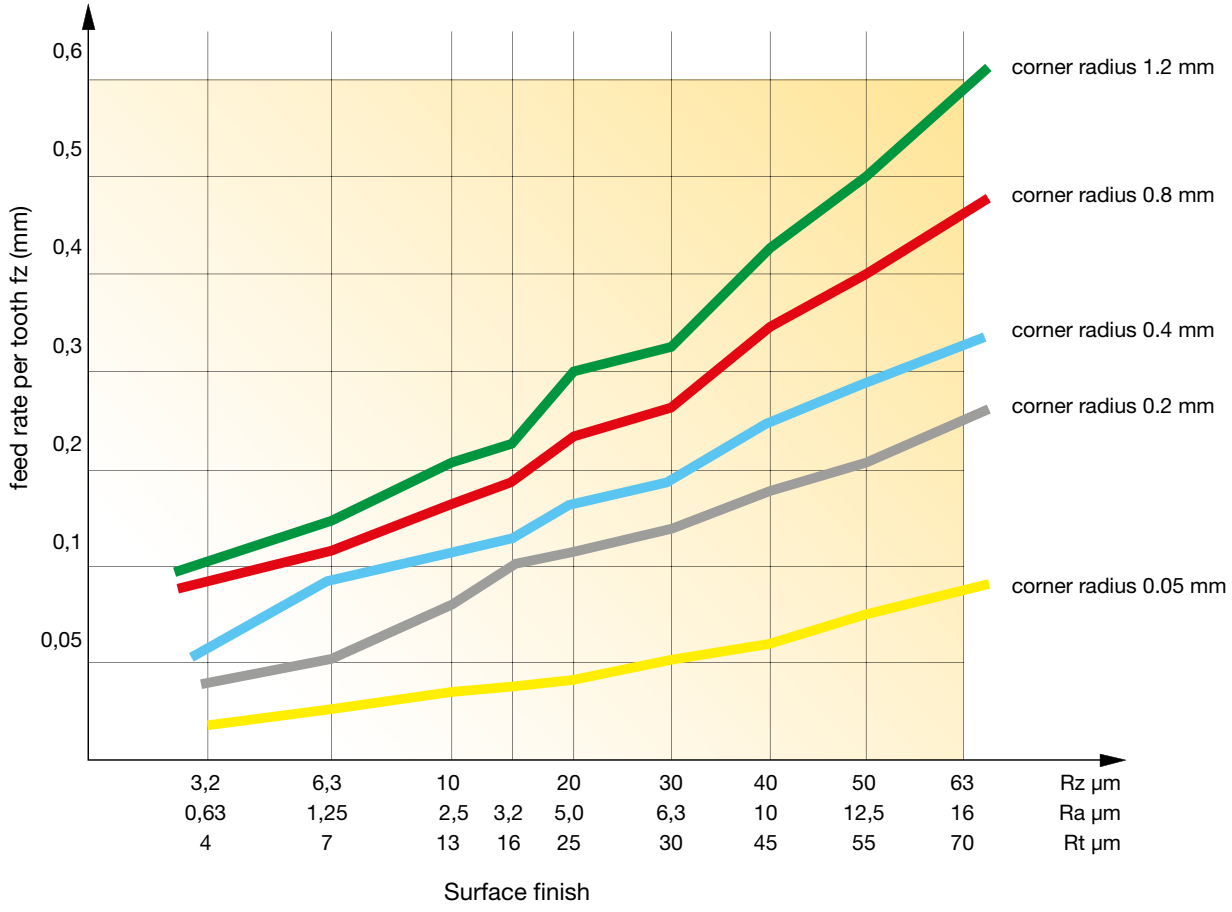
Cutting material grade	Carbide grade	Coating	Colour	Coating structure	Coating hardness	Application range
K10	K10	uncoated	-	-	-	aluminium and cast materials
K10-S	K10	TiN	golden yellow	single-layer	2300 HV	universal
K10-O	K10	AlTiN	blue anthracite	single-layer	3400 HV	HSC machining
K10-Proton	K10	TiAlN	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.

