Your technology partner for cost-effective machining

TURNING

When there's something more between you and us:
That's the MAPAL effect.

Aerospace

Automotive

Machine and plant engineering

You

are looking for a technology expert who thinks the way you think?

Partner-ship

We

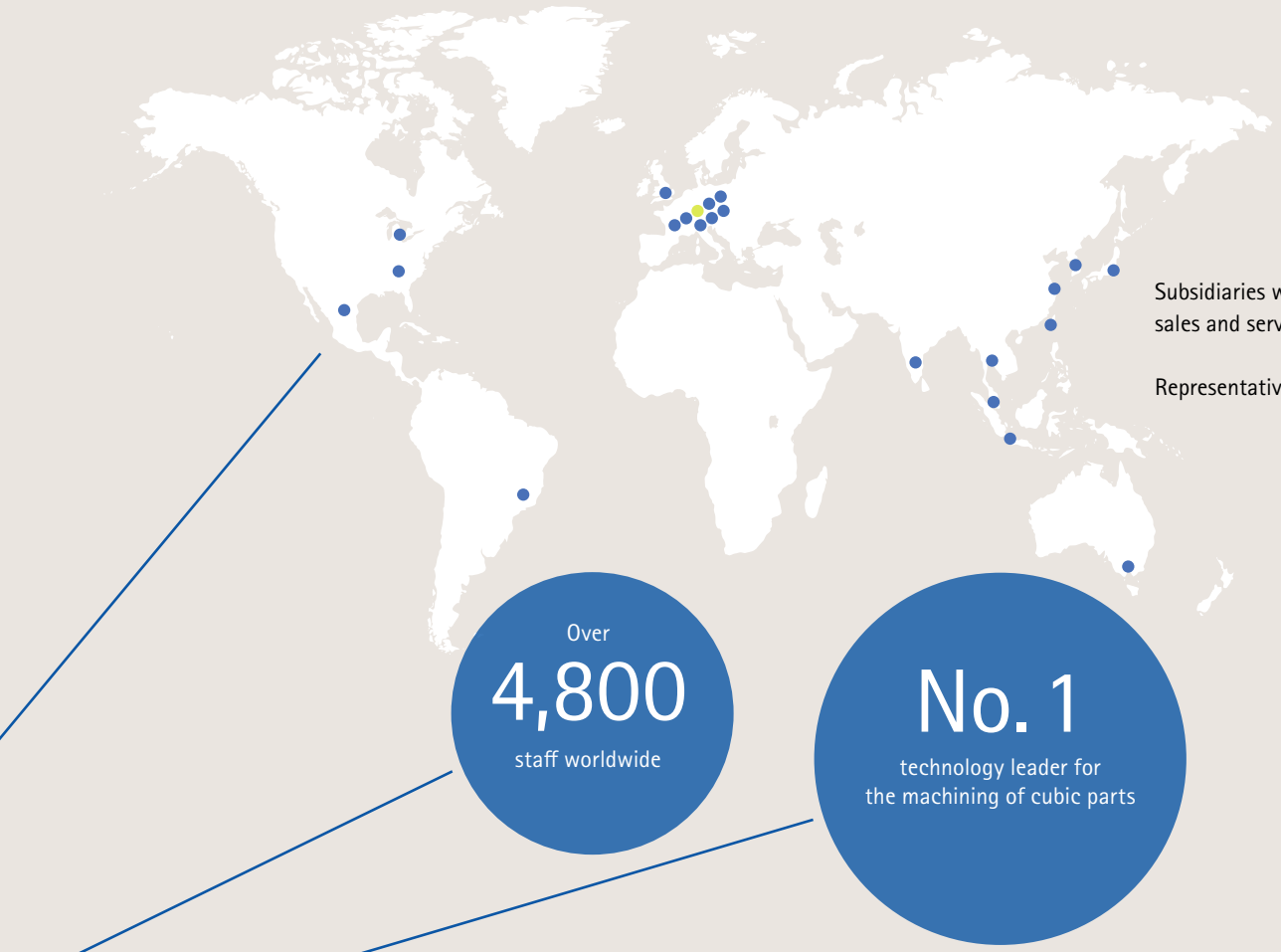
employ all our resources for the solution of your tasks.

Shipbuilding

Rail transport

Power generation

Medical technology



Subsidiaries with production, sales and service in 21 countries

Representatives in 25 countries

Over
4,800
staff worldwide

No. 1
technology leader for the machining of cubic parts

Tool and process solutions combined with comprehensive services

We see ourselves as a technology partner, supporting you with the development of efficient and resource-saving manufacturing processes using standard tools, individual tool concepts and the optimisation of tool details. Our tools satisfy all the requirements on process reliability, precision and simple handling. How? Using advanced development and design methods as well as production using the latest manufacturing facilities.

You do not just need the optimal tool for your task, you are also looking for a partner who takes over the entire planning and management of your process? We are also there for you in this situation. We support you during all production phases and keep your manufacturing at the top level: highly productive, cost-effective and reliable. We also offer you complete networked solutions for all peripheral tasks related to the actual machining process.

Reaming and fine boring

Drilling from the solid, boring and countersinking

Milling

Turning

Actuating

Clamping

Setting, measuring and dispensing

Services

CONTENTS

01 Introduction

Turning competence 06

02 Hard turning innovations

PcBN round inserts with indexing 10

Scroll-free turning 18

VersaCut grooving and turning system 24

03 Extremely hard cutting materials

Introduction to extremely hard cutting materials, designation key 40

PcBN indexable inserts 44

PCD indexable inserts 66

04 HSK-T

Tools with HSK-T connection 92

Conversion systems and adapters to HSK-T 132

05 Technical appendix

Description HSK-T 156

Handling notes VersaCut 160

Cutting data recommendation PcBN cutting materials 161

Cutting data recommendation PCD cutting materials 161

TURNING COMPETENCE

Rational, exact and efficient

Building on extensive experience with the extremely hard cutting materials PcBN and PCD from the area of boring, milling and reaming, MAPAL has also obtained a profound understanding of the turning process. A clear focus here is on hard turning.
The range from MAPAL includes special tool solutions for scroll-free turning for complete machining of sealing faces, bearing surfaces and bearing seats on the lathe. This saves time-consuming re-clamping of the workpieces on grinding machines.
To utilise optimally costly PcBN round inserts, MAPAL has developed a system with indexable round inserts that makes simply defined rotation of the insert in the machine possible. In this way the insert can be utilised optimally. Maximum stability during hard grooving with PcBN is ensured by the grooving system VersaCut. It offers the optimal prerequisites for the special requirements of hard machining.
Today MAPAL offers a broad selection of PCD and PcBN-tipped indexable inserts for hard turning with an extensive selection of cutting materials and cutting edge design. In addition, the MAPAL portfolio includes a broad HSK-T program with turning holders for the connections HSK-T40, 63 and 100. A complete machine-specific range of conversion systems makes it possible to integrate the advantages of the HSK-T connection also in an existing environment.

Hard turning innovations

PcBN round inserts with indexing

Costly cutting material such as PcBN must be utilised to the maximum. At the same time the reliability and stability of the processes must not be impaired. The MAPAL system for hard turning with indexable PcBN round inserts ensures easy handling and optimal cutting material utilisation.

Page 10

Scroll-free turning

With the scroll-free turning process, which is a special form of kinematics between the rotating workpiece and a rotating tool, grinding is not required. Parts can be fully machined on the lathe. In comparison to conventional machining, this turning method makes it possible to reduce machining times by more than 70 % - with increased process reliability and tool life.

Page 18

VersaCut grooving and turning system

The flexible grooving system VersaCut offers the optimal prerequisites for the special requirements of hard machining. The PcBN-tipped inserts are clamped extremely stably. The system covers inserts of varying widths and shapes for recessing and groove turning, as well as for machining threads.

Page 24

Extremely hard cutting materials HSK-T

PcBN and PCD indexable inserts

Building on its existing knowledge of boring, milling and reaming, MAPAL has developed PCD and PcBN-tipped indexable inserts for applications with particularly high requirements. The two extremely hard cutting materials polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) are indispensable in today's production world.

Page 40

Tools with HSK-T connection

MAPAL offers a complete turning holder programme in the sizes HSK-T 40, HSK-T 63 and HSK-T 100. In this way almost all turning methods are covered. The tools can be operated with HSK-A tool changers. This aspect ensures a high degree of flexibility.

Page 92

Conversion systems and adapters to HSK-T

HSK-T conversion systems make it possible to integrate the advantages of the HSK-T connection in an existing environment. The process can be specifically optimised using the conversion systems to HSK-T, as due to the high accuracy when changing the tools, times for setting up or breaking-in are practically not required.

Page 132

HARD TURNING INNOVATIONS

PcBN round inserts with indexing, scroll-free turning and VersaCut

PcBN ROUND INSERTS WITH INDEXING

Introduction

Product description 12

Overview of the range

Selection of PcBN round insert system with indexing 14

PcBN ROUND INSERTS WITH INDEXING

Sustainability, cost-effectiveness and efficiency are the keywords in manufacturing today. Costly cutting material such as PcBN must be utilised to the maximum without reducing the reliability and stability of the processes.

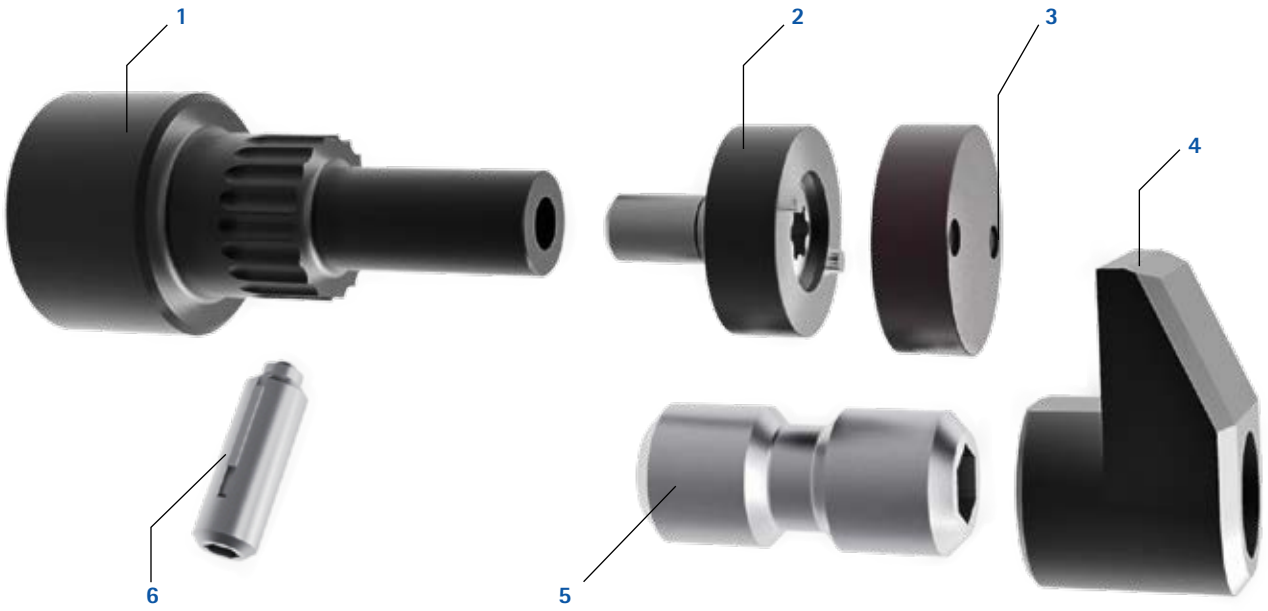
MAPAL has developed a system with indexing for hard turning to utilise PcBN round inserts to the maximum. The indexing is optimally matched to the cutting depth by means of differently defined graduations. Slightly undoing the stable clamping is sufficient to rotate the insert to the next position in a defined manner. This action can also be undertaken in the machine. The spring pin engages exactly in the indexing during this process. As a consequence changing times are shortened and the efficiency increased without reducing performance or stability compared to monolithic tools.

An optimally matched spindle system is ensured by the selection of spindles for roughing and finishing (depending on the stock removal) and indexable inserts. The basic holder remains the same here.

AT A GLANCE

- Defined rotation of the indexable insert
- Possible to change in the machine
- Indexable inserts for hardened steel and cast iron
- Varying indexing
- Maximum cutting material utilisation
- Indexable inserts for continuous and interrupted cut

Tool features in detail

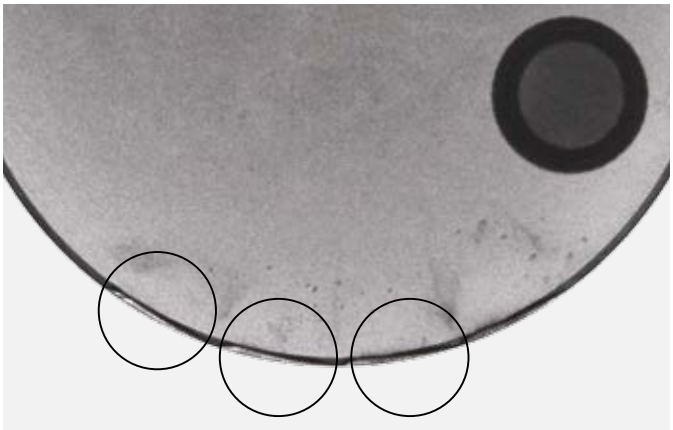


1 Spindle
2 Backing plate with driving element
3 Indexable insert with bore for indexing on both sides
4 Clamping plate
5 Threaded spindle
6 Spring pin

Easy handling

The defined rotation of the indexable insert is undertaken in the machine. The clamping plate is undone slightly using a hex-wrench and then the spindle can be rotated to the next position for use. After tightening the clamping plate using the hex-wrench, the tool is ready for use again.

Optimal cutting material utilisation



The standard programme covers spindles with different spacings. The selection of different spindles for roughing and finishing (stock removal) and indexable inserts for combined longitudinal and face turning ensures the spindle system is always optimally matched.

Tool configuration for round insert systems with indexing

1 Shank/machine interface

2 Machining-specific indexing

Select by holder size

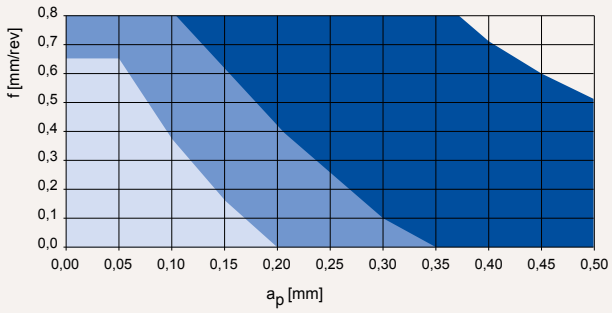
Square holder		
Holder size	Insert size	Design
20x20	12	L
	09	R
25x25	12	L
	09	R

Other shank connections, e.g. HSK-T, VDI, Capto or UT40 can be ordered on request.

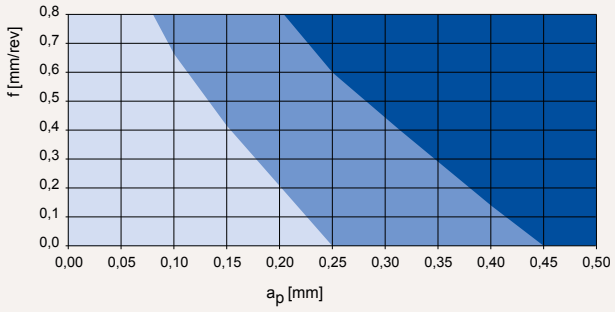
Selection of the optimal indexing

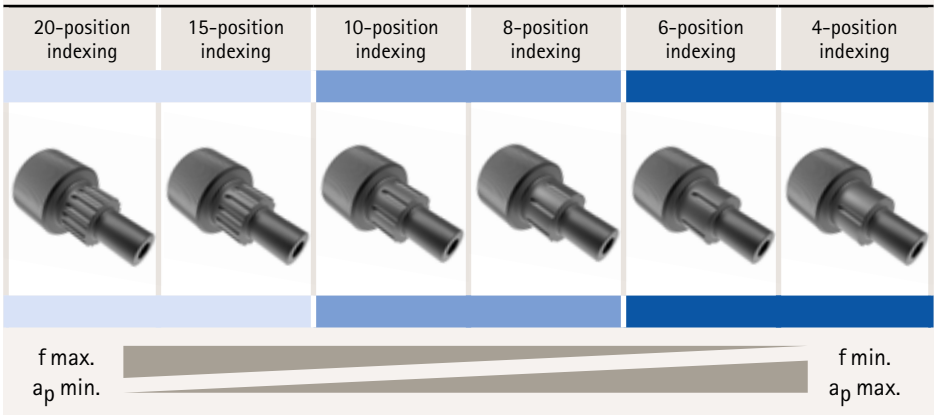
Example illustration of the dependency of feed, cutting depth and insert diameter.
The values shown are guideline values and only apply for longitudinal machining or face machining.

Round insert RNGX09

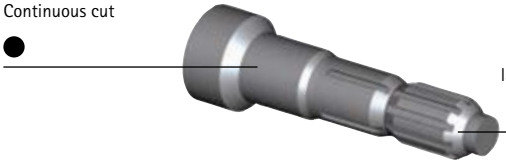


Round insert RNGX12





3 Material and machining



Selection of the cutting material based on workpiece material, geometry and cutting conditions

				Cutting material	FP834		FP853	FU430		FU872
				Machining	General turning		General turning	Finish turning		Rough turning
				Cutting edge design	S14		S12	E01	T51	
				Cutting conditions	⌘	●	●	●	●⌘	●
Machining group			Material	Strength/hardness						
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm²				★	★	★
	K2	K2.1	Cast iron with spheroidal graphite, GJS	< 500 N/mm²	■			★	★	
		K2.2	Cast iron with spheroidal graphite, GJS	500-800 N/mm²	■		★			
		K2.3	Cast iron with spheroidal graphite, GJS	> 800 N/mm²	★		■			
S	S2	S2.1	Titanium, titanium alloys	< 1200 N/mm²	■			■	■	
		S2.2	Titanium, titanium alloys	> 1200 N/mm²	■			■	■	
	S4	S4.1	High-temperature super alloy Ni, Co and Fe-based					★	★	
H	H1	H1.1	Hardened steel/cast steel	52-58 HRC	★	■	★			
		H1.2	Hardened steel/cast steel	58-63 HRC	★	■	★			
		H1.3	Hardened steel/cast steel	> 63 HRC			★			
	H2	H2.1	Wear-resistant cast iron/chilled cast iron, GJN					★	★	
Sintered steel			e.g. SintD32	> 60 HRC				★	★	

★ First choice ■ Alternative

Standard holder

For round inserts with indexing

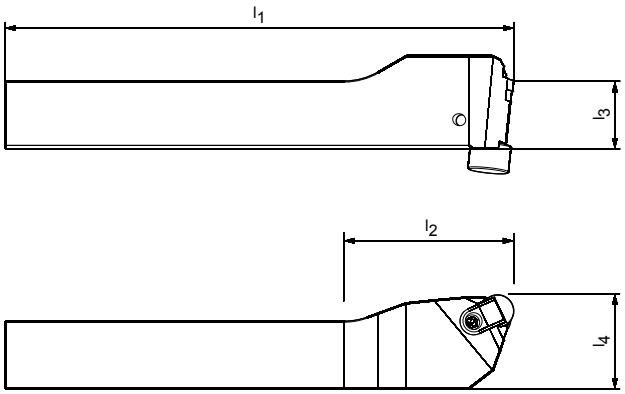


Figure: Right design

Shank design	Size	l_1	l_2	l_3	l_4	Direction of rotation	Insert	Order No.
Square shank	20x20	150	50	20	27,7	Right	RNGX 0903	30578841
Square shank	20x20	150	50	20	27,7	Left	RNGX 0903	30578779
Square shank	20x20	150	50	20	29,3	Right	RNGX 1204	30578822
Square shank	20x20	150	50	20	29,3	Left	RNGX 1204	30578719
Square shank	25x25	150	50	20	32,8	Right	RNGX 0903	30564368
Square shank	25x25	150	50	20	32,8	Left	RNGX 0903	30567505
Square shank	25x25	150	50	20	34,4	Right	RNGX 1204	30567285
Square shank	25x25	150	50	20	34,4	Left	RNGX 1204	30568897

Spindle with indexing

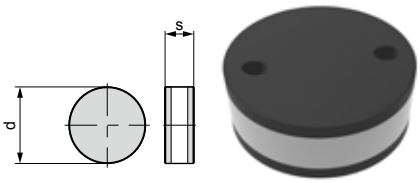
For round inserts with indexing

Holder size	20-position indexing	15-position indexing	10-position indexing	8-position indexing	6-position indexing	4-position indexing
20x20	30578741	30579074	30579066	30588629	30588628	30588626
25x25	30551299	30551332	30551070	30588624	30588621	30588618

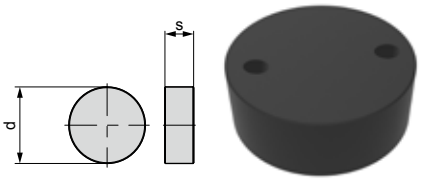
Dimensions in mm.

RNGX

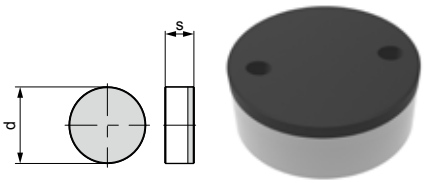
PcBN indexable insert



0AE design



0AS design



0AF design

Specification	Dimensions		FU430		FU872	FP823	FP834	
	d	s	E01	T51	S09	T13	S14	
RNGX090300...N-0AS	9,52	3,18			30815401	30815398		
RNGX090300...N-0AF	9,52	3,18					30815400	
RNGX090300...N-0AE	9,52	3,18	30815387	30815388				
RNGX120400...N-0AS	12,7	4,76			30815379	30815377		
RNGX120400...N-0AF	12,7	4,76					30815380	
RNGX120400...N-0AE	12,7	4,76	30815384	30815385				

Spare parts

Parts included

	Model	Order No.
	Threaded spindle	10036727
	Torx screw	10105075
	Backing plate for RNGX09	30551467
	Backing plate for RNGX12	30567325
	Spring pin	30550948
	Clamping plate	30551046

Dimensions in mm.