Guide values for surface finish relative to feedrate and corner radius



Cutting groups	Material groups	Composition / Structure	Tensile strength RM (MPa)	Hardness HB HRC	K10 ○	K10 (S)	K10 (A)	K10 Proton	K20 (A)
1.1		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	unalloyed steel	C=0.25 -0.55 annealed, long chip.	620	190					120 - 180
2.2	Cast steel	C=0.25 -0.55 annealed, short chip.	640	190	–	–	–	–	120 - 180
3	Machining steel	C=0.25 -0.55 tempered	850	250					120 - 180
4		C=0.25 -0.8 annealed	915	270					120 - 180
5		C=0.25 -0.8 tempered	1020	300					120 - 180
6	Low-alloy steel	annealed	610	180					90 - 140
7	Cast steel	tempered	930	275	–	–	–	–	90 - 140
8	Machining steel	tempered	1020	300					90 - 140
9		tempered	1190	350					90 - 140
10	High-alloy steel Cast steel	annealed	680	200	–	–	–	–	70 - 110
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	ferritic		160	60 - 100	80 - 120	80 - 140	80 - 140	100 - 170
18	nodular cast iron	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	Duroplastic			–	–	–	–	–
30	materials	Reinforced materials							
31	Heat resistand 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 (S) TiN (A) TiAlN (A) AlTiN (C) TiCN

Cutting speed v_c in m/min

	P10 ○	P10 ○	P40 Ⓢ	P40 Ⓐ	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

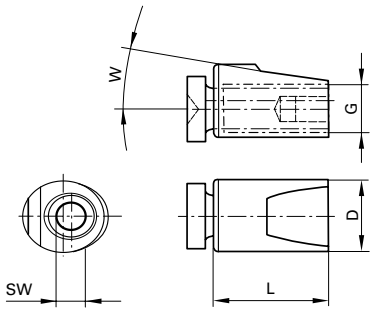
The threaded key adjustment enables the realisation of close stepped tools for finishing operations. A particular advantage is the simple adjustment possibility of the indexable inserts for the adjustment range 0.30 mm in diameter with every design. Depending on the insert position it is possible to 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)

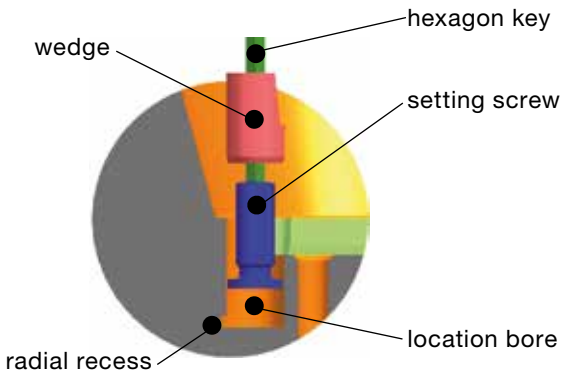


Fig. 2: Assembly (s. no. 1.3)

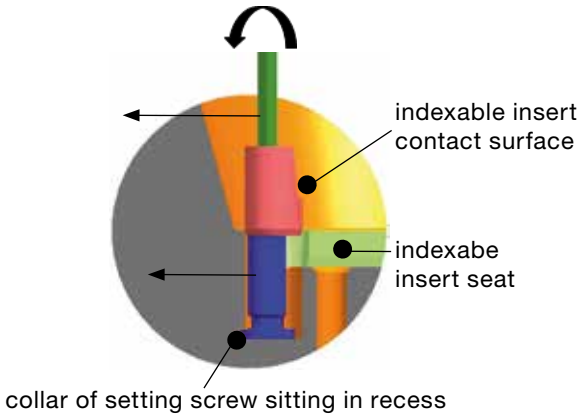


Fig. 3: Operation (s. no. 2.1)