SCROLL-FREE TURNING

Introduction

Product description 20

Overview of the range

Systems for scroll-free turning 22

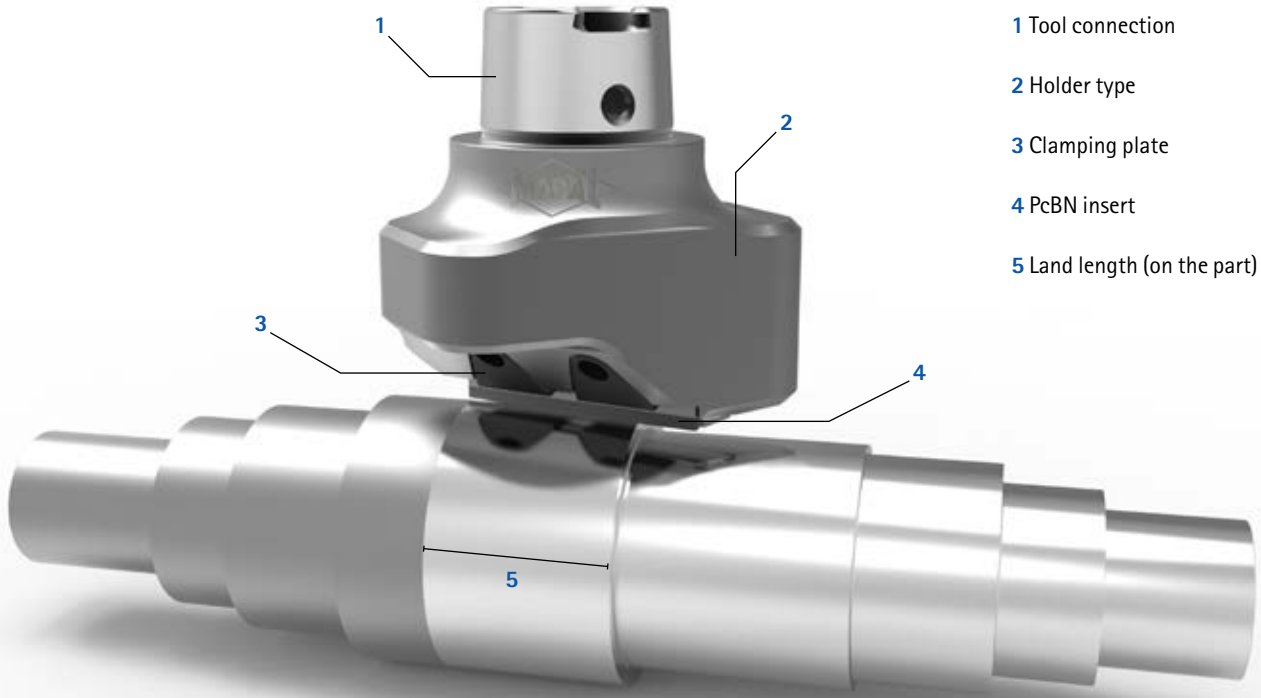
SCROLL-FREE TURNING

Complete machining of sealing faces, bearing surfaces and bearing seats on the lathe

Radial seals, bearing surfaces and bearing seats on shafts and axles must be machined absolutely cylindrically and scroll-free. To address these tight tolerance requirements, parts are moved from the lathe and re-clamped on the grinding machine and finish machined there. With the scroll-free turning process, which represents a special form of kinematics between the workpiece and tool, grinding is not required.

Parts can be completely machined on the lathe. Re-clamping and downtimes are no longer necessary. As a consequence there are also no disposal costs for the grinding slurry. The sealing faces produced using this method are scroll-free and do not affect the assembly or, above all, the sealing functions of the seals in contact, as is normally the case with hard-turned surfaces. To obtain not only scroll-free but also absolutely cylindrical surfaces, on the one hand the machines must be very accurate and be able to undertake correspondingly controlled movements. On the other hand, the tools must be equipped with a highly precise cutting edge that is stably clamped.

In the area of bore fine machining MAPAL has extensive experience with such cutting systems also for large contact lengths and corresponding tools developed for the scroll-free turning process. Compact holders are used to hold ground inserts with the highest accuracy. Also important during the machining is the robust clamping jaw in conjunction with the clamping groove on the insert. Together with the choice of the optimal PcBN grade and the edge preparation, a tool concept for the highest performance during scroll-free hard turning is available. The product range includes VDI and HSK-T connections designed as single holders with one insert or as double holders with two inserts. Depending on the workpiece, the MAPAL tools can be mounted vertically or horizontally.



1 Tool connection

2 Holder type

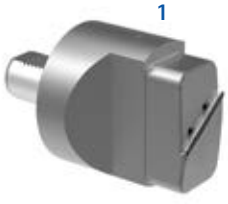
3 Clamping plate

4 PcBN insert

5 Land length (on the part)

Gearwheel machining (internal machining, vertical)

Shaft machining (horizontal)



1 Tools with one blade machine the workpiece, depending on the stock removal, in one machining step or in two machining steps with different stock for pre and finish machining.

2 With double holders one insert is used for pre-machining and one (identical) insert for the finishing operation. This configuration increases the process reliability and results in an increase in the tool life.

Scroll-free turning
Tool configuration for external machining

Tools for scroll-free turning from MAPAL are designed to suit the specific application.

The following features are required for the configuration.

1 Information on the machine (customer)

Description of machine and connection

Machine *

5-axis lathe

Connection

Connec-tion	Tool holder
VDI	Monolithic holder Square holder Module holder
HSK	Monolithic holder
Capto	Monolithic holder

* Please note:

The machine kinematics during scroll-free turning define the geometry of the cutting edge. Existing proprietary rights must also be taken into account during design such that the machine type must be stated with enquiries.

2 Information on the part (customer)

Description of the surface finish requirement as well as on the materials to be machined, hardness, stock removal and machining length

Workpiece material selection in acc. with MAPAL machining groups

Machining group			Material	Strength/ hardness
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm²
	K2	K2.1	Cast iron with spheroidal graphite, GJS	< 500 N/mm²
	S2	S2.1	Titanium, titanium alloys	< 1200 N/mm²
		S2.2	Titanium, titanium alloys	> 1200 N/mm²
	S4	S4.1	High-temperature super alloy Ni, Co and Fe-based	
H	H1	H1.1	Hardened steel/cast steel	45-55 HRC
		H1.2	Hardened steel/cast steel	55-64 HRC
		H1.3	Hardened steel/cast steel	64-70 HRC
	H2	H2.1	Wear-resistant cast iron/chilled cast iron, GJN	
Sintered steel			e.g. SintD30	< 60 HRC
			e.g. SintD32	> 60 HRC

Surface finish requirement

1. Surface (R_z)
2. Scroll-free
3. Contact ratio

Cutting conditions	Machining length (land length)	Stock removal
1. Continuous cut ●	1. ≤ 45 mm	1. Finishing
2. Interrupted cut	2. ≤ 35 mm	(ap ≤ 0.1 mm)
	3. ≤ 25 mm	
		2. Roughing and finishing
		(ap ≤ 0.3 mm)

3 Information on the tool (MAPAL tool design)

Description of design, tool length, cutting material

Design and cutting direction				Tool length (land length)
Single holder, modular		**Single holder, monolithic**		45 mm
				35 mm
Left	Right	Left	Right	25 mm
Double holder, modular		**Double holder, monolithic**		45 mm
				35 mm
Left	Right	Left	Right	25 mm

PcBN insert *
(The PcBN insert that is suitable is defined in accordance with the requirements on the part)

VersaCut GROOVING AND TURNING SYSTEM

Introduction

Product overview 26
Designation key 28

VersaCut

Groove cutting 30
Standard holders 36

VersaCut

Maximum stability during hard grooving with PcBN

The flexible grooving system VersaCut from MAPAL offers the optimal prerequisites for the special requirements of hard machining. The PcBN-tipped inserts are clamped extremely stably. For this purpose a solid clamping plate presses the insert into a prismatic connection.

The clamping plate itself is embedded in the tool holder to ensure undisturbed chip flow and to protect the plate against wear. Due to the short projection length the inserts are very stable and can be changed quickly. Damage to the holder on insert fracture is excluded by the special insert design.

The system covers inserts of varying widths and shapes for recessing and groove turning, as well as for machining threads. Optionally PCD-tipped inserts or special designs are possible. All inserts have the same connection shape and size so that only one holder size is necessary for grooving depths up to 5 mm and grooving widths from 1.2 to 6 mm. The holders are available with different shanks in a square design, with HSK-T or other modular systems, as well as in a large number of special designs.

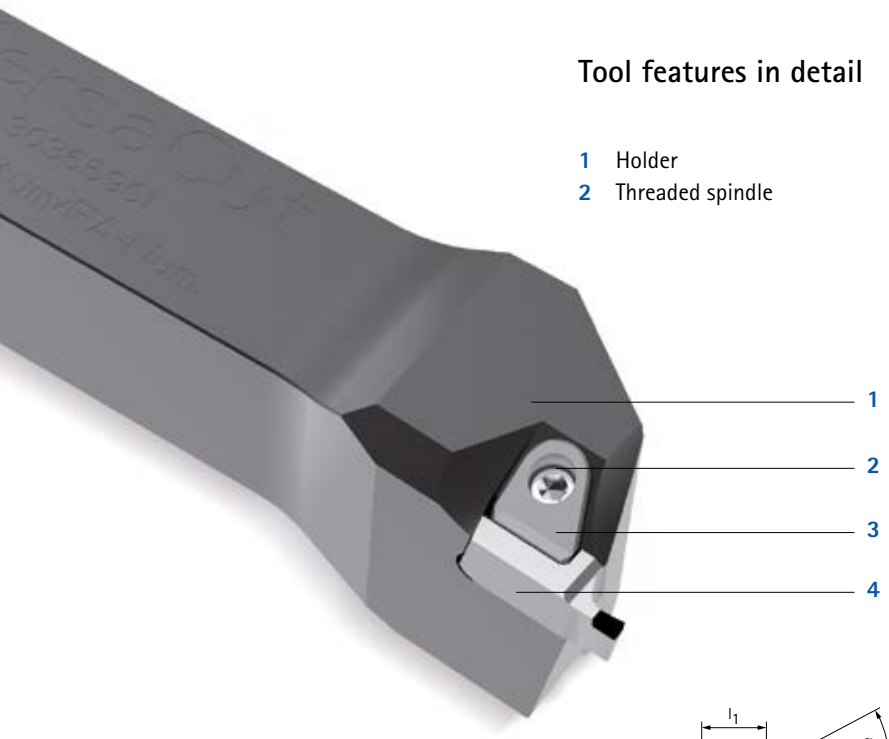
The MAPAL VersaCut grooving system combines absolute stability and a broad variety of applications.

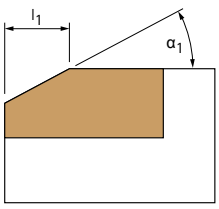
AT A GLANCE

- Optimal chip discharge due to embedded clamping plate, tool holder and leading edge on the insert with clearance
- Optionally with coolant outlet
- Maximum stability through the high clamping force, embedded clamping plate and prismatic mounting
- No damage to the grooving holder upon insert fracture

Tool features in detail

1 Holder
2 Threaded spindle
3 Clamping plate
4 Insert



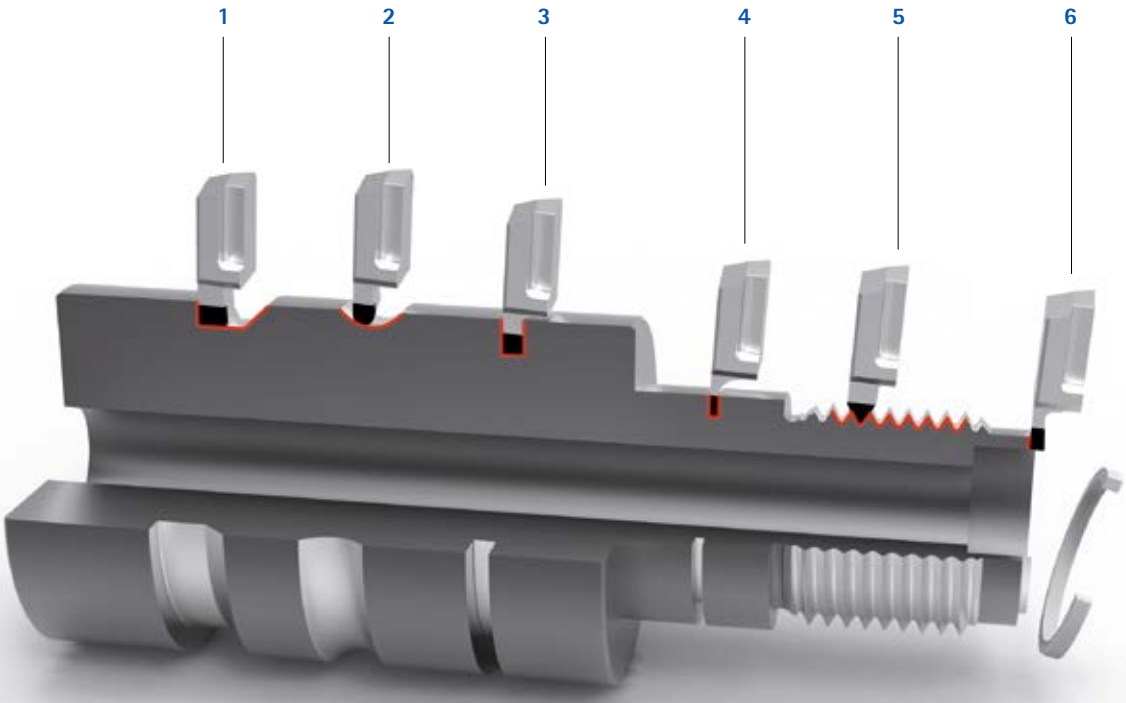


Universal edge design T51
The chamfer prevents crater wear and burr formation depending on its specification. Other chamfer designs available on request.

Maximum stability during hard grooving with PcBN
– High clamping force
– Stable, embedded jaw
– Prismatic mounting

Application areas

Standardised inserts for grooving, groove turning and thread cutting



1 Groove turning
Page 30

2 Groove turning
(radius insert)
Page 31

3 Recessing
Page 32

4 Locking washers
Locking rings
Page 33

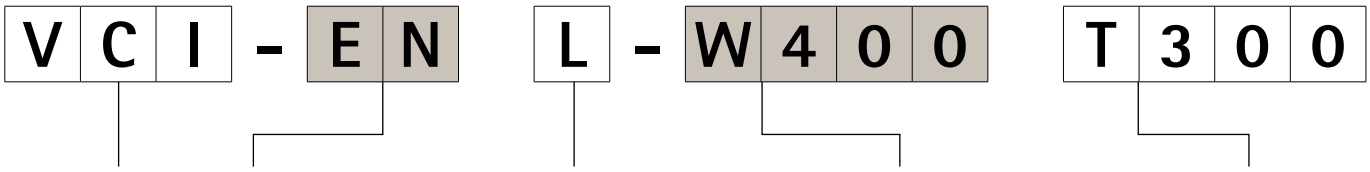
5 Thread cutting
Page 35

6 Parting off
Page 34

Designation key

MAPAL VersaCut

Groove cutting



Series/type

VCI	VersaCut Insert

Application

EN	Recessing insert, general
SR	Grooving insert for locking rings
SS	Grooving insert for locking washers
SD	Groove turning insert
GD	Thread turning insert
AS	Parting off insert

Design

L	Left design
R	Right design

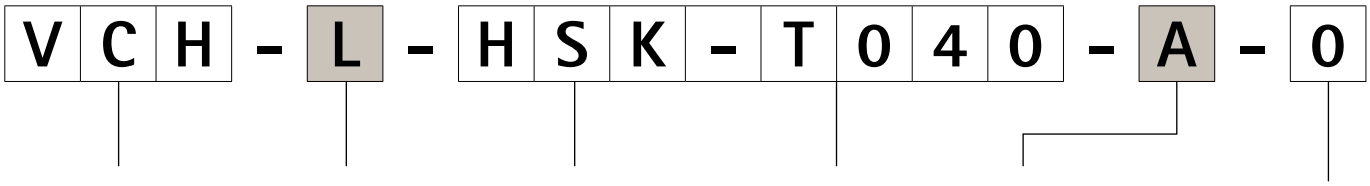
Cutting width/diameter

W400	Width 4.00 mm
D400	Diameter 4.00 mm (only for radius inserts)
P60	Thread profile 60°

Max. grooving depth

Figure in 0.01 mm

Grooving holder with HSK-T shank



Series/type

VCH	VersaCut holder

Design

L	Left design
R	Right design

Shank design

HSK

Shank size

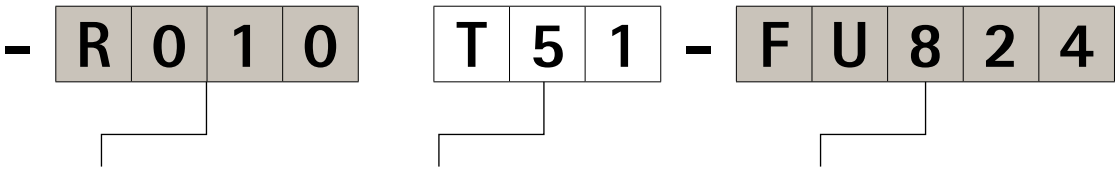
T040	HSK-T40
T063	HSK-T63

Holder shape

A	0 °
B	90 °
X	Angle variable (e.g. X75 for 75°)

Coolant supply

0	Without IC
1	With IC



Corner radius

Figure in 1/100 mm For radius inserts 0.5xD	

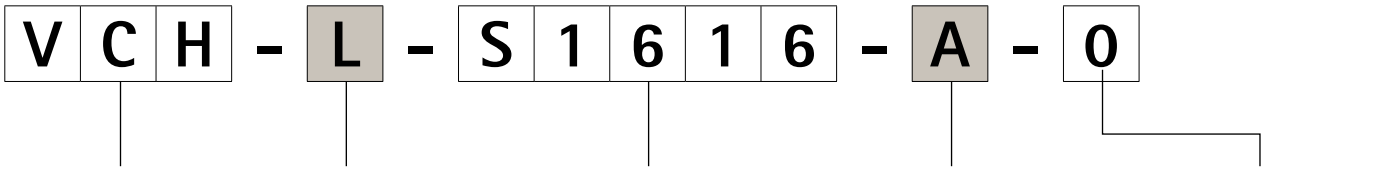
Cutting edge in acc. with application

T51	Universal edge design

Cutting material

FU824	PcBN cutting material (for grooving or groove turning)

Grooving holder with square shank and cylindrical shank



Series/type

VCH	VersaCut holder

Design

L	Left design
R	Right design

Shank design and size

S	Square shank WxH [mm]
ZYL	Cylindrical shank Size [mm]

Holder shape

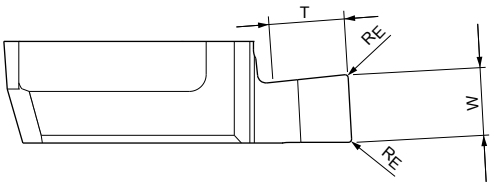
A	0 °
B	90 °
X	Angle variable (e.g. X75 for 75°)

Coolant supply

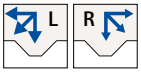
0	Without IC
1	With IC

VersaCut VCI-SD

Groove turning



View: Left design

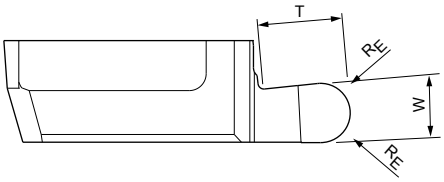


W	T	R_E	Design	Specification	Order No.
2 ±0,02	4	0,2	Left	VCI-SDL-W200T400-R020T51-FU824	30316777
2 ±0,02	4	0,2	Right	VCI-SDR-W200T400-R020T51-FU824	30316783
2 ±0,02	4	0,4	Left	VCI-SDL-W200T400-R040T51-FU824	30316789
2 ±0,02	4	0,4	Right	VCI-SDR-W200T400-R040T51-FU824	30316797
2,5 ±0,02	4	0,2	Left	VCI-SDL-W250T400-R020T51-FU824	30316778
2,5 ±0,02	4	0,2	Right	VCI-SDR-W250T400-R020T51-FU824	30316784
2,5 ±0,02	4	0,4	Left	VCI-SDL-W250T400-R040T51-FU824	30316791
2,5 ±0,02	4	0,4	Right	VCI-SDR-W250T400-R040T51-FU824	30316798
3 ±0,02	5	0,2	Left	VCI-SDL-W300T500-R020T51-FU824	30316779
3 ±0,02	5	0,2	Right	VCI-SDR-W300T500-R020T51-FU824	30316785
3 ±0,02	5	0,4	Left	VCI-SDL-W300T500-R040T51-FU824	30316792
3 ±0,02	5	0,4	Right	VCI-SDR-W300T500-R040T51-FU824	30316799
3,5 ±0,02	5	0,2	Left	VCI-SDL-W350T500-R020T51-FU824	30316780
3,5 ±0,02	5	0,2	Right	VCI-SDR-W350T500-R020T51-FU824	30316786
3,5 ±0,02	5	0,4	Left	VCI-SDL-W350T500-R040T51-FU824	30316793
3,5 ±0,02	5	0,4	Right	VCI-SDR-W350T500-R040T51-FU824	30316800
4 ±0,02	5	0,2	Left	VCI-SDL-W400T500-R020T51-FU824	30316781
4 ±0,02	5	0,2	Right	VCI-SDR-W400T500-R020T51-FU824	30316787
4 ±0,02	5	0,4	Left	VCI-SDL-W400T500-R040T51-FU824	30316794
4 ±0,02	5	0,4	Right	VCI-SDR-W400T500-R040T51-FU824	30316801
5 ±0,02	5	0,2	Left	VCI-SDL-W500T500-R020T51-FU824	30316782
5 ±0,02	5	0,2	Right	VCI-SDR-W500T500-R020T51-FU824	30316788
5 ±0,02	5	0,4	Left	VCI-SDL-W500T500-R040T51-FU824	30316795
5 ±0,02	5	0,4	Right	VCI-SDR-W500T500-R040T51-FU824	30316802

Dimensions in mm.

VersaCut VCI-SD

Groove turning (radius insert)



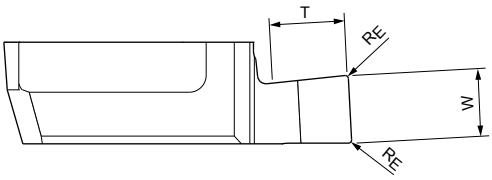
View: Left design

W	T	R_E	Design	Specification	Order No.
3 ±0,02	5	1,5	Left	VCI-SDL-D300T500-R150T51-FU824	30316833
3 ±0,02	5	1,5	Right	VCI-SDR-D300T500-R150T51-FU824	30316828
3,5 ±0,02	5	1,75	Left	VCI-SDL-D350T500-R175T51-FU824	30316834
3,5 ±0,02	5	1,75	Right	VCI-SDR-D350T500-R175T51-FU824	30316829
4 ±0,02	5	2	Left	VCI-SDL-D400T500-R200T51-FU824	30316835
4 ±0,02	5	2	Right	VCI-SDR-D400T500-R200T51-FU824	30316830

Dimensions in mm.

VersaCut VCI-EN

Recessing insert



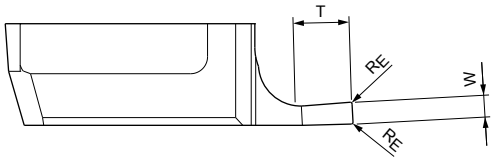
View: Left design

W	T	R_E	Design	Specification	Order No.
1,5 ±0,02	3,5	0,2	Left	VCI-ENL-W200T400-R020S59-FU824	30316736
1,5 ±0,02	3,5	0,2	Right	VCI-ENR-W150T350-R020T51-FU824	30316831
1,5 ±0,02	3,5	0,4	Left	VCI-ENL-W150T350-R040T51-FU824	30316857
1,5 ±0,02	3,5	0,4	Right	VCI-ENR-W150T350-R040T51-FU824	30316858
2 ±0,02	4	0,2	Left	VCI-ENL-W200T400-R020T51-FU824	30316694
2 ±0,02	4	0,2	Right	VCI-ENR-W200T400-R020T51-FU824	30316703
2 ±0,02	4	0,4	Left	VCI-ENL-W200T400-R040T51-FU824	30316710
2 ±0,02	4	0,4	Right	VCI-ENR-W200T400-R040T51-FU824	30316718
2,5 ±0,02	4	0,2	Left	VCI-ENL-W250T400-R020T51-FU824	30316696
2,5 ±0,02	4	0,2	Right	VCI-ENR-W250T400-R020T51-FU824	30316704
2,5 ±0,02	4	0,4	Left	VCI-ENL-W250T400-R040T51-FU824	30316711
2,5 ±0,02	4	0,4	Right	VCI-ENR-W250T400-R040T51-FU824	30316725
3 ±0,02	5	0,2	Left	VCI-ENL-W300T500-R020T51-FU824	30316697
3 ±0,02	5	0,2	Right	VCI-ENR-W300T500-R020T51-FU824	30316705
3 ±0,02	5	0,4	Left	VCI-ENL-W300T500-R040T51-FU824	30316712
3 ±0,02	5	0,4	Right	VCI-ENR-W300T500-R040T51-FU824	30316726
3,5 ±0,02	5	0,2	Left	VCI-ENL-W350T500-R020T51-FU824	30316699
3,5 ±0,02	5	0,2	Right	VCI-ENR-W350T500-R020T51-FU824	30316707
3,5 ±0,02	5	0,4	Left	VCI-ENL-W350T500-R040T51-FU824	30316715
3,5 ±0,02	5	0,4	Right	VCI-ENR-W350T500-R040T51-FU824	30316727
4 ±0,02	5	0,2	Left	VCI-ENL-W400T500-R020T51-FU824	30316700
4 ±0,02	5	0,2	Right	VCI-ENR-W400T500-R020T51-FU824	30316708
4 ±0,02	5	0,4	Left	VCI-ENL-W400T500-R040T51-FU824	30316716
4 ±0,02	5	0,4	Right	VCI-ENR-W400T500-R040T51-FU824	30316732
5 ±0,02	5	0,2	Left	VCI-ENL-W500T500-R020T51-FU824	30316702
5 ±0,02	5	0,2	Right	VCI-ENR-W500T500-R020T51-FU824	30316709
5 ±0,02	5	0,4	Left	VCI-ENL-W500T500-R040T51-FU824	30316717
5 ±0,02	5	0,4	Right	VCI-ENR-W500T500-R040T51-FU824	30316733

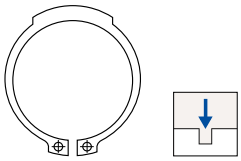
Dimensions in mm.

VersaCut VCI-SR, VCI-SS

Slots for locking rings, type SR

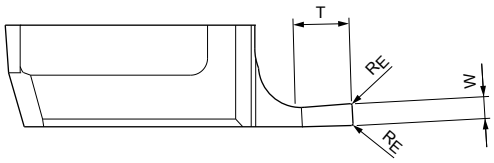


View: Left design

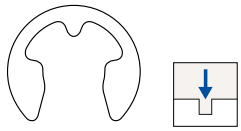


DIN 471		W	T	R_E	Design	Specification	Order No.
For shaft diameter	WNB						
18-26	1,3 H13	1,4 ±0,02	1,8	0,12	Left	VCI-SRL-W140T180-R012T51-FU824	30316679
18-26	1,3 H13	1,4 ±0,02	1,8	0,12	Right	VCI-SRR-W140T180-R012T51-FU824	30316673
28-35	1,6 H13	1,70 ±0,02	3	0,15	Left	VCI-SRL-W170T300-R015T51-FU824	30316680
28-35	1,6 H13	1,70 ±0,02	3	0,15	Right	VCI-SRR-W170T300-R015T51-FU824	30316674
36-48	1,85 H13	1,95 ±0,02	3	0,18	Left	VCI-SRL-W195T300-R018T51-FU824	30316681
36-48	1,85 H13	1,95 ±0,02	3	0,18	Right	VCI-SRR-W195T300-R018T51-FU824	30316675
50-63	2,15 H13	2,25 ±0,02	3	0,2	Left	VCI-SRL-W225T300-R020T51-FU824	30316682
50-63	2,15 H13	2,25 ±0,02	3	0,2	Right	VCI-SRR-W225T300-R020T51-FU824	30316677

Slots for locking washers, type SS



View: Left design

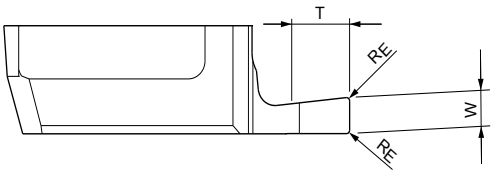


DIN 471		W	T	R_E	Design	Specification	Order No.
For shaft diameter	WNB						
10-14	1,15 +0,08	1,19 ±0,02	3	0,11	Left	VCI-SSL-W119T300-R011T51-FU824	30316688
10-14	1,15 +0,08	1,19 ±0,02	3	0,11	Right	VCI-SSR-W119T300-R011T51-FU824	30316683
11-15	1,25 +0,08	1,29 ±0,02	3	0,12	Left	VCI-SSL-W129T300-R012T51-FU824	30316689
11-15	1,25 +0,08	1,29 ±0,02	3	0,12	Right	VCI-SSR-W129T300-R012T51-FU824	30316684
13-18	1,35 +0,08	1,39 ±0,02	4	0,13	Left	VCI-SSL-W139T400-R013T51-FU824	30316692
13-18	1,35 +0,08	1,39 ±0,02	4	0,13	Right	VCI-SSR-W139T400-R013T51-FU824	30316685
16-24	1,55 +0,08	1,59 ±0,02	4	0,15	Left	VCI-SSL-W159T400-R015T51-FU824	30429005
16-24	1,55 +0,08	1,59 ±0,02	4	0,15	Right	VCI-SSR-W159T400-R015T51-FU824	30429004
20-31	1,8 +0,08	1,84 ±0,02	4	0,18	Left	VCI-SSL-W184T400-R018T51-FU824	30316693
20-31	1,8 +0,08	1,84 ±0,02	4	0,18	Right	VCI-SSR-W184T400-R018T51-FU824	30316686

Dimensions in mm.

VersaCut VCI-AS

Parting off



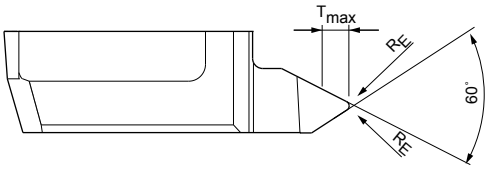
View: Left design

W	T	R_E	Design	Specification	Order No.
1,5 ±0,02	4,8	0,2	Left	VCI-ASL-W150T480-R020T51-FU824	30418274
1,5 ±0,02	4,8	0,2	Right	VCI-ASR-W150T480-R020T51-FU824	30419166
2 ±0,02	4,8	0,2	Left	VCI-ASL-W200T480-R020T51-FU824	30418276
2 ±0,02	4,8	0,2	Right	VCI-ASR-W200T480-R020T51-FU824	30419167
3 ±0,02	5	0,2	Left	VCI-ASL-W300T500-R020T51-FU824	30418277
3 ±0,02	5	0,2	Right	VCI-ASR-W300T500-R020T51-FU824	30419168

Dimensions in mm.

VersaCut VCI-GD

For metric 60° ISO thread



View: Left design,
for external thread

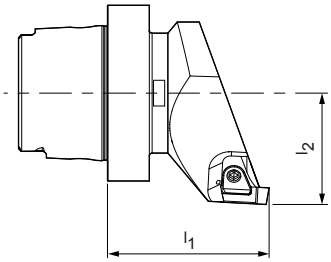
P	R_E	Design	Specification	Order No.
0,75	0,10	Left	VCI-GDL-P60T090-R010T51-FU824	30364781
0,75	0,10	Right	VCI-GDR-P60T090-R010T51-FU824	30316841
1,00	0,14	Left	VCI-GDL-P60T090-R014T51-FU824	30364783
1,00	0,14	Right	VCI-GDR-P60T090-R014T51-FU824	30316842
1,25	0,18	Left	VCI-GDL-P60T100-R018T51-FU824	30335855
1,25	0,18	Right	VCI-GDR-P60T100-R018T51-FU824	30316846
1,50	0,22	Left	VCI-GDL-P60T150-R022T51-FU824	30360047
1,50	0,22	Right	VCI-GDR-P60T150-R022T51-FU824	30316847
1,75	0,25	Left	VCI-GDL-P60T180-R025T51-FU824	30360050
1,75	0,25	Right	VCI-GDR-P60T180-R025T51-FU824	30316861
2,00	0,29	Left	VCI-GDL-P60T180-R029T51-FU824	30360053
2,00	0,29	Right	VCI-GDR-P60T180-R029T51-FU824	30316862
2,50	0,36	Left	VCI-GDL-P60T220-R036T51-FU824	30360056
2,50	0,36	Right	VCI-GDR-P60T220-R036T51-FU824	30316863
3,00	0,43	Left	VCI-GDL-P60T240-R043T51-FU824	30360058
3,00	0,43	Right	VCI-GDR-P60T240-R043T51-FU824	30316864

Designs for trapezoid thread (EU/USA), Whitworth thread are available on request.

Dimensions in mm.

VersaCut standard holder

HSK-T, short design, without gripper groove

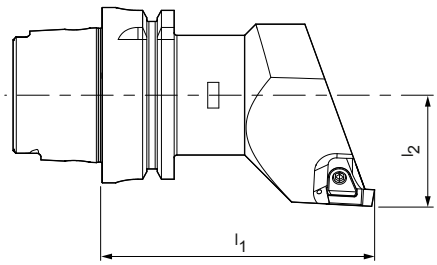


View: Left design

Note:
Left holder requires left insert.
Right holder requires right insert.

Shank design	Size	l_1	l_2	Coolant supply	Holder shape	Design	Specification	Order No.
HSK-T	40-T	60	30	Without IC	0°	Left	VCH-L-HSK-T040-A-0	30519762
HSK-T	40-T	60	30	Without IC	0°	Right	VCH-R-HSK-T040-A-0	30519763
HSK-T	40-T	60	30	With IC	0°	Left	VCH-L-HSK-T040-A-1	30519765
HSK-T	40-T	60	30	With IC	0°	Right	VCH-R-HSK-T040-A-1	30519766
HSK-T	63-T	60	40	Without IC	0°	Left	VCH-L-HSK-T063-A-0	30519768
HSK-T	63-T	60	40	Without IC	0°	Right	VCH-R-HSK-T063-A-0	30519769
HSK-T	63-T	60	40	With IC	0°	Left	VCH-L-HSK-T063-A-1	30519772
HSK-T	63-T	60	40	With IC	0°	Right	VCH-R-HSK-T063-A-1	30519773

HSK-T, long design, with gripper groove



View: Left design

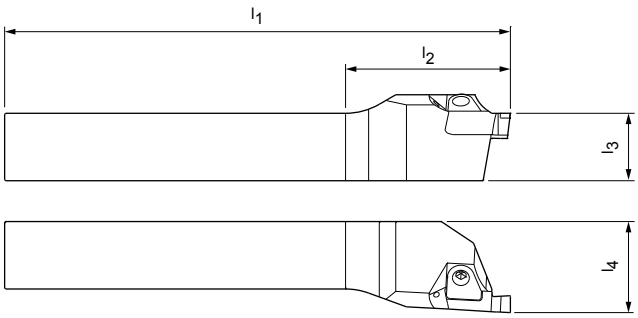
Note:
Left holder requires left insert.
Right holder requires right insert.

Shank design	Size	l_1	l_2	Coolant supply	Holder shape	Design	Specification	Order No.
HSK-T	40-T	100	30	Without IC	0°	Left	VCH-L-HSK-T040-A-0	30427900
HSK-T	40-T	100	30	Without IC	0°	Right	VCH-R-HSK-T040-A-0	30428073
HSK-T	40-T	100	30	With IC	0°	Left	VCH-L-HSK-T040-A-1	30428071
HSK-T	40-T	100	30	With IC	0°	Right	VCH-R-HSK-T040-A-1	30428072
HSK-T	63-T	100	40	Without IC	0°	Left	VCH-L-HSK-T063-A-0	30365905
HSK-T	63-T	100	40	Without IC	0°	Right	VCH-R-HSK-T063-A-0	30376187
HSK-T	63-T	100	40	With IC	0°	Left	VCH-L-HSK-T063-A-1	30320284
HSK-T	63-T	100	40	With IC	0°	Right	VCH-R-HSK-T063-A-1	30316478

Dimensions in mm.
Other shanks on request.

VersaCut standard holder

Square shank

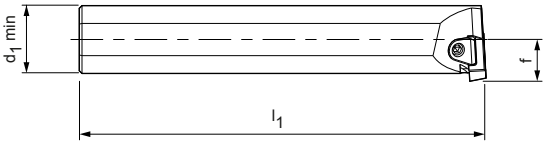


View: Left design

Note:
Left holder requires left insert.
Right holder requires right insert.

Shank design	Size	l_1	l_2	l_3	l_4	Coolant supply	Holder shape	Design	Specification	Order No.
Square shank	12x12	150	49	12	19	Without IC	0°	Right	VCH-R-S1212-A-0	30774044
Square shank	12x12	150	49	12	19	Without IC	0°	Left	VCH-L-S1212-A-0	30774045
Square shank	16x16	150	49	16	23	With IC	0 °	Right	VCH-R-S1616-A-1	30663293
Square shank	16x16	150	49	16	23	With IC	0 °	Left	VCH-L-S1616-A-2	On request
Square shank	20x20	150	49	20	27	Without IC	0°	Left	VCH-L-S2020-A-0	30365899
Square shank	20x20	150	49	20	27	Without IC	0°	Right	VCH-R-S2020-A-0	30376199
Square shank	20x20	150	49	20	27	With IC	0°	Left	VCH-L-S2020-A-1	30320282
Square shank	20x20	150	49	20	27	With IC	0°	Right	VCH-R-S2020-A-1	30317676
Square shank	25x25	150	49	25	32	Without IC	0°	Left	VCH-L-S2525-A-0	30365901
Square shank	25x25	150	49	25	32	Without IC	0°	Right	VCH-R-S2525-A-0	30376202
Square shank	25x25	150	49	25	32	With IC	0°	Left	VCH-L-S2525-A-1	30320283
Square shank	25x25	150	49	25	32	With IC	0°	Right	VCH-R-S2525-A-1	30317677

Cylindrical shank



View: Left design

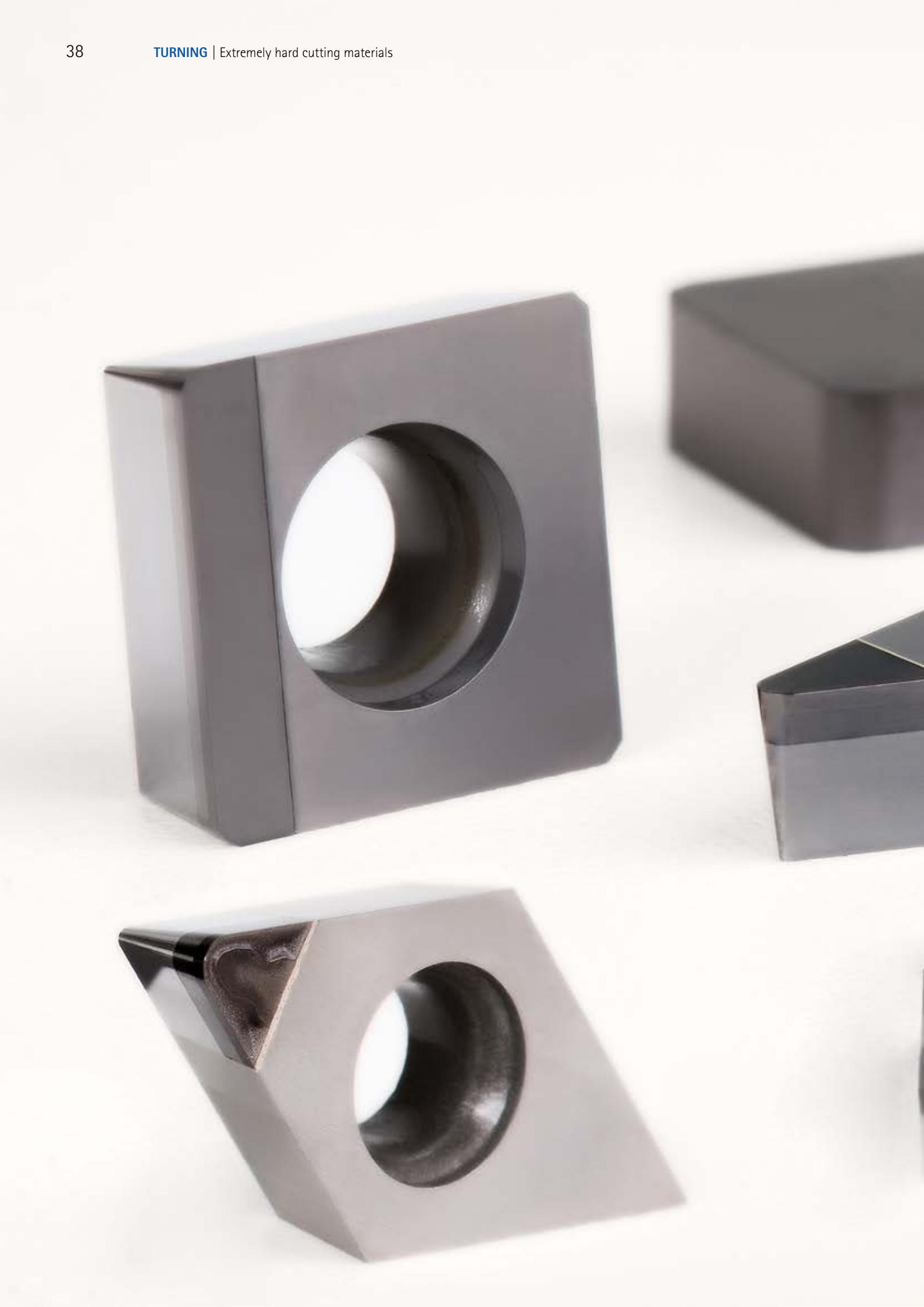
Note:
Left holder requires right insert.
Right holder requires left insert.

Shank design	Size	f	$d_{1\ min}$	l_1	l_2	Coolant supply	Holder shape	Design	Specification	Order No.
Cylindrical shank	25	16	31	150	23,5	With IC	90°	Left	VCH-L-ZYL025-B-1	30518232
Cylindrical shank	25	16	31	150	23,5	With IC	90°	Right	VCH-R-ZYL025-B-1	30419320

Spare parts for VersaCut standard holder

	Description	Design for	Order No.
	Clamping plate	Right holder	30321574
	Clamping plate	Left holder	30320414
	Threaded spindle	Right and left holder	10036727

Dimensions in mm.



EXTREMELY HARD CUTTING MATERIALS

PcBN and PCD-tipped indexable inserts

EXTREMELY HARD CUTTING MATERIALS PcBN INDEXABLE INSERTS

Polycrystalline cubic boron nitride
High performance, cost-effective, efficiency

Modern, stable machine tools with fast, powerful drives and high accuracies form the backbone of cost-effective manufacturing today. To be able to fully exploit the productivity potential of high cutting speeds and feeds also at the insert, it is appropriate to use modern, extremely hard cutting materials such as PcBN.

PcBN cutting materials from MAPAL create the ideal prerequisites for cost-effective machining due to their high hot hardness, wear resistance and edge strength. As a result, the machining times and as a consequence the workpiece costs can be reduced significantly with very good part quality at the same time.

Compared to carbide, the productivity during the machining of cast iron and sintered iron materials can be increased significantly with PcBN cutting materials in the manufacturing process due to high machining values and long tool lives. During hard turning with PcBN, a significantly higher material removal rate is achieved compared to grinding. With the same part requirements, the productivity is generally higher and the machining costs lower. Machines for hard turning are in most cases also cheaper to procure than grinding machines for comparable surface finishes. Hard turning can be undertaken dry. Grinding machines require grinding oils that gradually become soiled and that must be purified with a lot of effort, or they must be disposed of, or stored long-term.

ADVANTAGES

- PcBN grades for continuous cut and interrupted cuts
- Large selection of standard geometries and chamfer designs available for optimal tool life and quality
- Multiply tipped designs for greater cost-effectiveness of the tools
- Indexable inserts with high-accuracy G tolerance

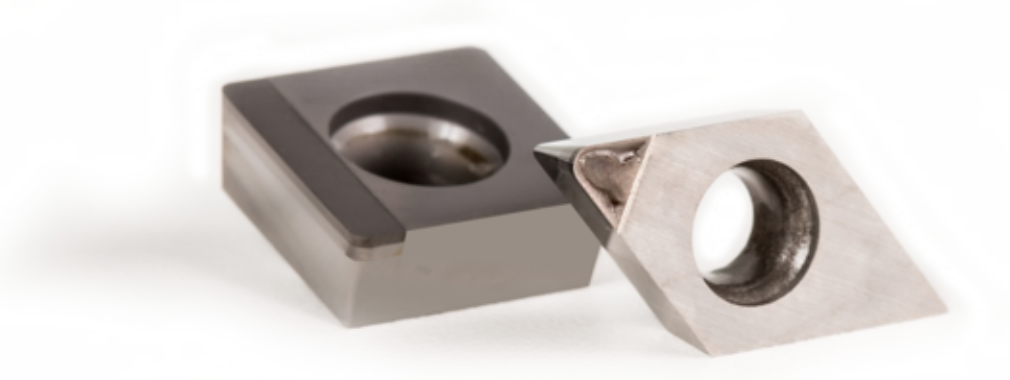
PCD INDEXABLE INSERTS

Polycrystalline diamond
Extremely hard and effective

On the usage of modern structural materials, whether in vehicle manufacture, in aerospace or also increasingly in mechanical engineering, the focus is on an improved energy balance. The energy consumption is to be lowered with the same or even better dynamic performance. For this reason the portion of non-ferrous metals, fibre-reinforced plastics (GFRP, CFRP) and sandwich materials is increasing continuously.

PCD is ideal as a cutting material for machining these workpiece materials. Due to its hardness and wear resistance even with extremely abrasive materials, high cutting values and tool lives can be achieved. The cost-effectiveness of the machining is ensured in this manner. MAPAL started to rely on PCD during the design of high-performance tools at an early stage and has obtained broad know-how and many years of experience. Different machining tasks with varying requirements in relation to abrasiveness, part geometry and machines are realised with PCD.

To achieve optimal technology figures for the various requirement profiles and to fully exploit the performance of the PCD cutting material and of the machines, an optimal cutting edge geometry must be manufactured with high accuracy and reproducible quality. Here MAPAL uses the latest machine technology for grinding and eroding the inserts. New technologies such as the laser machining of PCD are also used. Positive chip geometries and different chip breaker geometries are machined using lasers on the PCD indexable inserts that are used, for example, for long chipping types of aluminium. Short, easily removed chips are produced, which significantly increases the process reliability.



ADVANTAGES

- Highest cutting data and cost-effectiveness
- High accuracy of the cutting edge geometries
- Latest manufacturing methods offer additional possibilities

Designation key

For PcBN and PCD-tipped indexable inserts from MAPAL

C	N	G	A	1	2	0	4	0	4	S	1	4	N	-

Insert form

C	80 °
D	55 °
S	90 °
T	60 °
V	35 °
W	80 °
R	

Standard clearance angle

N	0 °
B	5 °
C	7 °
P	11 °

Tolerance

G	G class

Fastening and/or chip breaker symbol, metric

	Hole	Configuration	Chip breaker	Figure
W	With	Cylindrical hole + countersink on one side (40-60°)	No	
T	With		One side	
B	With	Cylindrical hole + countersink on one side (70-90°)	No	
H	With		One side	
A	With	Cylindrical hole	No	
M	With	Cylindrical hole	One side	
N	With-out	–	No	
X	–	–	–	Spec. design

Insert thickness

	Thickness [mm]
01	1.59
02	2.38
03	3.18
T3	3.97
04	4.76
06	6.35

The thickness is measured from the contact surface on the indexable insert to the cutting edge.