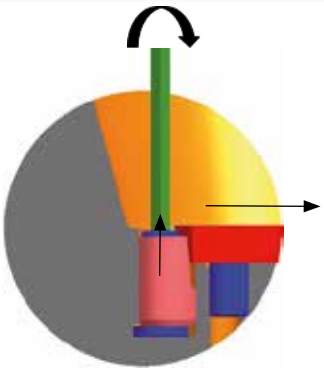
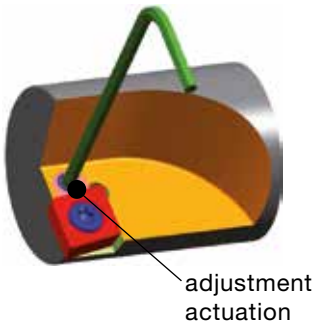


Fig. 4: Operation (s. no. 2.2)



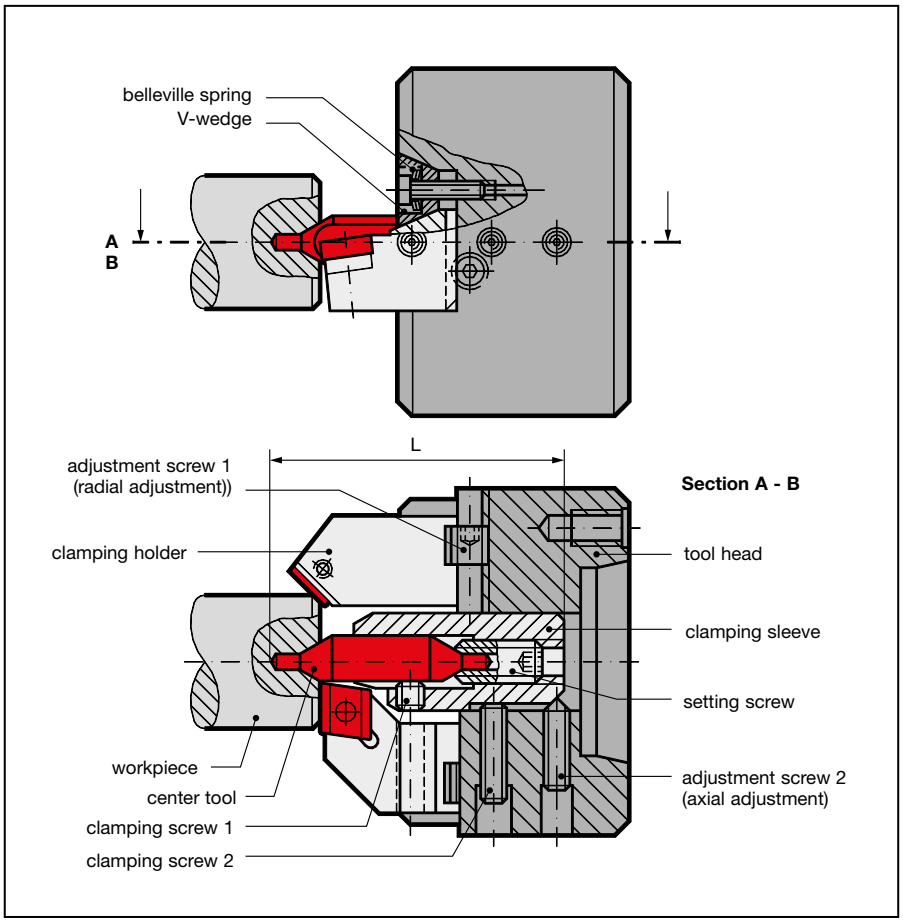
In order to clarify initial queries, we have developed the questionnaire on the following page. Please photocopy and complete. This assist us greatly.