Insert size

IC d [mm]	C ←(l)→	D ←(l)→	S ←(l)→	T ←(l)→	V ←(l)→	W ←(l)→	R (l)
5.56				09 (9.6)		03 (3.8)	
6.0							06
6.35	06 (6.4)	07 (7.7)	06 (6.35)	11 (11.0)	11 (11.1)	04 (4.3)	
7.94	08 (8.0)		07 (7.94)			05 (5.4)	
8.0							08
9.525	09 (9.7)	11 (11.6)	09 (9.525)	16 (16.5)	16 (16.6)	06 (6.5)	09 (9.525)
10.0							10
12.0							12
12.7	12 (12.9)	15 (15.5)	12 (12.7)	22 (22.0)		08 (8.7)	12 (12.7)

Corner radius

02	0.2
04	0.4
08	0.8
12	1.2

Cutting material
PU620
PU660
PU670

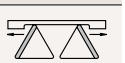
Cutting material
FP823 (coated)
FP834 (coated)
FP853 (coated)
FU430
FU720
FU824
FU872

PCD grade

PcBN grade

0	A	B	-	F	P	8	5	3	-	R
				P	U	6	2	0		

Cutting direction

N	Neutral	
X	Right/ left	
L	Left	
R	Right	

Chip breaker

0A	None
C1	Laser machined
C2	Laser machined
1L	10° parallel
5L	10° not parallel
6L	10° parallel / cutting edge tipped along full length
6A	None / cutting edge tipped along full length

Tipping

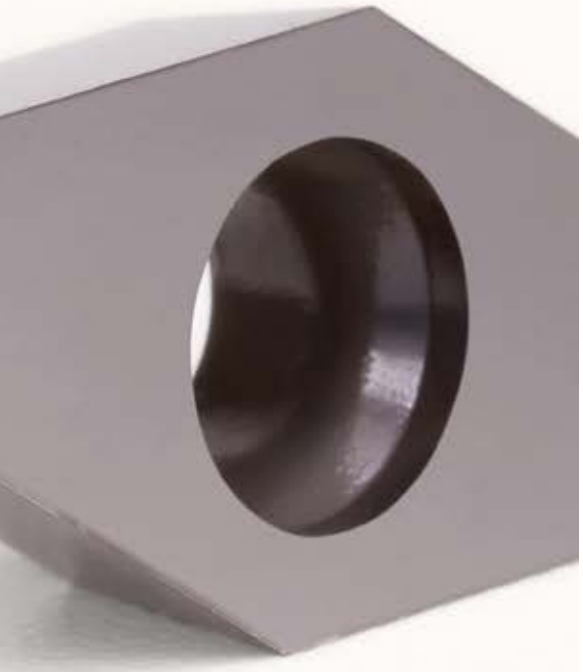
S		Solid
F		Full face on one side
E		Full face on both sides
A		Tipped on one side, one corner or full length
B		Tipped on one side, two corners
C		Tipped on one side, three corners
K		Tipped on one side, one corner
L		Tipped on both sides, two corners
M		Tipped on both sides, three corners
N		Tipped on both sides, four corners

Can be reground

R	Can be reground

Cutting edge design

F	Sharp edged
E	Rounded
T	Chamfered
S	Chamfered and rounded
W	Wiper



PcBN-TIPPED INDEXABLE INSERTS

Introduction

Selection procedure 46
Cutting material overview with application examples 50
Product overview PcBN-tipped indexable inserts 52

PcBN-tipped indexable inserts

Product range 54

Selection procedure for PcBN indexable inserts (1/2)

The simple way to the right insert based on the example of a CNGA indexable insert.

Selection limited by part geometry, workpiece material and cutting conditions

1 Data defined by machining requirements

Insert form	Clearance angle	Tolerance	Insert type	Insert size	Insert thickness
C	N	G	A	12	04

External machining (see 1.1)

Internal machining (see 1.2)

Constant high-accuracy G tolerance

A = negative
W = positive

For selection see pages with tables

2 Corner radius

Corner radius: 04

External machining (see 2.1)

Internal machining (see 2.2)

External machining

1.1 Recommendation for indexable insert shape and clearance angle

Insert form	Face machining	Longitudinal turning face turning	Profile turning	Clearance angle (Machining diameter: ø < 15 mm = positive indexable insert; ø > 15 mm = negative indexable insert)	
C 80 °	★	★		Positive ø < 15 mm	CC*/CP
				Negative ø > 15 mm	CN
D 55 °	⬓	■	★**	Positive ø < 15 mm	DC*/DP
				Negative ø > 15 mm	DN
S 90 °	■			Positive ø < 15 mm	SC
				Negative ø > 15 mm	SN
T 60 °	⬓	⬓	■	Positive ø < 15 mm	TC*/TP
				Negative ø > 15 mm	TN
V 35 °			■	Positive ø < 15 mm	VB/VC
				Negative ø > 15 mm	–
R	■		⬓	Positive ø < 15 mm	–
				Negative ø > 15 mm	RN
W 80 °	■	■		Positive ø < 15 mm	–
				Negative ø > 15 mm	WN

★ First choice ■ Suitable ⬓ Suitable in some situations * Preferred clearance angle ** Pay attention to plunge angle

2.1 Recommendation for corner radius

Depending on the part contour required or requirements from part drawing

Cutting pressure drops — General machining 1st choice ★★★ — Cutting pressure increases

Negative indexable insert	R 0.4	R 0.8	R 1.2
Positive indexable insert	R 0.2	R 0.4	R 0.8

- Machining thin-walled parts
- Reduced tendency to vibration
- Better circularity

- More stable insert with interrupted cuts
- Better surface with same feed

3 Cutting edge design depending on the cutting material

Cutting edge design

S	1	4

Page 48 (see 3.0)

Cutting direction		Chip groove		Tipping		PcBN grades				
N	-	0	A	B	-	F	P	8	5	3

Constant neutral cutting direction (universal)

Continuous without chip groove

For selection see pages with tables

3 Cutting material types Selection limited by workpiece material and cutting conditions

Page 48 (see 3.0)

Internal machining

1.2 Recommendation for indexable insert form and clearance angle

Insert form	Longitudinal turning	Face machining	Profile turning	Clearance angle Machining diameter: ø > 35 mm = negative indexable insert ø < 35 mm = positive indexable insert		
C 80 °	★	★		Negative ø > 35 mm		CN
				Positive ø < 35 mm		CC*/CP
D 55 °	⬓	■	★**	Negative ø > 35 mm		DN
				Positive ø < 35 mm		DC*/DP
S 90 °	■			Negative ø > 35 mm		SN
				Positive ø < 35 mm		SC
T 60 °	■	■	⬓	Negative ø > 35 mm		TN
				Positive ø < 35 mm		TC*/TP
V 35 °			■	Negative ø > 35 mm		–
				Positive ø < 35 mm		VB/VC
R	⬓			Negative ø > 35 mm		RN
				Positive ø < 35 mm		–
W 80 °		⬓	⬓	Negative ø > 35 mm		WN
				Positive ø < 35 mm		–

★ First choice ■ Suitable ⬓ Suitable in some situations * Preferred clearance angle ** Pay attention to plunge angle

2.2 Recommendation for corner radius

Depending on the part contour required or requirements from part drawing

Cutting pressure drops	General machining 1st choice ★★★	Cutting pressure increases

Negative indexable insert		
R 0.2	R 0.4	R 0.8

Positive indexable insert		
R 0.4	R 0.8	R 1.2

- Machining thin-walled parts
- Reduced tendency to vibration
- Better circularity

- More stable insert with interrupted cuts
- Better surface with same feed

Selection procedure for PcBN indexable inserts (2/2)

Definition of the PcBN grade and the cutting edge design based on the example of a CNGA indexable insert.

Selection page 46/47.

C	N	G	A	1	2	0	4	0	4	S	1	4	N	-	0	A	B	-	F	P	8	5	3
										3									3				

3 Cutting edge design dependent on the cutting material selected

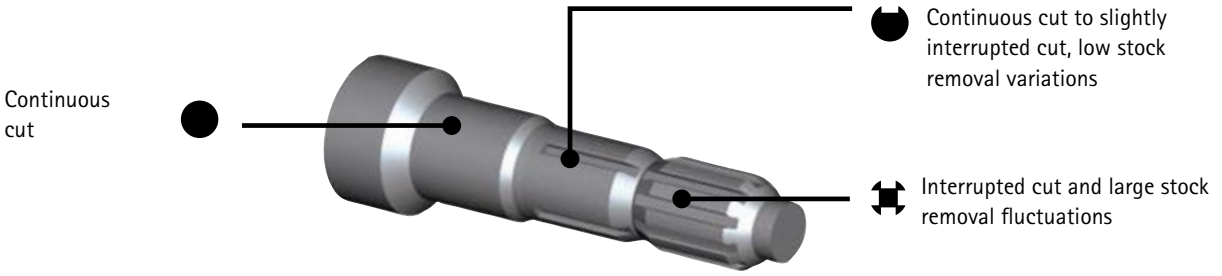
3 Cutting material types Selection limited by workpiece material and cutting conditions

3.0 Selection of the PcBN cutting material grade and the cutting edge design

Machining group			Material	Strength/ hardness	Cutting material *	FP823		FP834		FP853	FU430		FU720		FU824		FU872
					Machining	General turning		General turning		General turning	Finish turning		Finish turning		Grooving	Chasing	Rough turning
					Cutting edge design	T13		S14		S12	E01	T51	E01	T51	T51	T51	S09
					Cutting conditions	●	●	■	●	●	●	●■	●	●■	●	●	●
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm²						★	★	■	■			★
	K2	K2.1	Cast iron with spheroidal graphite, GJS	< 500 N/mm²			■			★	★	■	■			
		K2.2	Cast iron with spheroidal graphite, GJS	500-800 N/ mm²			■		★							
		K2.3	Cast iron with spheroidal graphite, GJS	> 800 N/mm²			★		■							
S	S2	S2.1	Titanium, titanium alloys	< 1200 N/mm²			■			■	■					
		S2.2	Titanium, titanium alloys	> 1200 N/mm²			■			■	■					
	S4	S4.1	High-temperature super alloy Ni, Co and Fe-based		■					★	★					
H	H1	H1.1	Hardened steel/cast steel	52-58 HRC	★	■	★	■	★					★	★	
		H1.2	Hardened steel/cast steel	58-63 HRC	★	■	★	■	★					★	★	
		H1.3	Hardened steel/cast steel	> 63 HRC	■				★					★	★	
	H2	H2.1	Wear-resistant cast iron/chilled cast iron, GJN							★	★	■	■			
Sintered steel			e.g. SintD30	< 60 HRC	★											
			e.g. SintD32	> 60 HRC						★	★					

★ First choice ■ Alternative

* Overview of PcBN cutting materials with application examples on page 50/51.

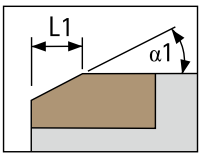


Overview of cutting edge design

Along with the PcBN grade and the cutting parameters used, the selection of suitable cutting edge designs is the biggest variable to have a positive impact on the machining result produced by the indexable insert. Longer tool lives, better surface quality or increased dimensional accuracy on the part are in many cases dependent on the chamfer geometry selected.

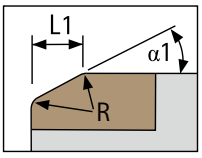
T

Chamfered cutting edge (T)
A chamfered cutting edge is the preferred design for a continuous to slightly interrupted cut. The chamfer prevents crater wear and burr formation depending on its characteristic.



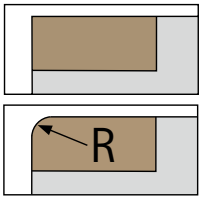
S

Chamfered and rounded cutting edge (S)
Rounding of the chamfered cutting edge lends the insert additional stability.
This design is particularly suitable for high loads with continuous and interrupted cut.



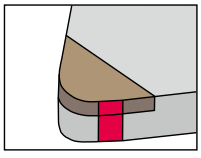
F **E**

Sharp edged cutting edge (F)
Sharp edged and rounded cutting edge (E)
Sharp edged cutting edges transmit only low compressive forces on the part to be machined and are particularly suitable for thin-walled parts. Rounding lends additional stability.

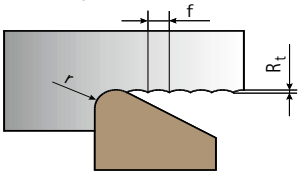


W

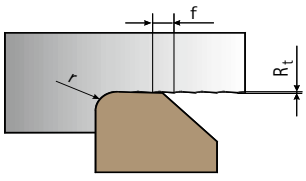
Wiper (W)
In comparison to a conventional turning insert, with the wiper geometry an R_a value several times better is achieved with the same feed.
If the same R_a value is to be achieved as with a standard turning insert, at least double the feed can be used with the turning insert with wiper geometry.



Standard geometry



Wiper geometry



2 to 4-times higher feed = same surface finish
Same feed = 2 to 4-times better surface finish

(Part and machine stability are prerequisites)

Note: Pay attention to tool setting angle!

C insert 95°
D insert 93° (double-sided wiper function only possible during diameter machining)

Overview of PcBN cutting materials with application examples

FP823

This coating grade covers a large spectrum of applications and can be used for continuous cut and interrupted cut, preferably with hardened steel and with dry machining. The PcBN substrate has high cutting edge stability.

Application example: GEARWHEEL (face and internal turning, continuous cut)

Stock removal a_p:	0.2 mm
Cutting speed v_c:	140 m/min
Feed f:	0.11 mm
Material:	Sint D32
Density:	6.8-7.2
Cooling:	Air

Indexable insert:
CCGW09T308S56N-0AB-FP823

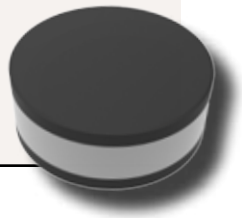
FP834

Coated PcBN grade with low CBN portions. The universal grade for machining hardened parts with interrupted cut at medium cutting speeds.

Application example: CROWN WHEEL (face turning, interrupted cut)

Stock removal a_p:	0.15 mm
Cutting speed v_c:	150 m/min
Feed f:	0.28 mm
Material:	20MnCr5
Hardness:	60 ± 2 HRC
Cooling:	Air

Indexable insert:
RNGN090300S60N-0AF-FP834



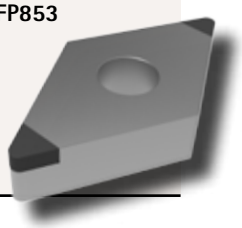
FP853

As a coated high-performance grade for finishing hardened steel. Highest performance predominantly with continuous cut at high cutting speeds and stable overall system. This grade can be used for both dry and wet machining.

Application example: DRIVE SHAFT (longitudinal turning, continuous cut)

Stock removal a_p:	0.15 mm
Cutting speed v_c:	180 m/min
Feed f:	0.07 mm
Material:	16MnCr5
Hardness:	60 ± 2 HRC
Cooling:	Air

Indexable insert:
DNGA150608T15N-0AB-FP853



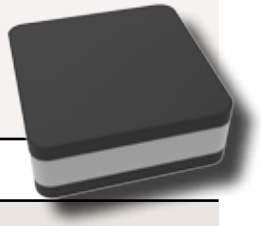
FU430 / FU720

These PcBN grades with high CBN content feature very high wear resistance with good ductility characteristics. They are used for machining cast materials, super alloys on sintered steels. The cutting material FU720 was developed especially for machining stellites.

Application example: CYLINDER SLEEVE (finishing using FU430)

Stock removal a_p:	0.25 mm
Cutting speed v_c:	780 m/min
Feed f:	0.075 mm
Number of cutting edges:	z=2
Diameter:	69 mm
Length:	132 mm
Cooling:	Emulsion

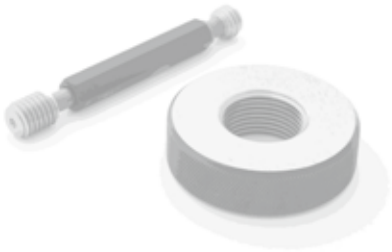
Indexable insert:
SNGN090304T13N-0AE-FU430



FU824

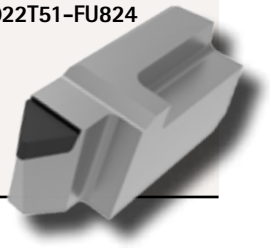
Universal grade especially for grooving and groove turning. Can be used for both continuous cut and interrupted cut.

Application example: THREAD PLUG GAUGE (23 cuts per part)



Material removal:	0.04 mm
Cutting speed v_c:	100 m/min
Pitch:	1.5
Material:	100Cr6
Hardness:	62 HRC
Cooling:	Air

Indexable insert:
VCI-GDL-P60T150-R022T51-FU824



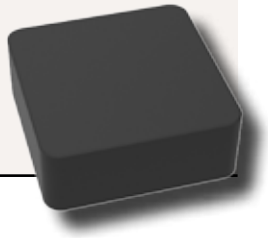
FU872

Wear-resistant PcBN grade with high CBN content ideal for roughing grey cast iron (GG) in conjunction with emulsion cooling.

Application example: BRAKE DRUM

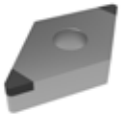
Stock removal a_p:	4-5 mm
Cutting speed v_c:	1300 m/min
Feed f:	0.6 mm
Material:	GG25 (GJL250)
Cooling:	Emulsion

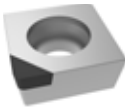
Indexable insert:
SNGN120416S09N-0AS-FU872

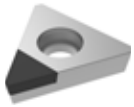


Product overview PcBN indexable inserts

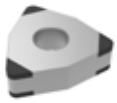
Insert form	CCGW, double	CNGA, double	CNGA, quadruple	CNGN, sandwich
C				
Page	54	54	55	55

Insert form	DCGW, double	DNGA, double	DNGA, quadruple	
D				
Page	56	56	57	

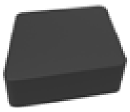
Insert form	SCGW, single	SNGA, eightfold	SNGN, sandwich	SNGN, solid
S				
Page	57	58	58	58

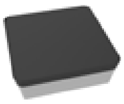
Insert form	TCGW, single	TCGW, triple	TNGA, triple	TNGA, sixfold
T				
Page	59	60	60	61

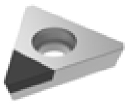
Insert form	VBGW, double	VCGW, double	VNGA, quadruple	
V				
Page	62	63	63	

Insert form	WNGA, sixfold
W	
Page	64

Insert form	RNGN, sandwich	RNGN, solid
R		
Page	64	64

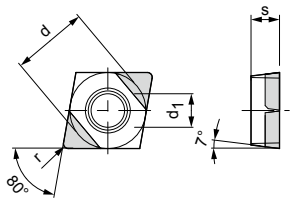
	CNGN, solid				
					
	55				

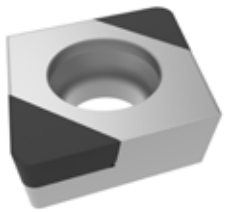
	SPGN, full face				
					
	59				

	TNGN, sandwich	TNGN, solid	TPGW, single		
					
	61	61	62		

CCGW

PcBN indexable insert, double

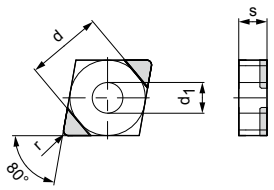


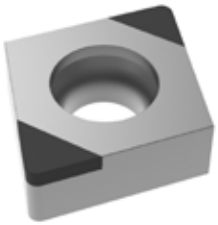


Specification	Dimensions				FP834	FP823		FP853		FU430		
	d	s	r	d_1	S14	T13	W85	S12	W85	E01	T51	W79
CCGW 060202 ...N-0AB	6,35	2,38	0,2	2,8	30795326	30250322		30463141		30233102	30233104	
CCGW 060204 ...N-0AB	6,35	2,38	0,4	2,8	30795330	30248120		30260631		30233116	30233118	
CCGW 09T302 ...N-0AB	9,52	3,97	0,2	4,4	30795332	30325411		30463142		30503842	30324916	
CCGW 09T304 ...N-0AB	9,52	3,97	0,4	4,4	30293783	30236943	30254227	30436023	30463147	30233222	30233224	30233225
CCGW 09T308 ...N-0AB	9,52	3,97	0,8	4,4	30269636	30243314	30483993	30277360	30463148	30233236	30233238	30233239

CNGA

PcBN indexable insert, double



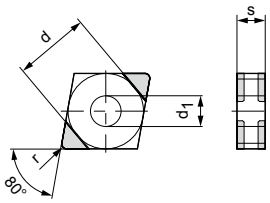


Specification	Dimensions				FP834		FP823		FP853		FU430		
	d	s	r	d_1	S14	W87	T13	W87	S12	W87	E01	T51	W82
CNGA 120404 ...N-0AB	12,7	4,76	0,4	5,13	30329409	30795335	30463024	30463027	30463159	30463164	30463042	30463045	30463051
CNGA 120408 ...N-0AB	12,7	4,76	0,8	5,13	30494263	30795338	30463025	30463028	30463160	30285685	30463043	30463046	30463052
CNGA 120412 ...N-0AB	12,7	4,76	1,2	5,13	30272654	30416606	30463026	30463029	30463161	30463165	30463044	30463047	30463053

Dimensions in mm.

CNGA

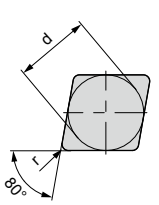
PcBN indexable insert, quadruple

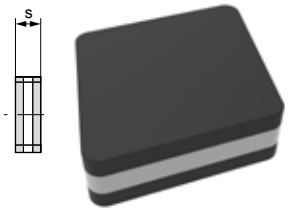


Specification	Dimensions				FP834		FP823		FP853		FU430		
	d	s	r	d_1	S14	W87	T13	W87	S12	W87	W82	T51	W82
CNGA 120404 ...N-0AL	12,7	4,76	0,4	5,13	30469907	30795442	30262853	30262892	30463166	30463172	30262857	30262858	30262894
CNGA 120408 ...N-0AL	12,7	4,76	0,8	5,13	30371652	30471007	30243344	30262897	30463167	30463173	30262872	30262873	30262899
CNGA 120412 ...N-0AL	12,7	4,76	1,2	5,13	30292848	30795443	30262883	30262902	30463168	30463174	30262887	30262888	30262904

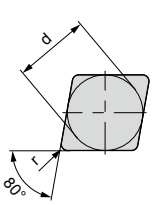
CNGN

PcBN indexable insert





0AE = sandwich



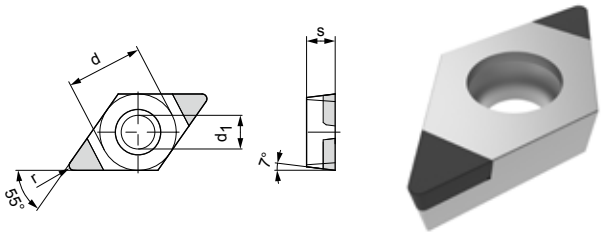
0AS = solid

Specification	Dimensions			FU720			FU430			FU872	
	d	s	r	E01	T51	W87	E01	T51	E01	S09	
CNGN 090304...N-0AE	9,52	3,18	0,4	30263431	30263432		30263440	30263441			
CNGN 090308...N-0AE	9,52	3,18	0,8	30263434	30263435		30263443	30263444			
CNGN 090312...N-0AE	9,52	3,18	1,2	30263437	30263438		30263446	30263447			
CNGN 120408...N-0AE	12,7	4,76	0,8	30262905	30262906	30262917	30262908	30262909	30262918		
CNGN 120412...N-0AE	12,7	4,76	1,2	30262911	30262912	30262919	30262914	30262915	30262920		
CNGN 120408...N-0AS	12,7	4,76	0,8							30795450	
CNGN 120412...N-0AS	12,7	4,76	1,2							30796222	

Dimensions in mm.

DCGW

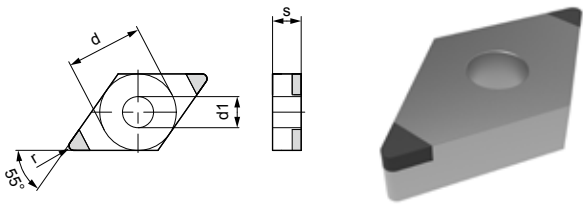
PcBN indexable insert, double



Specification	Dimensions				FP834	FP823		FP853		FU430			
	d	s	r	d_1	S14	T13	W87	S12	W85	E01	T51	W79	
DCGW 070202 ...N-0AB	6,35	2,38	0,2	2,8	30439405	30262935		30381164		30233342	30233344		
DCGW 070204 ...N-0AB	6,35	2,38	0,4	2,8	30439407	30251470		30260629		30233372	30233374		
DCGW 070208 ...N-0AB	6,35	2,38	0,8	2,8	30795399	30262947		30463175		30262948	30262949		
DCGW 11T302 ...N-0AB	9,535	3,97	0,2	4,4	30814344	30262960		30414615		30262964	30262965		
DCGW 11T304 ...N-0AB	9,535	3,97	0,4	4,4	30403895	30262969	30262973	30403893	30463181	30233402	30233404	30233405	
DCGW 11T308 ...N-0AB	9,535	3,97	0,8	4,4	30360012	30243312	30262974	30428478	30463182	30233432	30233434	30233435	

DNGA

PcBN indexable insert, double

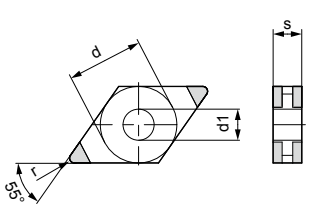


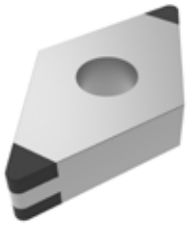
Specification	Dimensions				FP834	FP823		FP853		FU430			
	d	s	r	d_1	S14	T13	W87	S12	W87	E01	T51	W82	
DNGA 150404 ...N-0AB	12,7	4,76	0,4	5,13	30795400	30463087	30463093	30463183	30463190	30463119	30463125	30463137	
DNGA 150408 ...N-0AB	12,7	4,76	0,8	5,13	30795401	30463088	30463094	30463184	30463191	30463120	30463126	30463138	
DNGA 150412 ...N-0AB	12,7	4,76	1,2	5,13	30795405	30463089		30463185		30463121	30463127		
DNGA 150604 ...N-0AB	12,7	6,35	0,4	5,13	30329407	30463090	30463095	30483983	30463192	30463122	30463128	30463139	
DNGA 150608 ...N-0AB	12,7	6,35	0,8	5,13	30293187	30463091	30483987	30483984	30463193	30463123	30463129	30463140	
DNGA 150612 ...N-0AB	12,7	6,35	1,2	5,13	30310609	30463092		30483985		30463124	30463130		

Dimensions in mm.

DNGA

PcBN indexable insert, quadruple

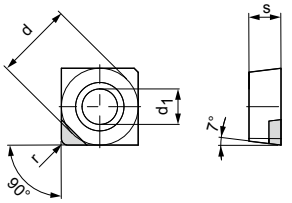


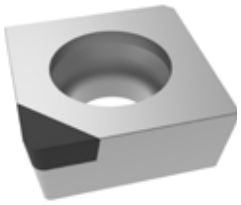


Specification	Dimensions				FP834	FP823	FP853	FU430		
	d	s	r	d_1	S14	T13	S12	E01	T51	
DNGA 150404 ...N-0AL	9,52	4,76	0,4	3,81	30795438	30463489				
DNGA 150408 ...N-0AL	9,52	4,76	0,8	3,81	30795439	30463492		30463502	30463503	
DNGA 150412 ...N-0AL	9,52	4,76	1,2	3,81	30795441	30483988		30463505	30463506	
DNGA 150604 ...N-0AL	12,7	6,35	0,4	5,13	30419250	30264690	30463194	30264694	30264695	
DNGA 150608 ...N-0AL	12,7	6,35	0,8	5,13	30419247	30264704	30463195	30264708	30264709	
DNGA 150612 ...N-0AL	12,7	6,35	1,2	5,13	30425244	30264718	30463196	30264722	30264723	

SCGW

PcBN indexable inserts, single



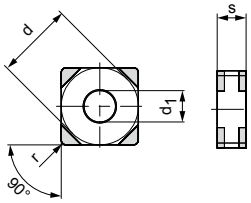


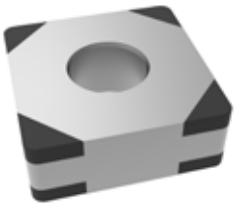
Specification	Dimensions				FP823	FU720		FU430		
	d	s	r	d_1	T13	E01	T51	E01	T51	
SCGW 09T304 ...N-0AA	9,52	3,97	0,4	4,4	30463510	10106276	10106278	10106283	10106285	
SCGW 09T308 ...N-0AA	9,52	3,97	0,8	4,4	30463513	10106290	10106292	10106297	10106299	

Dimensions in mm.

SNGA

PcBN indexable insert, eightfold

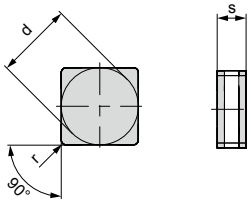




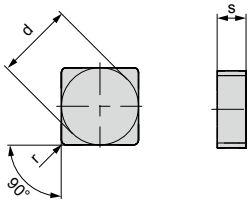
Specification	Dimensions				FP823	FU430		
	d	s	r	d_1	T13	E01	T51	
SNGA 120404 ...N-0AN	12,7	4,76	0,4	5,13	30263055	30263059	30263060	
SNGA 120408 ...N-0AN	12,7	4,76	0,8	5,13	30263070	30263074	30263075	
SNGA 120412 ...N-0AN	12,7	4,76	1,2	5,13	30263085	30263089	30263090	

SNGN

PcBN indexable insert



0AE = sandwich



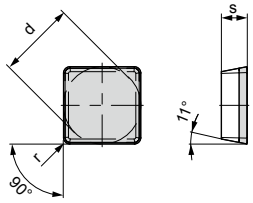
0AS = solid

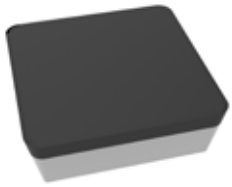
Specification	Dimensions			FU720		FU430		FU872	
	d	s	r	E01	T13	E01	T51	S09	
SNGN 090308 ...N-0AE	9,52	3,18	0,8	30263092	30263094	30263095	30263096		
SNGN 090312 ...N-0AE	9,52	3,18	1,2	30263098	30263100	30263101	30263102		
SNGN 120408 ...N-0AE	12,7	4,76	0,8	30263104	30263106	30263107	30263108		
SNGN 120412 ...N-0AE	12,7	4,76	1,2	30263540	30263112	30263541	30263114		
SNGN 090308 ...N-0AS	9,52	3,18	0,8					30796235	
SNGN 090312 ...N-0AS	9,52	3,18	1,2					30796236	
SNGN 120408 ...N-0AS	12,7	4,76	0,8					30796245	
SNGN 120412 ...N-0AS	12,7	4,76	1,2					30796249	

Dimensions in mm.

SPGN

PcBN indexable insert, full face

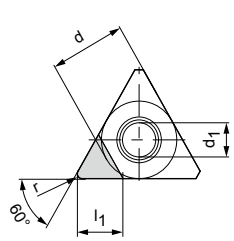


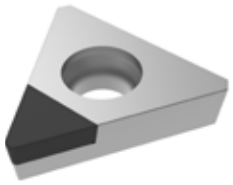


Specification	Dimensions			FU720		FU430		
	d	s	r	E01	T51	E01	T51	
SPGN 090308 ...N-0AF	9,52	3,18	0,8	30263026	30263027	30263029	30263030	
SPGN 090312 ...N-0AF	9,52	3,18	1,2	30263032	30263033	30263035	30263036	

TCGW

PcBN indexable inserts, single



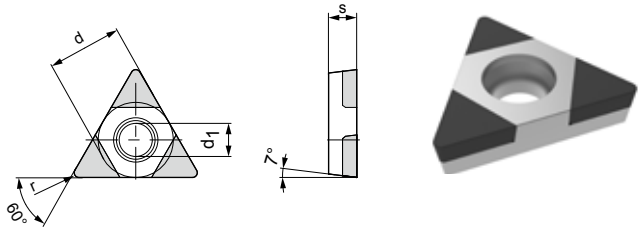


Specification	Dimensions				FP823	FU430		
	d	s	r	d_1	T13	E01	T51	
TCGW 090204...N-0AA	5,56	2,38	0,4	2,5	30463516	10106452	10106454	
TCGW 090208...N-0AA	5,56	2,38	0,8	2,5	30463519	10106464	10106466	
TCGW 110204...N-0AA	6,35	2,38	0,4	2,8	30463522	30227878	30227880	
TCGW 110208...N-0AA	5,56	2,38	0,8	2,5	30463525	30227890	30227892	

Dimensions in mm.

TCGW

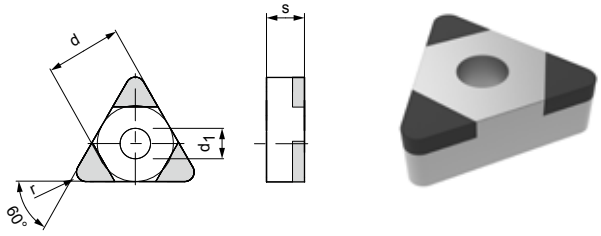
PcBN indexable insert, triple



Specification	Dimensions				FP834	FP823	FU430		
	d	s	r	d_1	S14	T13	E01	T51	
TCGW 090204...N-0AC	5,56	2,38	0,4	2,5	30796344	30463528	30463538	30324959	
TCGW 090208...N-0AC	5,56	2,38	0,8	2,5	30796348	30463531	30463541	30324961	
TCGW 110204...N-0AC	6,35	2,38	0,4	2,8	30478684	30463534	30463544	30324962	
TCGW 110208...N-0AC	5,56	2,38	0,8	2,5	30478690	30463537	30463547	30324964	

TNGA

PcBN indexable insert, triple

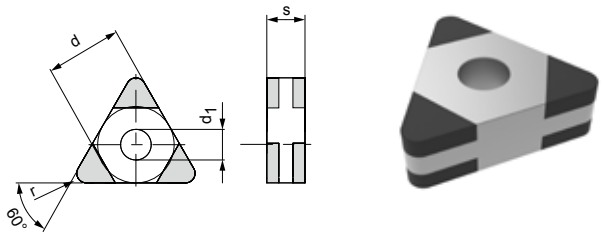


Specification	Dimensions			FP834	FP823	FP853	FU430		
	d	s	r	S14	T13	S12	E01	T51	
TNGA 160404 ...N-0AC	9,52	4,76	0,4	30796351	30263118	30463214	10106608	10106610	
TNGA 160408 ...N-0AC	9,52	4,76	0,8	30478691	30263121	30463215	10106620	10106622	
TNGA 160412 ...N-0AC	9,52	4,76	1,2	30372232	30263124	30463216	10106632	10106634	

Dimensions in mm.

TNGA

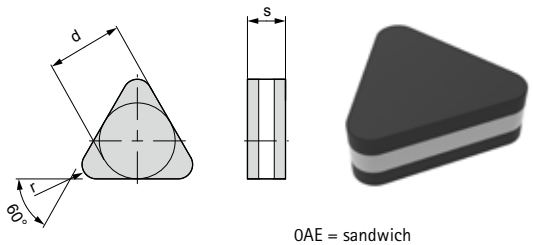
PcBN indexable insert, sixfold



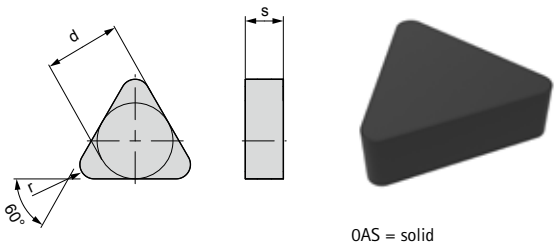
Specification	Dimensions				FP834	FP823	FP853	FU430		
	d	s	r	d_1	S14	T13	S12	E01	T51	
TNGA 160404 ...N-0AM	9,52	4,76	0,4	3,81	30796364	30263133	30796374	30263137	30263138	
TNGA 160408 ...N-0AM	9,52	4,76	0,8	3,81	30796366	30263148	30365948	30263152	30263153	
TNGA 160412 ...N-0AM	9,52	4,76	1,2	3,81	30796370	30263163	30366010	30263167	30263168	

TNGN

PcBN indexable insert



0AE = sandwich



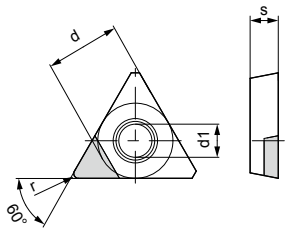
0AS = solid

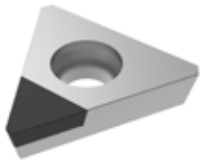
Specification	Dimensions			FU720		FU430		FP823	FP872	
	d	s	r	E01	T51	E01	T51	T13	S09	
TNGN 110304 ...N-0AE	6,35	3,18	0,4	30263476	30263477	30263485	30263486	30263467		
TNGN 110308 ...N-0AE	6,35	3,18	0,8	30263479	30263480	30263488	30263489	30263470		
TNGN 110312 ...N-0AE	6,35	3,18	1,2	30263482	30263483	30263491	30263492	30263473		
TNGN 110304 ...N-0AS	6,35	3,18	0,4						30796254	
TNGN 110308 ...N-0AS	6,35	3,18	0,8						30796257	
TNGN 110312 ...N-0AS	6,35	3,18	1,2						30796263	

Dimensions in mm.

TPGW

PcBN indexable inserts, single

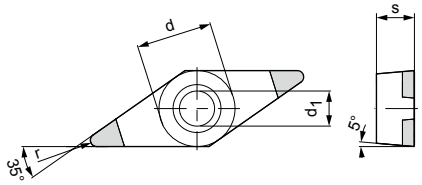


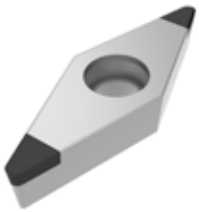


Specification	Dimensions				FP823	FU430		
	d	s	r	d_1	T13	E01	T51	
TPGW 090204...N-0AA	5,56	2,38	0,4	2,5	30463564	10106556	10106558	
TPGW 090208...N-0AA	5,56	2,38	0,8	2,5	30463567	10106568	10106570	
TPGW 110204...N-0AA	6,35	2,38	0,4	2,8	30463570	30240075	30240076	
TPGW 110208...N-0AA	6,35	2,38	0,8	2,8	30463573	30240087	30240088	

VBGW

PcBN indexable insert, double



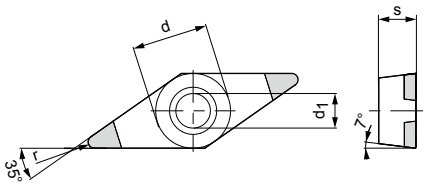


Specification	Dimensions				FP834	FP823	FP853		FU430		
	d	s	r	d_1	S14	T13	S12	W87	E01	T51	
VBGW 160404 ...N-0AB	9,52	4,76	0,4	4,4	30572248	30263190	30463231	30463237	30263194	30263195	
VBGW 160408 ...N-0AB	9,52	4,76	0,8	4,4	30795407	30252534	30463232	30463238	30263209	30263210	
VBGW 160412 ...N-0AB	9,52	4,76	1,2	4,4	30795414	30263220	30463233	30463239	30263224	30263225	

Dimensions in mm.

VCGW

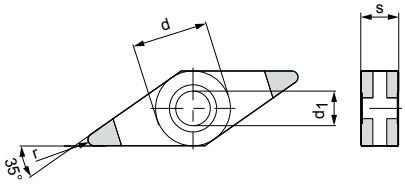
PcBN indexable insert, double

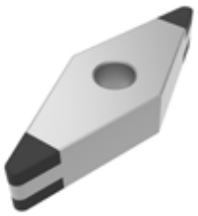


Specification	Dimensions				FP834	FP823	FP853	FU430		
	d	s	r	d_1	S14	T13	S12	E01	T51	
VCGW 110302 ...N-0AB	6,35	3,18	0,2	2,9	30795415	30263247	30463240	30263251	30263252	
VCGW 110304 ...N-0AB	6,35	3,18	0,4	2,9	30580485	30263262	30463241	30263266	30263267	
VCGW 160404 ...N-0AB	9,52	4,76	0,4	4,4	30795417	30263277	30463242	30263281	30263282	
VCGW 160408 ...N-0AB	9,52	4,76	0,8	4,4	30795420	30263292	30463243	30263296	30263297	
VCGW 160412 ...N-0AB	9,52	4,76	1,2	4,4	30795422	30263307	30463244	30263311	30263312	

VNGA

PcBN indexable insert, quadruple



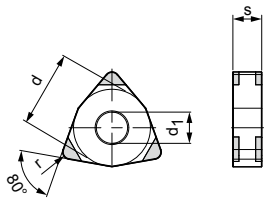


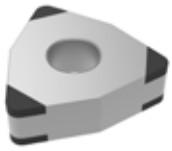
Specification	Dimensions				FP823	FU430		
	d	s	r	d_1	T13	E01	T51	
VNGA 160404 ...N-0AL	9,52	4,76	0,2	3,81	30263322	30263326	30263327	
VNGA 160408 ...N-0AL	9,52	4,76	0,4	3,81	30263337	30263341	30263342	
VNGA 160412 ...N-0AL	9,52	4,76	0,8	3,81	30263352	30263356	30263357	

Dimensions in mm.

WNGA

PcBN indexable insert, sixfold

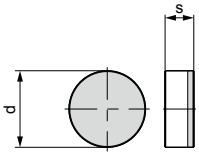




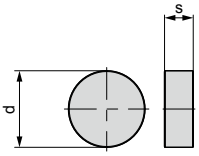
Specification	Dimensions				FP823	
	d	s	r	l_1	T13	
WNGA 080404 ...N-0AM	12,7	4,76	0,4	5,13	30263394	
WNGA 080408 ...N-0AM	12,7	4,76	0,8	5,13	30263409	
WNGA 080412 ...N-0AM	12,7	4,76	1,2	5,13	30263424	

RNGN

PcBN indexable insert



0AE = sandwich



0AS = solid

Specification	Dimensions		FU720		FU430		FP823	FU872	
	d	s	E01	T51	E01	T51	T13	S09	
RNGN 060300 ...N-0AS	6,35	3,18					30263373		
RNGN 090300 ...N-0AE	9,52	3,18	10106842	10106844	10106849	10106851	30243780		
RNGN 120400 ...N-0AE	12,7	4,76	30263359	30263360	30263362	30263363			
RNGN 090300 ...N-0AS	9,52	3,18						30796268	
RNGN 120400 ...N-0AS	12,7	4,76						30796273	

Dimensions in mm.

PCD-TIPPED INDEXABLE INSERTS

Introduction

Selection procedure 68
Product overview PCD-tipped indexable inserts 72

PCD-tipped indexable inserts

Product range 74

Selection procedure for PCD indexable inserts (1/2)

The simple way to the right insert based on the example of a CCGT indexable insert.

Selection limited by part geometry, workpiece material and cutting conditions

1 Data defined by machining requirements

Insert form	Clearance angle	Tolerance	Insert type	Insert size	Insert thickness
C	C	G	T	06	02

External machining (see 1.1)

Internal machining (see 1.2)

Constant high-accuracy G tolerance

A = negative
W = positive

For selection see pages with tables

2 Corner radius

Corner radius
04

External machining (see 2.1)

Internal machining (see 2.2)

External machining

1.1 Recommendation for indexable insert shape and clearance angle

Insert form	Face machining	Longitudinal turning face turning	Profile turning	Clearance angle		
				Machining diameter: ø < 15 mm = positive indexable insert; ø > 15 mm = negative indexable insert		
C 80 °	★	★		Positive ø < 15 mm		CC*/CP
				Negative ø > 15 mm		CN
D 55 °	⬓	■	★**	Positive ø < 15 mm		DC*/DP
				Negative ø > 15 mm		DN
S 90 °	■			Positive ø < 15 mm		SC
				Negative ø > 15 mm		SN
T 60 °	⬓	⬓	■	Positive ø < 15 mm		TC*/TP
				Negative ø > 15 mm		TN
V 35 °			■	Positive ø < 15 mm		VB/VC
				Negative ø > 15 mm		–
R	■		⬓	Positive ø < 15 mm		–
				Negative ø > 15 mm		RN
W 80 °	■	■		Positive ø < 15 mm		–
				Negative ø > 15 mm		WN

★ First choice ■ Suitable ⬓ Suitable in some situations * Preferred clearance angle ** Pay attention to plunge angle

2.1 Recommendation for corner radius

Depending on the part contour required or requirements from part drawing

Cutting pressure drops

General machining 1st choice ★★★

Cutting pressure increases

Negative indexable insert		
R 0.4	R 0.8	R 1.2

Positive indexable insert		
R 0.2	R 0.4	R 0.8

- Machining thin-walled parts
- Reduced tendency to vibration
- Better circularity

- More stable insert with interrupted cuts
- Better surface with same feed

3 Cutting material types
Selection limited by workpiece material and cutting conditions

Cutting edge design			Cutting direction		Chip groove		Tipping		PcBN grades				
F	0	1	N	-	C	1	A	-	P	U	6	6	0

Continuously sharp edged

Constant neutral cutting direction (universal)

Depending on cutting material grade

Continuous corner or tipped along full length

Page 70/71 (see 3.0)

Internal machining

1.2 Recommendation for indexable insert form and clearance angle

Insert form		Longitudinal turning	Face machining	Profile turning	Clearance angle Machining diameter: ø > 35 mm = negative indexable insert ø < 35 mm = positive indexable insert		
C	80 °	★	★		Negative ø > 35 mm		CN
					Positive ø < 35 mm		CC*/CP
D	55 °	⬓	■	★**	Negative ø > 35 mm		DN
					Positive ø < 35 mm		DC*/DP
S	90 °	■			Negative ø > 35 mm		SN
					Positive ø < 35 mm		SC
T	60 °	■	■	⬓	Negative ø > 35 mm		TN
					Positive ø < 35 mm		TC*/TP
V	35 °			■	Negative ø > 35 mm		–
					Positive ø < 35 mm		VB/VC
R		⬓			Negative ø > 35 mm		RN
					Positive ø < 35 mm		–
W	80 °		⬓	⬓	Negative ø > 35 mm		WN
					Positive ø < 35 mm		–

★ First choice ■ Suitable ⬓ Suitable in some situations * Preferred clearance angle ** Pay attention to plunge angle

2.2 Recommendation for corner radius

Depending on the part contour required or requirements from part drawing

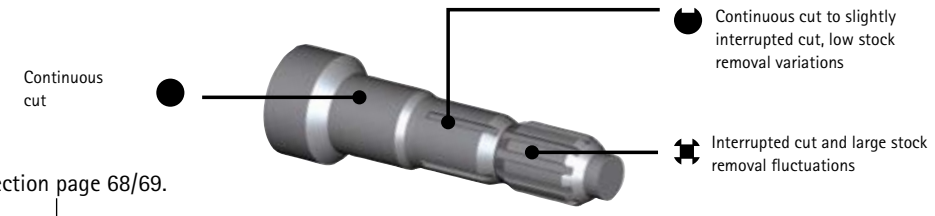
Cutting pressure drops	General machining 1st choice ★★★	Cutting pressure increases
Negative indexable insert R 0.2	R 0.4	R 0.8
Positive indexable insert R 0.4	R 0.8	R 1.2

- Machining thin-walled parts
- Reduced tendency to vibration
- Better circularity

- More stable insert with interrupted cuts
- Better surface with same feed

Selection procedure for PCD indexable inserts (2/2)

Definition of the PCD grade and the cutting edge design based on the example of a CCGT indexable insert.