Setting of clamping holder

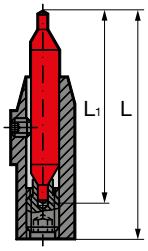
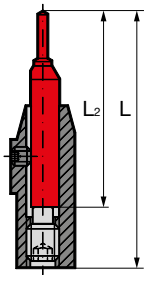
1. Turn the clamping holder adjustment screw 1 in direction of adjustment until stop.
2. Loosen V-wedge, then pretension again via Bellville spring (do not tighten!).
3. Using hexagonal spanner set adjustment screw 1 (1 mm increments) to the required dimension (1 turn = 2 mm in diameter).
4. Tighten 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	
center drill	Guh. no. / Code no.*	mm	L	L_1	mm	L	L_1	mm	L	L_2
	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**
	10,000	4.00	67.9	56.0	2.50	67.9	56.0	M 5	77.8	61.0**
step drill	6153 / 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**
	18,000	-	-	-	5.00	92.7	75.0	-	-	-
	6154 / 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

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1. Tool

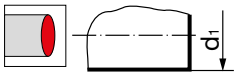
1.1 Technical data

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

1.2 Required machining operations

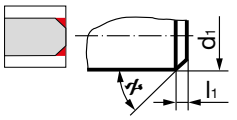
(if possible, please enclose workpiece drawing)

☐ Facing ☐ Floating holder



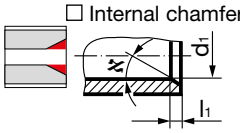
d_1 max.____mm. d_1 min.____mm

☐ External chamfering ☐ Floating holder



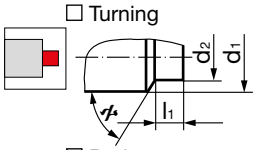
d_1 max. ____ mm. d_1 min. ____ mm
____° . l_1 max. ____ mm
____° . l_1 max. ____ mm
____° . l_1 max. ____ mm

☐ Internal chamfering ☐ Floating holder



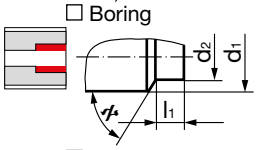
d_1 max. ____ mm. d_1 min. ____ mm
____° . l_1 max. ____ mm
____° . l_1 max. ____ mm
____° . l_1 max. ____ mm

☐ Turning



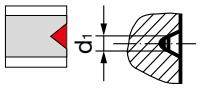
d_1 max. ____ mm. d_1 min. ____ mm
d_2 max. ____ mm. d_2 min. ____ mm
____° . l_1 max. ____ mm

☐ Boring

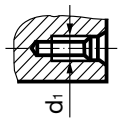


d_1 max. ____ mm. d_1 min. ____ mm
d_2 max. ____ mm. d_2 min. ____ mm
____° . l_1 max. ____ mm

☐ Centering



Centering to DIN 332
form A d_1 ____ mm
form B d_1 ____ mm
form R d_1 ____ mm



form D d_1 M ____
form DR d_1 M ____

3. Machine

3.1 Technical data

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

☐ Other machine operation

1.3 Quantity required

Basic body ____ short clamping holder ____ pieces
Accessories ____

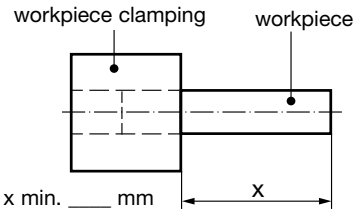
2. Workpiece

(if possible, please enclose workpiece drawing)

2.1 Material to be machined

Material designation (Mat. no. to DIN)

2.2 Position of workpiece



Proj. unclamped length x min. ____ mm

2.3 Other information

(please provide example drawing on reverse side)

Surface finish ____
Tolerances ____

For technical please contact Mr./Mrs.

Tel.