3 Cutting material types
Selection limited by workpiece material and cutting conditions

Selection page 68/69.

C	C	G	T	0	6	0	2	0	4	F	0	1	N	-	C	1	A	-	P	U	6	6	0

3.0 Selection of the PCD cutting material grade and the cutting edge design F01

				Cutting material	PU 620			PU660 with C1			PU670 with C2		
				Cutting conditions	●	◖	⌘	●	◖	⌘	●	◖	⌘
Machining group			Material	Strength/hardness									
N	N1	N1.1	Aluminium, non-alloy and alloy < 3 % Si					★	★		■	■	★
		N1.2	Aluminium, alloy ≤ 7 % Si					★	★		■	■	★
		N1.3	Aluminium, alloy > 7-12 % Si		★	★					■	■	★
		N1.4	Aluminium, alloy > 12 % Si		★	★							★
	N2	N2.1	Copper, non-alloy and low-alloy	< 300 N/mm²	★	★					■	■	★
		N2.2	Copper, alloy	> 300 N/mm²	★	★	★				■	■	■
		N2.3	Brass, bronze, gunmetal	< 1200 N/mm²	★	★	★						
	N3	N3.1	Graphite		★	★	★						
	N4	N4.1	Plastic, thermoplastics		★	★	★						
		N4.2	Plastic, thermosets		★	★	★						
		N4.3	Plastic, foams		★	★	★						

★ First choice ■ Alternative

PCD cutting material PU620

PU620

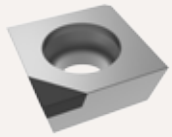
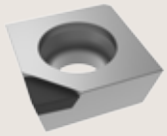
Universal, fine grain PCD grade for the efficient machining of non-ferrous metals as well as non-metallic workpiece materials such as fibre-reinforced plastics. It is characterised in particular by high edge stability with good wear resistance and high quality surface finish.

Application example: ALLOY WHEEL

Stock removal a_p:	0.2 mm
Spindle speed:	1,500 rev/min
Feed f:	0.16 mm
Number of cutting edges:	1
Diameter:	19 inch
Material:	AlSi7
Cooling:	MQL

Indexable insert: VPGW220518

Rake angle geometry for cutting material PU620

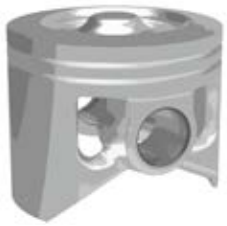
Example	Geometry	Application description
	0° rake angle	**Medium cutting pressure** – Solid or particularly stable parts – Tight tolerances – High quality surface finish
	Positive rake angle	**Low cutting pressure** – Thin-walled or unstable parts – Very tight tolerances – Medium quality surface finish

PCD cutting materials PU660/PU670

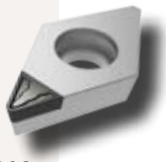
PU660

Fine grain PCD grade with carbide substrate. The fine grain lends the insert very good sharpness (chipping). The high wear resistance above all with abrasive materials gives this grade good tool lives also with tight tolerances.

Application example: PISTON



Stock removal a_p:	0.5 mm
Spindle speed:	3,700 rev/min
Feed f:	0.12 mm
Number of cutting edges:	1
Material:	ALU B2+
Cooling:	Emulsion
Indexable insert:	**DCGT11T308**



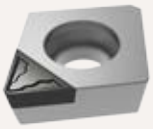
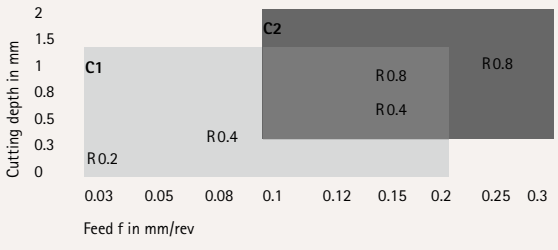
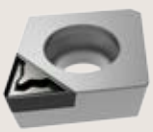
PU670

PCD cutting material with medium particle size on a carbide substrate. Outstanding mechanical wear resistance and good ductility. Can also be used for milling operations.

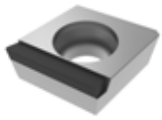
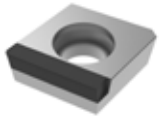
Application example: SHAFT

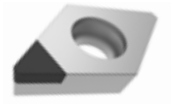
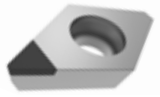
Stock removal a_p:	0.3 mm
Cutting speed:	800 m/min
Feed f:	0.09 mm
Diameter:	37 mm
Length:	112 mm
Material:	AlMgSi0,5
Cooling:	Emulsion
Indexable insert:	**DCGT11T304**

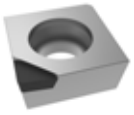
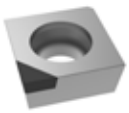
Chip breaker geometry for PU660 and PU670

Example	Geometry cutting material	Application description	Parameters for chip breaker geometry
	C1 PU660	The chip breaker structure C1 was specially developed for machining tasks with low cutting depths and therefore thin chips. The chips are also reliably broken at high cutting speeds and can be transported away without problems.	
	C1 PU670	For machining tasks with high cutting depth, the structure C2 is available. Short, easy to control chips are also produced with this chip breaker structure.	

Product overview PCD indexable inserts

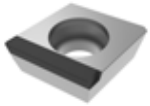
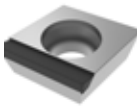
Insert form	CCGT, single, one full length, normal/shortened	CCGT, single, one corner, normal	CCGT, single, one corner, C1/C2	CCGW, single, one full length, normal/shortened	
C					
Page	74	74	75	76	

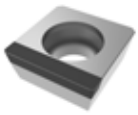
Insert form	DCGW, single, one corner, normal	DCGT, single, one corner, C1/C2	DPGW, single, one corner, normal		
D					
Page	79	79	80		

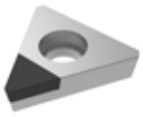
Insert form	SCGT, single, one corner, normal	SCGT, single, one full length, normal/shortened	SCGT, single, one corner, C1/C2	SCGW, single, one corner, normal	
S					
Page	81	81	82	83	

Insert form	TCGT, single, one corner, normal	TCGT, single, one full length, normal/shortened	TCGT, single, one corner, C1/C2	TPGW, single, one corner, normal	
T					
Page	86	86	87	87	

Insert form	VBGW, single, one corner, normal	VBGT, single, one corner, C1	VCGW, single, one corner, normal	VCGT, single, one corner, C1	
V					
Page	89	89	89	89	

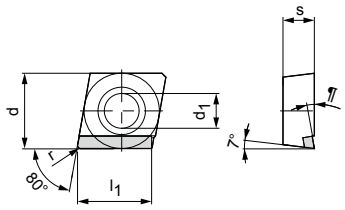
	CCGW, single, one corner, normal	CPGW, single, one full length, normal/shortened	CPGW, single, one corner, normal	CPGT, single, one full length, normal/shortened	CPGT, single, one corner, normal
					
	76	77	77	78	78

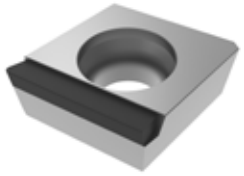
	SCGW, single, one full length, normal/shortened	SPGT, single, one corner, normal	SPGT, single, one full length, normal/shortened	SPGW, single, one corner, normal	SPGW, single, one full length, normal/shortened
					
	83	84	84	85	85

	TCGW, single, one corner, normal	TCGW, single, one full length, normal/shortened
		
	88	88

CCGT

PCD indexable insert, positive rake angle, shortened

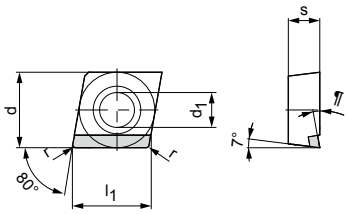


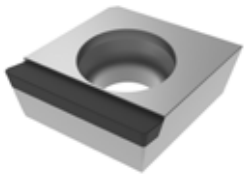


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGT 060204 F01L-6LA	6,35	2,38	0,4	2,8	6,2	30249392
CCGT 060208 F01L-6LA	6,35	2,38	0,8	2,8	6,1	30249393
CCGT 09T304 F01L-6LA	9,52	3,97	0,4	4,4	9,4	30249394
CCGT 09T308 F01L-6LA	9,52	3,97	0,8	4,4	9,3	30249395
CCGT 120404 F01L-6LA	12,7	4,76	0,4	5,5	12,6	30249396
CCGT 120408 F01L-6LA	12,7	4,76	0,8	5,5	12,5	30249397
CCGT 060204 F01R-6LA	6,35	2,38	0,4	2,8	6,2	30249398
CCGT 060208 F01R-6LA	6,35	2,38	0,8	2,8	6,1	30249399
CCGT 09T304 F01R-6LA	9,52	3,97	0,4	4,4	9,4	30249400
CCGT 09T308 F01R-6LA	9,52	3,97	0,8	4,4	9,3	30249401
CCGT 120404 F01R-6LA	12,7	4,76	0,4	5,5	12,6	30249402
CCGT 120408 F01R-6LA	12,7	4,76	0,8	5,5	12,5	30249403

CCGT

PCD indexable insert, positive rake angle, normal

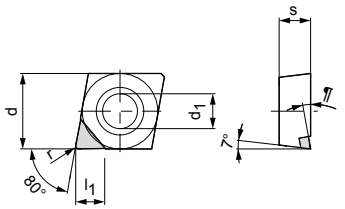


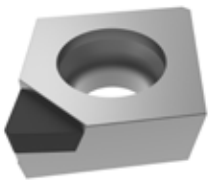


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGT 060204 F01L-1LA	6,35	2,38	0,4	2,8	6	30085694
CCGT 060208 F01L-1LA	6,35	2,38	0,8	2,8	5,6	30085695
CCGT 09T304 F01L-1LA	9,52	3,97	0,4	4,4	9,2	30085698
CCGT 09T308 F01L-1LA	9,52	3,97	0,8	4,4	8,8	30039803
CCGT 120404 F01L-1LA	12,7	4,76	0,4	5,5	12,5	30040424
CCGT 120408 F01L-1LA	12,7	4,76	0,8	5,5	12	30085701
CCGT 060204 F01R-1LA	6,35	2,38	0,4	2,8	6	30085721
CCGT 060208 F01R-1LA	6,35	2,38	0,8	2,8	5,6	30085722
CCGT 09T304 F01R-1LA	9,52	3,97	0,4	4,4	9,2	30039812
CCGT 09T308 F01R-1LA	9,52	3,97	0,8	4,4	8,8	30039811
CCGT 120404 F01R-1LA	12,7	4,76	0,4	5,5	12,5	30085727
CCGT 120408 F01R-1LA	12,7	4,76	0,8	5,5	12	30085728

CCGT

PCD indexable insert, positive rake angle



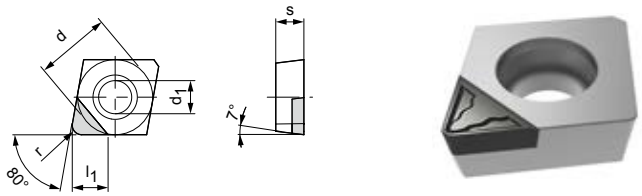


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGT 060204 F01N-5LA	6,35	2,38	0,4	2,8	3,1	30046179
CCGT 060208 F01N-5LA	6,35	2,38	0,8	2,8	3	30081181
CCGT 09T304 F01N-5LA	9,52	3,97	0,4	4,4	3,5	30029194
CCGT 09T308 F01N-5LA	9,52	3,97	0,8	4,4	3,4	30039802
CCGT 120404 F01N-5LA	12,7	4,76	0,4	5,5	4,7	30085663
CCGT 120408 F01N-5LA	12,7	4,76	0,8	5,5	4,6	30085664

Dimensions in mm.

CCGT

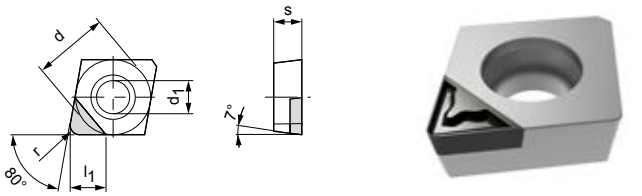
PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
CCGT 060202 F01N-C1A	6,35	2,38	0,2	2,8	3,4	10098159
CCGT 060204 F01N-C1A	6,35	2,38	0,4	2,8	3,2	10104313
CCGT 09T304 F01N-C1A	9,52	3,97	0,4	4,4	4,3	10099042
CCGT 09T308 F01N-C1A	9,52	3,97	0,8	4,4	4,1	30234050

CCGT

PCD indexable insert, chip breaker geometry C2

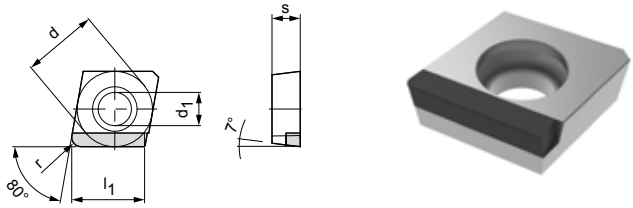


Specification	Dimensions					PU670
	d	s	r	d_1	l_1	F01
CCGT 060202 F01N-C2A	6,35	2,38	0,2	2,8	3,4	30234059
CCGT 060204 F01N-C2A	6,35	2,38	0,4	2,8	3,2	30234060
CCGT 09T304 F01N-C2A	9,52	3,97	0,4	4,4	4,3	30234061
CCGT 09T308 F01N-C2A	9,52	3,97	0,8	4,4	4,1	30234062

Dimensions in mm.

CCGW

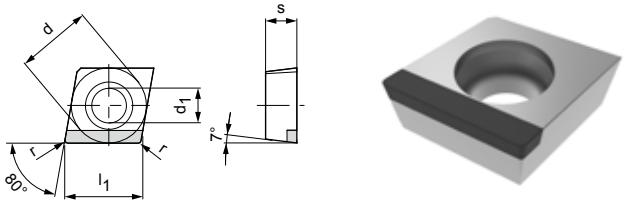
PCD indexable insert, 0° cutting angle, shortened



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGW 060204 F01L-6AA	6,35	2,38	0,4	2,8	6,2	30249380
CCGW 060208 F01L-6AA	6,35	2,38	0,8	2,8	6,1	30249381
CCGW 09T304 F01L-6AA	9,52	3,97	0,4	4,4	9,4	30249382
CCGW 09T308 F01L-6AA	9,52	3,97	0,8	4,4	9,3	30249383
CCGW 120404 F01L-6AA	12,7	4,76	0,4	5,5	12,6	30249384
CCGW 120408 F01L-6AA	12,7	4,76	0,8	5,5	12,5	30249385
CCGW 060204 F01R-6AA	6,35	2,38	0,4	2,8	6,2	30249386
CCGW 060208 F01R-6AA	6,35	2,38	0,8	2,8	6,1	30249387
CCGW 09T304 F01R-6AA	9,52	3,97	0,4	4,4	9,4	30249388
CCGW 09T308 F01R-6AA	9,52	3,97	0,8	4,4	9,3	30249389
CCGW 120404 F01R-6AA	12,7	4,76	0,4	5,5	12,6	30249390
CCGW 120408 F01R-6AA	12,7	4,76	0,8	5,5	12,5	30249391

CCGW

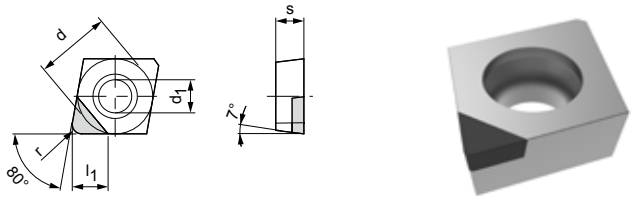
PCD indexable insert, 0° cutting angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGW 060204 F01L-0AA	6,35	2,38	0,4	2,8	6	30034583
CCGW 060208 F01L-0AA	6,35	2,38	0,8	2,8	5,6	30034582
CCGW 09T304 F01L-0AA	9,52	3,97	0,4	4,4	9,2	30034581
CCGW 09T308 F01L-0AA	9,52	3,97	0,8	4,4	8,8	30030896
CCGW 120404 F01L-0AA	12,7	4,76	0,4	5,5	12,5	30034580
CCGW 120408 F01L-0AA	12,7	4,76	0,8	5,5	12	30085679
CCGW 060204 F01R-0AA	6,35	2,38	0,4	2,8	6	30041499
CCGW 060208 F01R-0AA	6,35	2,38	0,8	2,8	5,6	30085716
CCGW 09T304 F01R-0AA	9,52	3,97	0,4	4,4	9,2	30083391
CCGW 09T308 F01R-0AA	9,52	3,97	0,8	4,4	8,8	30036478
CCGW 120404 F01R-0AA	12,7	4,76	0,4	5,5	12,5	30085719
CCGW 120408 F01R-0AA	12,7	4,76	0,8	5,5	12	30085720

CCGW

PCD indexable insert, 0° rake angle

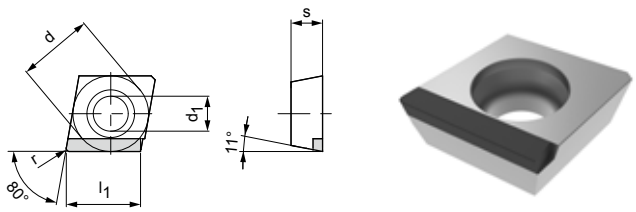


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CCGW 060204 F01N-0AA	6,35	2,38	0,4	2,8	3,1	30011027
CCGW 060208 F01N-0AA	6,35	2,38	0,8	2,8	3,0	30011028
CCGW 09T304 F01N-0AA	9,52	3,97	0,4	4,4	3,5	30011031
CCGW 09T308 F01N-0AA	9,52	3,97	0,8	4,4	3,4	30011032
CCGW 120404 F01N-0AA	12,7	4,76	0,4	5,5	4,7	30011033
CCGW 120408 F01N-0AA	12,7	4,76	0,8	5,5	4,6	30011034

Dimensions in mm.

CPGW

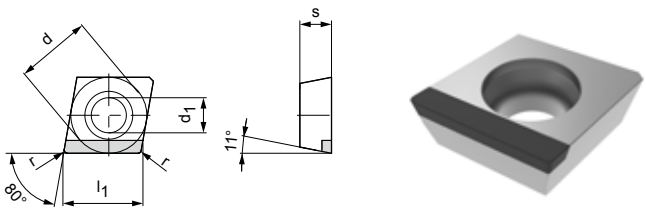
PCD indexable insert, 0° rake angle, shortened



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGW 060204 F01L-6AA	6,35	2,38	0,4	2,8	6,2	30249410
CPGW 060208 F01L-6AA	6,35	2,38	0,8	2,8	6,1	30249411
CPGW 09T304 F01L-6AA	9,52	3,97	0,4	4,4	9,4	30249412
CPGW 09T308 F01L-6AA	9,52	3,97	0,8	4,4	9,3	30249413
CPGW 060204 F01R-6AA	6,35	2,38	0,4	2,8	6,2	30249414
CPGW 060208 F01R-6AA	6,35	2,38	0,8	2,8	6,1	30249415
CPGW 09T304 F01R-6AA	9,52	3,97	0,4	4,4	9,4	30249416
CPGW 09T308 F01R-6AA	9,52	3,97	0,8	4,4	9,3	30249417

CPGW

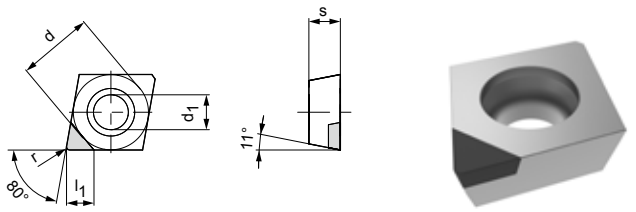
PCD indexable insert, 0° rake angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGW 060204 F01L-0AA	6,35	2,38	0,4	2,8	6	30036376
CPGW 060208 F01L-0AA	6,35	2,38	0,8	2,8	5,6	30085678
CPGW 09T304 F01L-0AA	9,52	3,97	0,4	4,4	9,2	30249406
CPGW 09T308 F01L-0AA	9,52	3,97	0,8	4,4	8,8	30249407
CPGW 060204 F01R-0AA	6,35	2,38	0,4	2,8	6	30040594
CPGW 060208 F01R-0AA	6,35	2,38	0,8	2,8	5,6	30085717
CPGW 09T304 F01R-0AA	9,52	3,97	0,4	4,4	9,2	30085790
CPGW 09T308 F01R-0AA	9,52	3,97	0,8	4,4	8,8	30249409

CPGW

PCD indexable insert, 0° rake angle

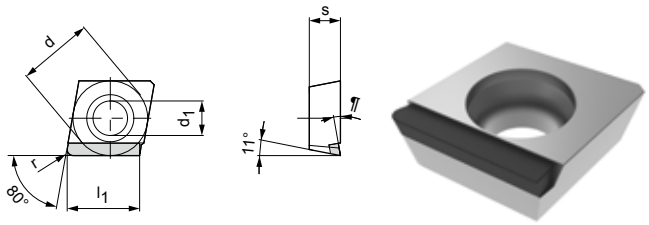


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGW 060204 F01N-0AA	6,35	2,38	0,4	2,8	3,1	30011029
CPGW 060208 F01N-0AA	6,35	2,38	0,8	2,8	3	30011030
CPGW 09T304 F01N-0AA	9,52	3,97	0,4	4,4	3,5	30085768
CPGW 09T308 F01N-0AA	9,52	3,97	0,8	4,4	3,4	30249405

Dimensions in mm.

CPGT

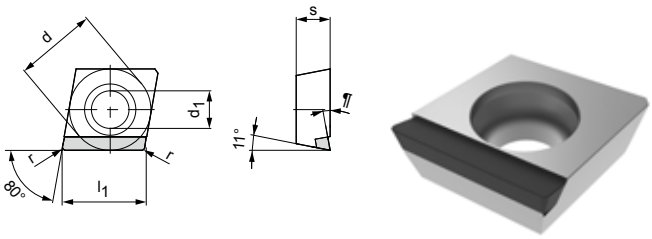
PCD indexable insert, positive rake angle, shortened



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGT 060204 F01L-6LA	6,35	2,38	0,4	2,8	6,2	30249424
CPGT 060208 F01L-6LA	6,35	2,38	0,8	2,8	6,1	30249425
CPGT 09T304 F01L-6LA	9,52	3,97	0,4	4,4	9,4	30249426
CPGT 09T308 F01L-6LA	9,52	3,97	0,8	4,4	9,3	30249427
CPGT 060204 F01R-6LA	6,35	2,38	0,4	2,8	6,2	30249428
CPGT 060208 F01R-6LA	6,35	2,38	0,8	2,8	6,1	30249429
CPGT 09T304 F01R-6LA	9,52	3,97	0,4	4,4	9,4	30249430
CPGT 09T308 F01R-6LA	9,52	3,97	0,8	4,4	9,3	30249431

CPGT

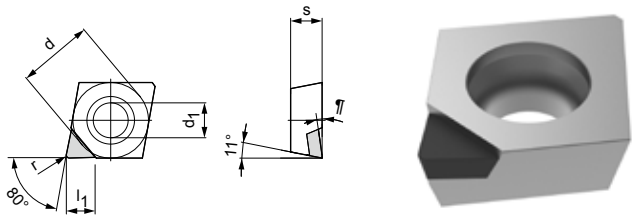
PCD indexable insert, positive rake angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGT 060204 F01L-1LA	6,35	2,38	0,4	2,8	6	30085696
CPGT 060208 F01L-1LA	6,35	2,38	0,8	2,8	5,6	30085697
CPGT 09T304 F01L-1LA	9,52	3,97	0,4	4,4	9,2	30249420
CPGT 09T308 F01L-1LA	9,52	3,97	0,8	4,4	8,8	30249421
CPGT 060204 F01R-1LA	6,35	2,38	0,4	2,8	6	30085723
CPGT 060208 F01R-1LA	6,35	2,38	0,8	2,8	5,6	30085724
CPGT 09T304 F01R-1LA	9,52	3,97	0,4	4,4	9,2	30249422
CPGT 09T308 F01R -1LA	9,52	3,97	0,8	4,4	8,8	30249423

CPGT

PCD indexable insert, positive rake angle

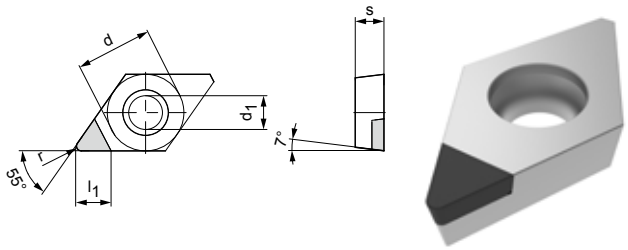


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
CPGT 060204 F01N-5LA	6,35	2,38	0,2	2,8	3,1	30085661
CPGT 060208 F01N-5LA	6,35	2,38	0,4	2,8	3	30085662
CPGT 09T304 F01N-5LA	9,52	3,97	0,4	4,4	3,5	30249418
CPGT 09T308 F01N-5LA	9,52	3,97	0,8	4,4	3,4	30249419

Dimensions in mm.

DCGW

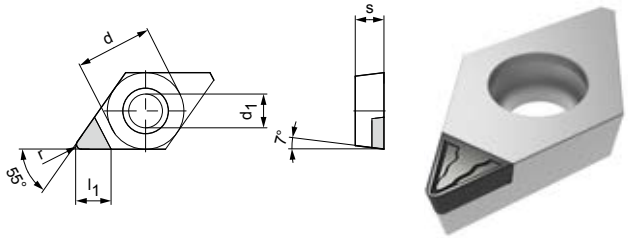
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
DCGW 070202 F01N-0AA	6,35	2,38	0,2	2,8	3,7	30249512
DCGW 070204 F01N-0AA	6,35	2,38	0,4	2,8	3,4	30249513
DCGW 070208 F01N-0AA	6,35	2,38	0,8	2,8	3	30249514
DCGW 11T304 F01N-0AA	9,52	3,97	0,4	4,4	3,9	30234072
DCGW 11T308 F01N-0AA	9,52	3,97	0,8	4,4	3,5	30234073

DCGT

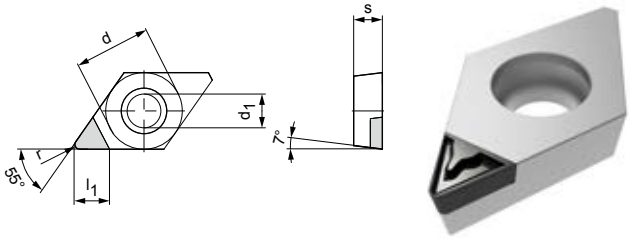
PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
DCGT 070202 F01N-C1A	6,35	2,38	0,2	2,8	3,7	30223531
DCGT 070204 F01N-C1A	6,35	2,38	0,4	2,8	3,4	10104930
DCGT 11T302 F01N-C1A	9,52	3,97	0,2	4,4	4,7	30234051
DCGT 11T304 F01N-C1A	9,52	3,97	0,4	4,4	4,3	30234052
DCGT 11T308 F01N-C1A	9,52	3,97	0,8	4,4	4	30234053

DCGT

PCD indexable insert, chip breaker geometry C2

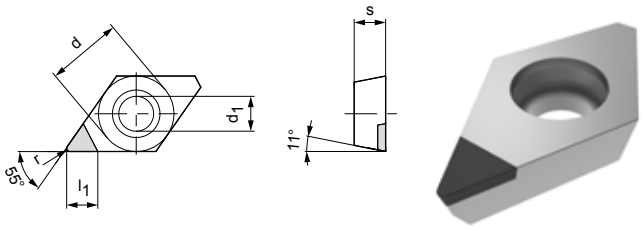


Specification	Dimensions					PU670
	d	s	r	d_1	l_1	F01
DCGT 070202 F01N-C2A	6,35	2,38	0,2	2,8	3,7	30234063
DCGT 070204 F01N-C2A	6,35	2,38	0,4	2,8	3,4	30234064
DCGT 11T302 F01N-C2A	9,52	3,97	0,2	4,4	4,7	30234065
DCGT 11T304 F01N-C2A	9,52	3,97	0,4	4,4	4,3	30234066
DCGT 11T308 F01N-C2A	9,52	3,97	0,8	4,4	4	30234067

Dimensions in mm.

DPGW

PCD indexable insert, 0° rake angle

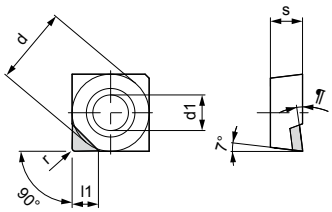


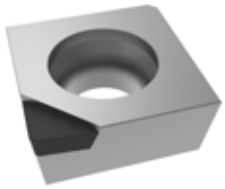
Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
DPGW 070202 F01N-0AA	6,35	2,38	0,2	2,8	3,7	30257651
DPGW 070204 F01N-0AA	6,35	2,38	0,4	2,8	3,4	30257654
DPGW 070208 F01N-0AA	6,35	2,38	0,8	2,8	3	30257656
DPGW 11T304 F01N-0AA	9,52	3,97	0,4	4,4	3,9	30257657
DPGW 11T308 F01N-0AA	9,52	3,97	0,8	4,4	3,5	30257660

Dimensions in mm.

SCGT

PCD indexable insert, positive rake angle

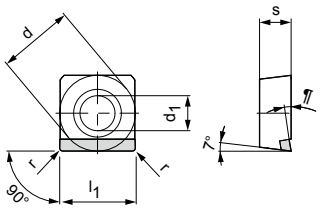


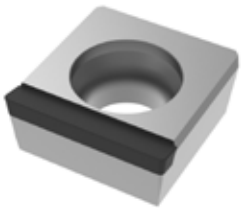


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGT 060204 F01N-5LA	6,35	2,38	0,4	2,8	2,8	30085665
SCGT 060208 F01N-5LA	6,35	2,38	0,8	2,8	2,8	30085666
SCGT 09T304 F01N-5LA	9,52	3,97	0,4	2,8	3,1	30037904
SCGT 09T308 F01N-5LA	9,52	3,97	0,8	4,4	3,1	30058354
SCGT 120404 F01N-5LA	12,7	4,76	0,4	5,5	4,5	30085670
SCGT 120408 F01N-5LA	12,7	4,76	0,8	5,5	4,5	30039810

SCGT

PCD indexable insert, positive rake angle, normal

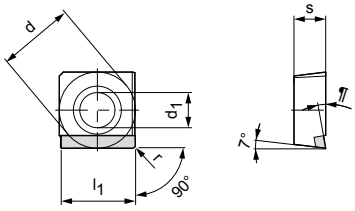


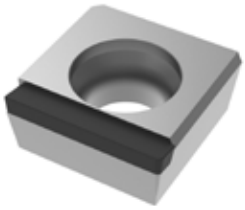


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGT 060204 F01X-1LA	6,35	2,38	0,4	2,8	5,9	30085702
SCGT 060208 F01X-1LA	6,35	2,38	0,8	2,8	5,5	30085703
SCGT 09T304 F01X-1LA	9,52	3,97	0,4	4,4	9,1	30047583
SCGT 09T308 F01X-1LA	9,52	3,97	0,8	4,4	8,7	30085707
SCGT 120404 F01X-1LA	12,7	4,76	0,4	5,5	12,3	30085708
SCGT 120408 F01X-1LA	12,7	4,76	0,8	5,5	11,9	30085709

SCGT

PCD indexable insert, positive rake angle, shortened



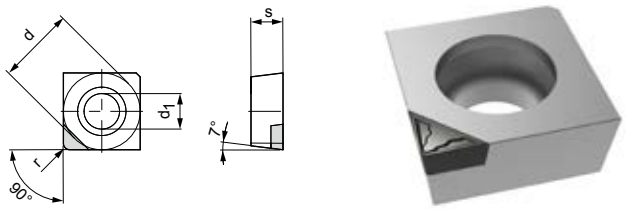


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGT 060204 F01L-6LA	6,35	2,38	0,4	2,8	6,2	30249444
SCGT 060208 F01L-6LA	6,35	2,38	0,8	2,8	6,2	30249445
SCGT 09T304 F01L-6LA	9,52	3,97	0,4	4,4	9,3	30249446
SCGT 09T308 F01L-6LA	9,52	3,97	0,8	4,4	9,3	30249447
SCGT 120404 F01L-6LA	12,7	4,76	0,4	5,5	12,4	30249448
SCGT 120408 F01L-6LA	12,7	4,76	0,8	5,5	12,4	30249449
SCGT 060204 F01R-6LA	6,35	2,38	0,4	2,8	6,2	30249450
SCGT 060208 F01R-6LA	6,35	2,38	0,8	2,8	6,2	30249451
SCGT 09T304 F01R-6LA	9,52	3,97	0,4	4,4	9,3	30249452
SCGT 09T308 F01R-6LA	9,52	3,97	0,8	4,4	9,3	30249453
SCGT 120404 F01R-6LA	12,7	4,76	0,4	5,5	12,4	30249454
SCGT 120408 F01R-6LA	12,7	4,76	0,8	5,5	12,4	30249455

Dimensions in mm.

SCGT

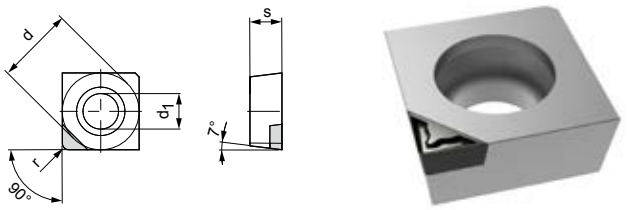
PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
SCGT 09T304 F01N-C1A	9,52	3,97	0,4	4,4	4,4	30250260
SCGT 09T308 F01N-C1A	9,52	3,97	0,8	4,4	4,3	30250261
SCGT 120404 F01N-C1A	12,7	4,76	0,4	5,5	4,4	30250262
SCGT 120408 F01N-C1A	12,7	4,76	0,8	5,5	4,3	30250263

SCGT

PCD indexable insert, chip breaker geometry C2

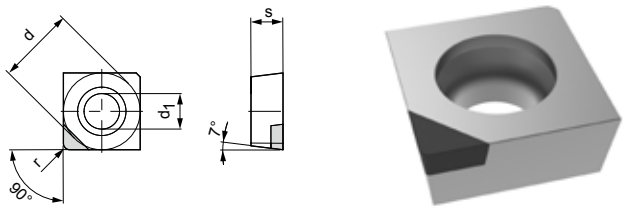


Specification	Dimensions					PU670
	d	s	r	d_1	l_1	F01
SCGT 09T304 F01N-C2A	6,35	2,38	0,4	4,4	4,4	30249456
SCGT 09T308 F01N-C2A	6,35	2,38	0,8	4,4	4,3	30249457
SCGT 120404 F01N-C2A	9,52	3,97	0,4	5,5	4,4	30249458
SCGT 120408 F01N-C2A	9,52	3,97	0,8	5,5	4,3	30249459

Dimensions in mm.

SCGW

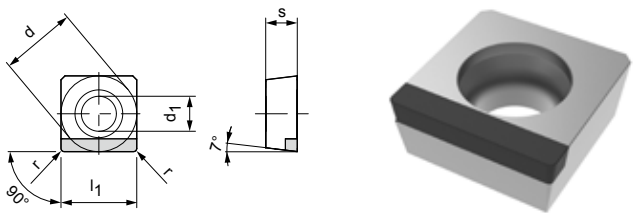
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGW 060204 F01N-0AA	6,35	2,38	0,4	2,8	2,8	30011035
SCGW 060208 F01N-0AA	6,35	2,38	0,8	2,8	2,8	30011036
SCGW 09T304 F01N-0AA	9,52	3,97	0,4	2,8	3,1	30011037
SCGW 09T308 F01N-0AA	9,52	3,97	0,8	4,4	3,1	30011038
SCGW 120404 F01N-0AA	12,7	4,76	0,4	5,5	4,5	30011039
SCGW 120408 F01N-0AA	12,7	4,76	0,8	5,5	4,5	30011040

SCGW

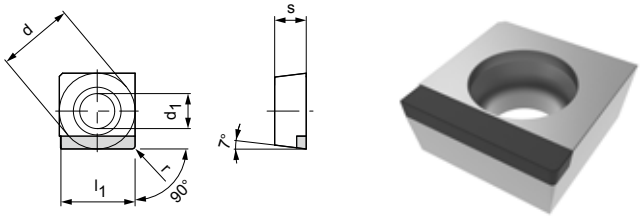
PCD indexable insert, 0° rake angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGW 060204 F01X-0AA	6,35	2,38	0,4	2,8	5,9	30085680
SCGW 060208 F01X-0AA	6,35	2,38	0,8	2,8	5,5	30085681
SCGW 09T304 F01X-0AA	9,52	3,97	0,4	4,4	9,1	30025529
SCGW 09T308 F01X-0AA	9,52	3,97	0,8	4,4	8,7	30037231
SCGW 120404 F01X-0AA	12,7	4,76	0,4	5,5	12,3	30083392
SCGW 120408 F01X-0AA	12,7	4,76	0,8	5,5	11,9	30085687

SCGW

PCD indexable insert, 0° rake angle, shortened

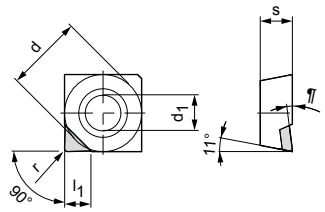


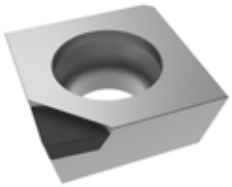
Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SCGW 060204 F01L-6AA	6,35	2,38	0,4	2,8	6,2	30249432
SCGW 060208 F01L-6AA	6,35	2,38	0,8	2,8	6,2	30249433
SCGW 09T304 F01L-6AA	9,52	3,97	0,4	4,4	9,3	30249434
SCGW 09T308 F01L-6AA	9,52	3,97	0,8	4,4	9,3	30249435
SCGW 120404 F01L-6AA	12,7	4,76	0,4	5,5	12,4	30249436
SCGW 120408 F01L-6AA	12,7	4,76	0,8	5,5	12,4	30249437
SCGW 060204 F01R-6AA	6,35	2,38	0,4	2,8	6,2	30249438
SCGW 060208 F01R-6AA	6,35	2,38	0,8	2,8	6,2	30249439
SCGW 09T304 F01R-6AA	9,52	3,97	0,4	4,4	9,3	30249440
SCGW 09T308 F01R-6AA	9,52	3,97	0,8	4,4	9,3	30249441
SCGW 120404 F01R-6AA	12,7	4,76	0,4	5,5	12,4	30249442
SCGW 120408 F01R-6AA	12,7	4,76	0,8	5,5	12,4	30249443

Dimensions in mm.

SPGT

PCD indexable insert, positive rake angle

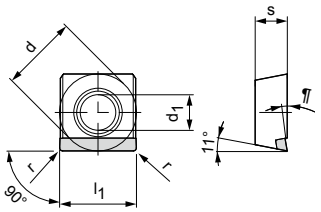


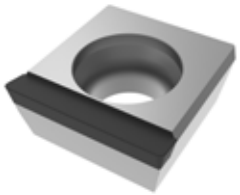


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGT 060304 F01N-5LA	6,35	3,18	0,4	2,8	2,8	30049511
SPGT 060308 F01N-5LA	6,35	3,18	0,8	2,8	2,8	30085668
SPGT 09T304 F01N-5LA	9,52	3,97	0,4	4,4	3,1	30249472
SPGT 09T308 F01N-5LA	9,52	3,97	0,8	4,4	3,1	30249473

SPGT

PCD indexable insert, positive rake angle, normal

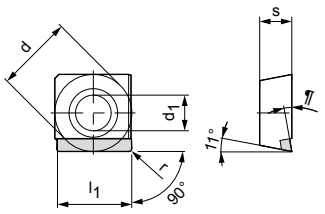


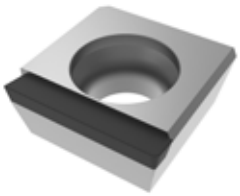


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGT 060304 F01X-1LA	6,35	3,18	0,4	2,8	5,9	30040407
SPGT 060308 F01X-1LA	6,35	3,18	0,8	2,8	5,5	30085705
SPGT 09T304 F01X-1LA	9,52	3,97	0,4	4,4	9,1	30249474
SPGT 09T308 F01X-1LA	9,52	3,97	0,8	4,4	8,7	30249475

SPGT

PCD indexable insert, positive rake angle, shortened



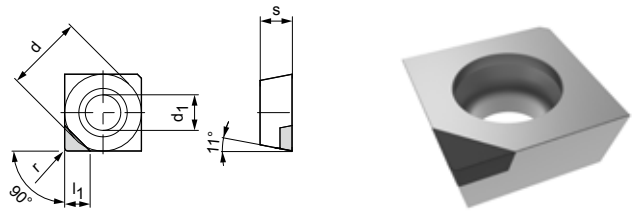


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGT 060304 F01L-6LA	6,35	3,18	0,4	2,8	6,2	30249476
SPGT 060308 F01L-6LA	6,35	3,18	0,8	2,8	6,2	30249477
SPGT 09T304 F01L-6LA	9,52	3,97	0,4	4,4	9,3	30249478
SPGT 09T308 F01L-6LA	9,52	3,97	0,8	4,4	9,3	30249479
SPGT 060304 F01R-6LA	6,35	3,18	0,4	2,8	6,2	30249480
SPGT 060308 F01R-6LA	6,35	3,18	0,8	2,8	6,2	30249481
SPGT 09T304 F01R-6LA	9,52	3,97	0,4	4,4	9,3	30249482
SPGT 09T308 F01R-6LA	9,52	3,97	0,8	4,4	9,3	30249483

Dimensions in mm.

SPGW

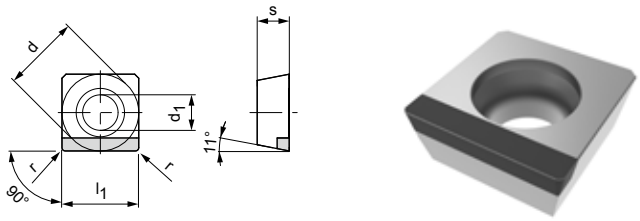
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGW 060304 F01N-0AA	6,35	3,18	0,4	2,8	2,8	30036253
SPGW 060308 F01N-0AA	6,35	3,18	0,8	2,8	2,8	30085658
SPGW 09T304 F01N-0AA	9,52	3,97	0,4	4,4	3,1	30249460
SPGW 09T308 F01N-0AA	9,52	3,97	0,8	4,4	3,1	30249461

SPGW

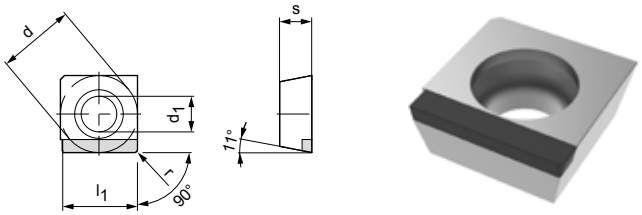
PCD indexable insert, 0° rake angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGW 060304 F01X-0AA	6,35	3,18	0,4	2,8	5,9	30085682
SPGW 060308 F01X-0AA	6,35	3,18	0,8	2,8	5,5	30085683
SPGW 09T304 F01X-0AA	9,52	3,97	0,4	4,4	9,1	30039129
SPGW 09T308 F01X-0AA	9,52	3,97	0,8	4,4	8,7	30249463

SPGW

PCD indexable insert, 0° rake angle, shortened

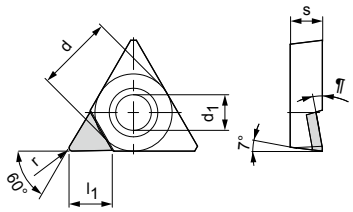


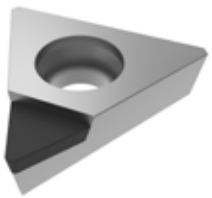
Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
SPGW 060304 F01L-6AA	6,35	3,18	0,4	2,8	6,2	30249464
SPGW 060308 F01L-6AA	6,35	3,18	0,8	2,8	6,2	30249465
SPGW 09T304 F01L-6AA	9,52	3,97	0,4	4,4	9,3	30249466
SPGW 09T308 F01L-6AA	9,52	3,97	0,8	4,4	9,3	30249467
SPGW 060304 F01R-6AA	6,35	3,18	0,4	2,8	6,2	30249468
SPGW 060308 F01R-6AA	6,35	3,18	0,8	2,8	6,2	30249469
SPGW 09T304 F01R-6AA	9,52	3,97	0,4	4,4	9,3	30249470
SPGW 09T308 F01R-6AA	9,52	3,97	0,8	4,4	9,3	30249471

Dimensions in mm.

TCGT

PCD indexable insert, positive rake angle

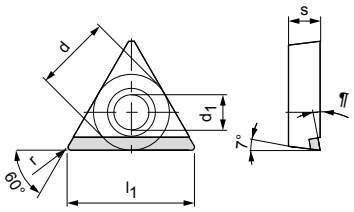


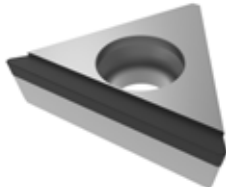


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGT 090204 F01N-5LA	5,56	2,38	0,4	2,5	3,4	30085671
TCGT 090208 F01N-5LA	5,56	2,38	0,8	2,5	3,1	30085672
TCGT 110204 F01N-5LA	6,35	2,38	0,4	2,8	3,8	30085673
TCGT 110208 F01N-5LA	6,35	2,38	0,8	2,8	3,5	30085674
TCGT 16T304 F01N-5LA	9,52	3,97	0,4	4,4	5,4	30085675
TCGT 16T308 F01N-5LA	9,52	3,97	0,8	4,4	5,1	30085676

TCGT

PCD indexable insert, positive rake angle, normal

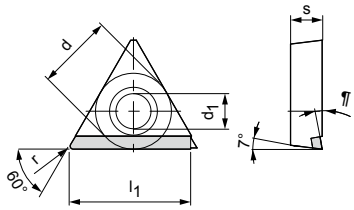


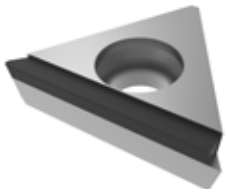


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGT 090204 F01X-1LA	5,56	2,38	0,4	2,5	8,6	30085710
TCGT 090208 F01X-1LA	5,56	2,38	0,8	2,5	7,6	30085711
TCGT 110204 F01X-1LA	6,35	2,38	0,4	2,8	10	30085712
TCGT 110208 F01X-1LA	6,35	2,38	0,8	2,8	9	30085713
TCGT 16T304 F01X-1LA	9,52	3,97	0,4	4,4	15,5	30085714
TCGT 16T308 F01X-1LA	9,52	3,97	0,8	4,4	14,5	30085715

TCGT

PCD indexable insert, positive rake angle, shortened



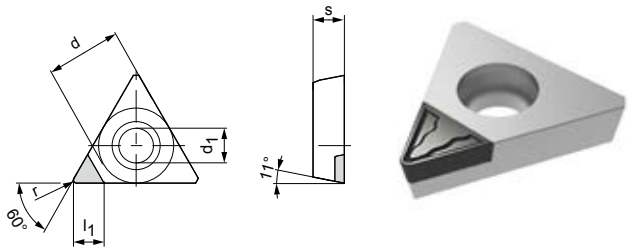


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGT 090204 F01L-6LA	5,56	2,38	0,4	2,5	8,6	30249496
TCGT 090208 F01L-6LA	5,56	2,38	0,8	2,5	8,3	30249497
TCGT 110204 F01L-6LA	6,35	2,38	0,4	2,8	9,8	30249498
TCGT 110208 F01L-6LA	6,35	2,38	0,8	2,8	9,5	30249499
TCGT 16T304 F01L-6LA	9,52	3,97	0,4	4,4	15	30249500
TCGT 16T308 F01L-6LA	9,52	3,97	0,8	4,4	14,7	30249501
TCGT 090204 F01R-6LA	5,56	2,38	0,4	2,5	8,6	30249502
TCGT 090208 F01R-6LA	5,56	2,38	0,8	2,5	8,3	30249503
TCGT 110204 F01R-6LA	6,35	2,38	0,4	2,8	9,8	30249504
TCGT 110208 F01R-6LA	6,35	2,38	0,8	2,8	9,5	30249505
TCGT 16T304 F01R-6LA	9,52	3,97	0,4	4,4	15	30249506
TCGT 16T308 F01R-6LA	9,52	3,97	0,8	4,4	14,7	30249507

Dimensions in mm.