Company name and address

Date, signature

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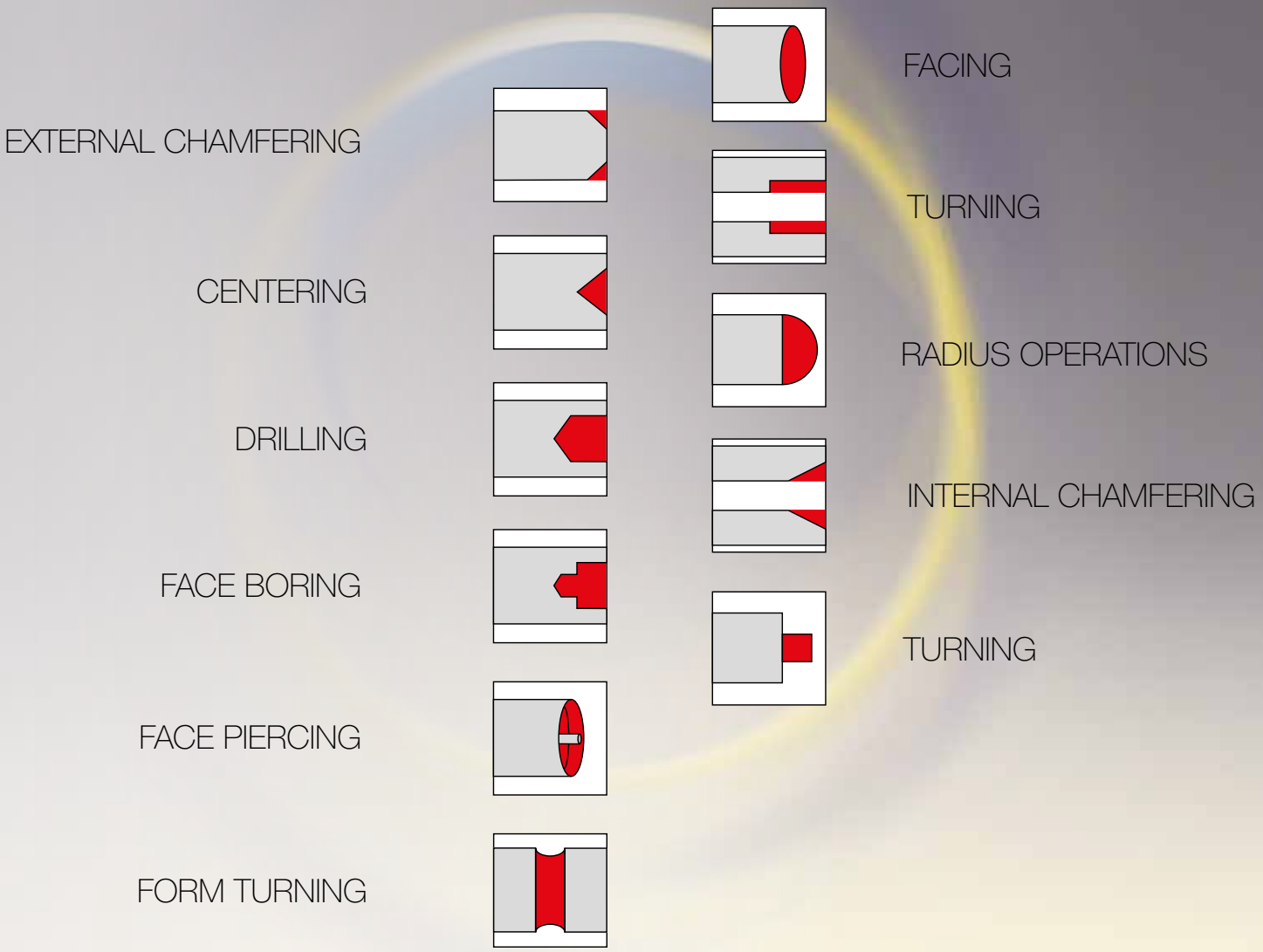

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