TCGT

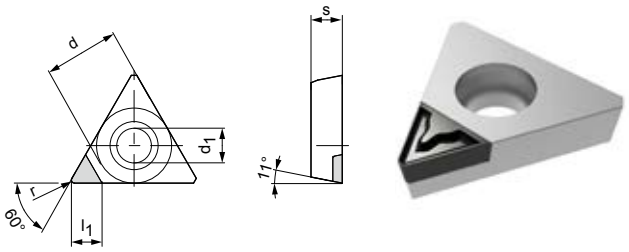
PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
TCGT 110202 F01N-C1A	6,35	2,38	0,2	2,8	3,7	30234054
TCGT 110204 F01N-C1A	6,35	2,38	0,4	2,8	3,4	30234055

TCGT

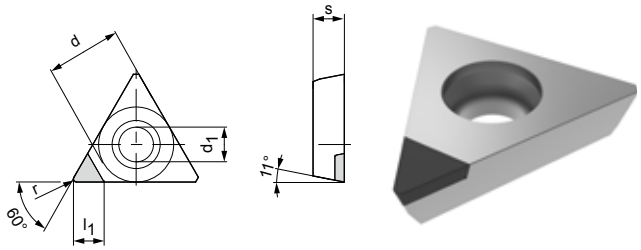
PCD indexable insert, chip breaker geometry C2



Specification	Dimensions					PU670
	d	s	r	d_1	l_1	F01
TCGT 110202 F01N-C2A	6,35	2,38	0,2	2,8	3,7	30250264
TCGT 110204 F01N-C2A	6,35	2,38	0,4	2,8	3,4	30250265

TPGW

PCD indexable insert, 0° rake angle

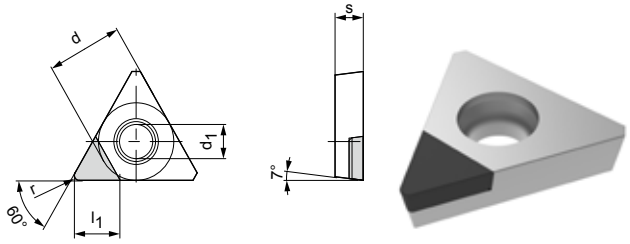


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TPGW 090204 F01N-0AA	5,56	2,38	0,4	2,5	3,4	30252340
TPGW 090208 F01N-0AA	5,56	2,38	0,8	2,5	3,1	30257663
TPGW 110204 F01N-0AA	6,35	2,38	0,4	2,8	3,8	30257665
TPGW 110208 F01N-0AA	6,35	2,38	0,8	2,8	3,5	30257666
TPGW 16T304 F01N-0AA	9,52	3,97	0,4	4,4	5,4	30257668
TPGW 16T308 F01N-0AA	9,52	3,97	0,8	4,4	5,1	30257670

Dimensions in mm.

TCGW

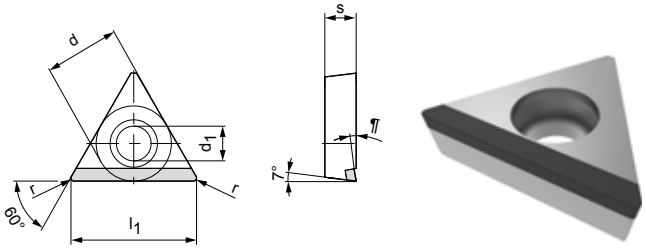
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGW 090204 F01N-0AA	5,56	2,38	0,4	2,5	3,4	30011041
TCGW 090208 F01N-0AA	5,56	2,38	0,8	2,5	3,1	30011042
TCGW 110204 F01N-0AA	6,35	2,38	0,4	2,8	3,8	30011043
TCGW 110208 F01N-0AA	6,35	2,38	0,8	2,8	3,5	30011044
TCGW 16T304 F01N-0AA	9,52	3,97	0,4	4,4	5,4	30011045
TCGW 16T308 F01N-0AA	9,52	3,97	0,8	4,4	5,1	30011046

TCGW

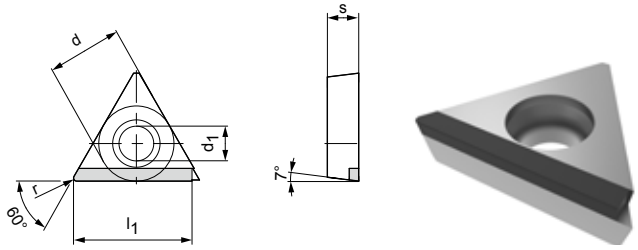
PCD indexable insert, 0° rake angle, normal



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGW 090204 F01X-0AA	5,56	2,38	0,4	2,5	7,9	30085688
TCGW 090208 F01X-0AA	5,56	2,38	0,8	2,5	7,6	30085689
TCGW 110204 F01X-0AA	6,35	2,38	0,4	2,8	10	30034491
TCGW 110208 F01X-0AA	6,35	2,38	0,8	2,8	9	30085691
TCGW 16T304 F01X-0AA	9,52	3,97	0,4	4,4	15,5	30085692
TCGW 16T308 F01X-0AA	9,52	3,97	0,8	4,4	14,5	30085693

TCGW

PCD indexable insert, 0° rake angle, shortened

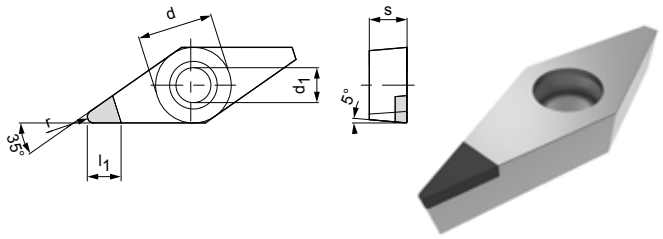


Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
TCGW 090204 F01L-6AA	5,56	2,38	0,4	2,5	8,6	30249484
TCGW 090208 F01L-6AA	5,56	2,38	0,8	2,5	8,3	30249485
TCGW 110204 F01L-6AA	6,35	2,38	0,4	2,8	9,8	30249486
TCGW 110208 F01L-6AA	6,35	2,38	0,8	2,8	9,5	30249487
TCGW 16T304 F01L-6AA	9,52	3,97	0,4	4,4	15	30249488
TCGW 16T308 F01L-6AA	9,52	3,97	0,8	4,4	14,7	30249489
TCGW 090204 F01R-6AA	5,56	2,38	0,4	2,5	8,6	30249490
TCGW 090208 F01R-6AA	5,56	2,38	0,8	2,5	8,3	30249491
TCGW 110204 F01R-6AA	6,35	2,38	0,4	2,8	9,8	30249492
TCGW 110208 F01R-6AA	6,35	2,38	0,8	2,8	9,5	30249493
TCGW 16T304 F01R-6AA	9,52	3,97	0,4	4,4	15	30249494
TCGW 16T308 F01R-6AA	9,52	3,97	0,8	4,4	14,7	30249495

Dimensions in mm.

VBGW

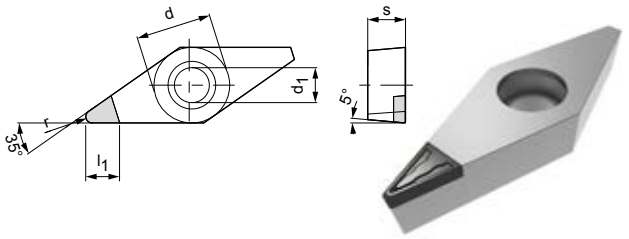
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
VBGW 160404 F01N-0AA	9,52	4,76	0,4	4,4	5,5	30249508
VBGW 160408 F01N-0AA	9,52	4,76	0,8	4,4	5	30249509

VBGT

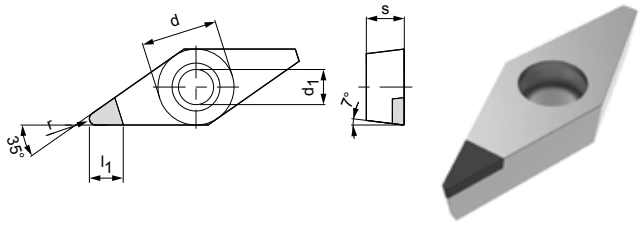
PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
VBGT 160404 F01N-C1A	9,52	4,76	0,4	4,4	5,5	30234056
VBGT 160408 F01N-C1A	9,52	4,76	0,8	4,4	5	30234057

VCGW

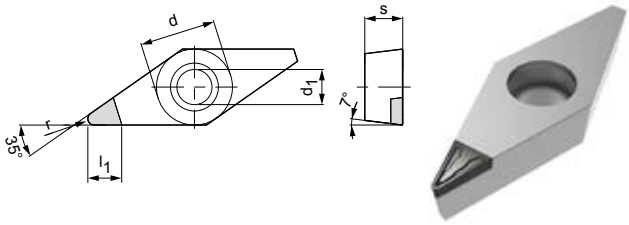
PCD indexable insert, 0° rake angle



Specification	Dimensions					PU620
	d	s	r	d_1	l_1	F01
VCGW 160404 F01N-0AA	9,52	4,76	0,4	4,4	5,5	30249510
VCGW 160408 F01N-0AA	9,52	4,76	0,8	4,4	5	30249511

VCGT

PCD indexable insert, chip breaker geometry C1



Specification	Dimensions					PU660
	d	s	r	d_1	l_1	F01
VCGT 110302 F01N-C1A	6,35	3,18	0,2	2,9	4,6	30234058
VCGT 110304 F01N-C1A	6,35	3,18	0,4	2,9	3,9	30223530
VCGT 160404 F01N-C1A	9,52	4,76	0,4	4,4	5,5	10105369
VCGT 160408 F01N-C1A	9,52	4,76	0,8	4,4	5	30228625

Dimensions in mm.

HSK-T

ISO turning tools and conversion systems

TOOLS WITH HSK-T CONNECTION

Introduction

Designation key 96
Product overview turning holders HSK-T 98

Tools with HSK-T connection

Turning holders HSK-T 40, 63, 100 with negative indexable blade 100
Turning holders HSK-T 40, 63, 100 with positive indexable blade 115
Shank holders HSK-T 40, 63, 100 124
Spare parts 128

HSK-T – THE STANDARDISED HOLLOW SHANK TAPER FOR TURNING

HSK as a connection stands for high precision and rigidity; it is very robust and straightforward to design and manufacture. HSK has established itself - whether on machining centres with automatic tool changers or on custom machines and transfer lines with manual tool clamping.

To be able to utilise the advantages of HSK also for usage on lathes or turning-milling centres, the HSK-T standard (T = Turning) was developed. Compared to other HSK variants the driving element play on the HSK-T is limited and in this way the effect on the position of the insert minimised.

The HSK-T also plays on its advantages during the complete machining of cubic parts and turning workpieces with cross bores, threads or milling tasks on turning-milling centres. It can be used as a universal connection for rotating and stationary tools and makes possible minimum set-up and tool changing times. The changing times for tools reduce to less than 30 seconds with the HSK connection. Ten to 15 minutes are normal here with other standardised systems.

Using the HSK-T connection a high degree of flexibility is achieved during the cost-effective production of complex parts, even with smaller batch sizes and a large variance between the parts. The high changeover accuracy of the HSK-T makes it possible to provide sister tools that are pre-set and measured on the setting up station and are used directly on the revolver. No samples or corrections are necessary at all. HSK-T as a tool connection is independently standardised across sectors. In this way a large number of possibilities and alternatives open up. The user is not bound to only a few manufacturers as with other quick-change systems. The costs for new HSK-T tools and holders are quickly re-paid due to the enormous time-saving during revolver changeover and the tool change.

MAPAL offers a complete turning holder programme in the sizes HSK-T 40, 63 and 100. In this way almost all turning methods are covered. The tools can be operated with HSK-A tool changers, which ensures a very high degree of flexibility.

ADVANTAGES

- Stationary and also powered tools can be used on the same clamping station; it is not necessary to change over the revolver
- High changeover accuracy and accuracy of repetition
- High fit accuracy
- High rigidity
- Exact radial positioning accuracy
- Manufacturer-independent
- High flexibility of the HSK connection
- Straightforward manufacture
- Short set-up times
- Existing HSK-A tools can be re-used
- Possible to work with pre-set tools also on turret
- Can be used with MQL
- Reduced non-productive times
- With HSK-T only one connection required on turning-milling centres

HSK-T in detail

Due to the limited driving element play, the connection centres itself on clamping the tool.
As a result height of the centre line for the tool is reached exactly.

Designation key

Tools with HSK-T connection

Turning holder HSK-T

MTH	-	HSK	-	T040	-	D	C	L

Series/type

MTH	HSK-T turning holder

Shank design

HSK	

Shank size

T040	HSK-T40
T063	HSK-T63
T100	HSK-T100

Insert clamping clamping system

C	Clamped from above
D	Clamped from above and via bore
M	Clamped from above with bore
P	Toggle lever clamping
S	Screwed through bore

Indexable insert form

C	80 °
D	55 °
S	90 °
V	35 °
W	80 °

Holder shape

A	90 °
B	75 °
D	45 °
E	60 °
G	90 °
H	107.5 °
J	93 °
L	95 °
M	50 °
N	62.5 °
P	117.5 °
Q	107.5 °
R	75 °
S	45 °
U	93 °
V	72.5 °

Shank holder with HSK-T

MTH	-	HSK	-	T040	SH

Series/type

MTH	HSK-T turning holder

Shank design

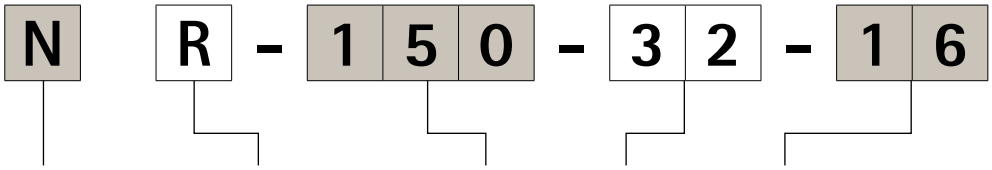
HSK	

Shank size

T040	HSK-T40
T063	HSK-T63
T100	HSK-T100

Holder

BH	For cylindrical shank
SH	For square shank



Insert clearance angle

B	5 °
C	7 °
N	0 °

Machining direction

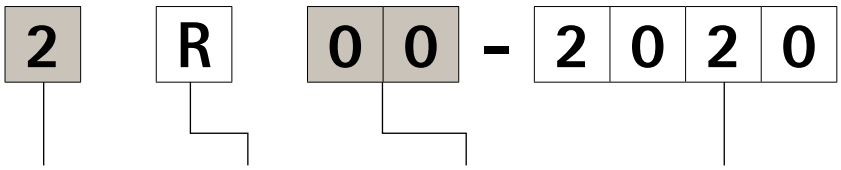
R	Right
L	Left
N	Neutral

l_1 [mm]

f [mm]

Insert size

Shank holder for square connections



Design

2	Double
3	Triple

Cutting direction

R	Right
L	Left
N	Neutral

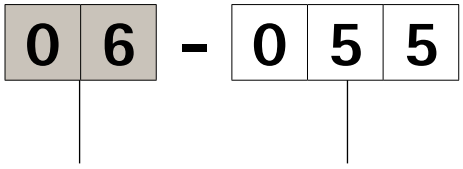
Index

00	Axial
45	Diagonal
90	Radial

Connection size

2020	20x20
2525	25x25

Shank holder for cylindrical connection

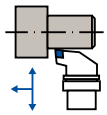
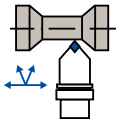
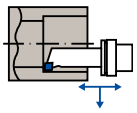


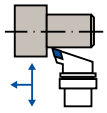
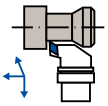
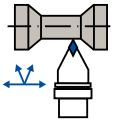
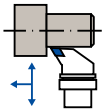
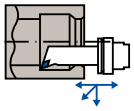
d_1 [mm]

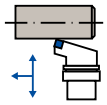
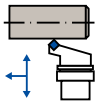
l_1 [mm]

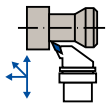
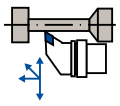
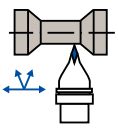
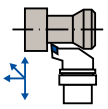
Product overview turning holders HSK-T

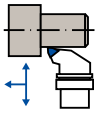
Turning holders with negative indexable insert

Insert form	DCLN... I PCLN... 95°/80°	DCMNN I PCMNN 50°/80°/50°	DCLN... I PCLN..., long 95°/80°		
C					
Page	100	101	111, 112		

Insert form	DDHN... I PDHN... 107.5 °/55 °	DDJN... I PDJN... 55 °/93 °	DDNNN I PDNNN 62.5 °/55 °/62.5 °	DDUN... I PDUN... 93 °/55 °	DDQN... I PDQN..., long 107.5 °/55 °
D					
Page	102	103	104	105	113, 114

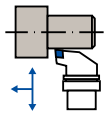
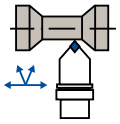
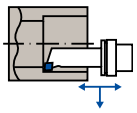
Insert form	DSBN... I PSBN... 90 °/75 °	DSSN... I PSSN... 45 °/90 °			
S					
Page	106	107			

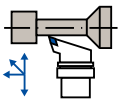
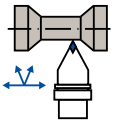
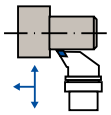
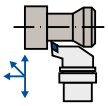
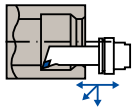
Insert form	DVPNR I DVPNL 117.5 °/35 °	DVUNR I DVUNL 93 °/35 °	DVVNN 72.5 °/35 °/72.5 °	DVJNR I DVJNL 93 °/35 °	
V					
Page	108	108	109	109	

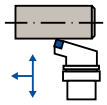
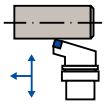
Insert form	DWLN... I PWLN... 95°/80°				
W					
Page	110				

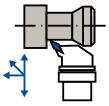
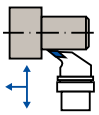
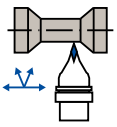
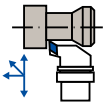
Product overview turning holders HSK-T

Turning holders with positive indexable insert

Insert form	SCLCR I SCLCL 95°/80°	SCMCN 50°/80°/50°	SCLC..., long 95°/80°		
C					
Page	115	115	122		

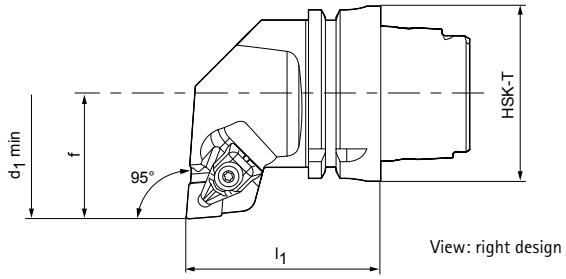
Insert form	SDHCR I SDHCL 107.5 °/55 °	SDNCN 62.5 °/55 °/62.5 °	SDJCR I SDJCL 93 °/55 °	SDUCR I SDUCL 93 °/55 °	SDQC..., long 107.5 °/55 °
D					
Page	116	116	117	117	123

Insert form	SSBCR I SSBCL 75 °/90 °	SSSCR I SSSCL 45 °/90 °			
S					
Page	118	118			

Insert form	SVPB... I SVPC... 117.5 °/35 °	SVUB... I SVUC... 93 °/35 °	SVVB... I SVVC... 72.5 °/35 °/72.5 °	SVJB... I SVJC... 93 °/35 °	
V					
Page	119	120	121	121	

HSK-T turning holders

DCLN... | PCLN...

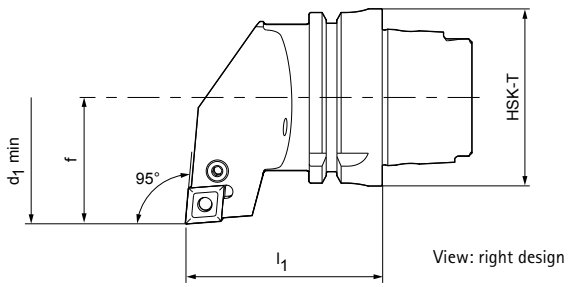


View: right design

Turning holders DCLNR | DCLNL 95°/80°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	CN..1204..	MTH-HSK-T040-DCLNR-055-27-12	30335748
40	27	50	55	L	CN..1204..	MTH-HSK-T040-DCLNL-055-27-12	30335749
63	45	80	70	R	CN..1204..	MTH-HSK-T063-DCLNR-070-45-12	30609486
63	45	80	70	L	CN..1204..	MTH-HSK-T063-DCLNL-070-45-12	30609487
63	45	80	70	R	CN..1606..	MTH-HSK-T063-DCLNR-070-45-16	30609488
63	45	80	70	L	CN..1606..	MTH-HSK-T063-DCLNL-070-45-16	30609489
100	63	120	100	R	CN..1204..	MTH-HSK-T100-DCLNR-100-63-12	30609490
100	63	120	100	L	CN..1204..	MTH-HSK-T100-DCLNL-100-63-12	30609491
100	63	120	100	R	CN..1606..	MTH-HSK-T100-DCLNR-100-63-19	30609492
100	63	120	100	L	CN..1606..	MTH-HSK-T100-DCLNL-100-63-19	30609493



View: right design

Turning holders PCLNR | PCLNL 95°/80°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	CN..1204..	MTH-HSK-T040-PCLNR-055-27-12	30335750
40	27	50	55	L	CN..1204..	MTH-HSK-T040-PCLNL-055-27-12	30335751
63	45	80	70	R	CN.. 1204..	MTH-HSK-T063-PCLNR-070-45-12	30609494
63	45	80	70	L	CN.. 1204..	MTH-HSK-T063-PCLNL-070-45-12	30609495
63	45	80	70	R	CN.. 1606..	MTH-HSK-T063-PCLNR-070-45-16	30609496
63	45	80	70	L	CN.. 1606..	MTH-HSK-T063-PCLNL-070-45-16	30609497
100	63	120	100	R	CN.. 1204..	MTH-HSK-T100-PCLNR-100-63-12	30609498
100	63	120	100	L	CN.. 1204..	MTH-HSK-T100-PCLNL-100-63-12	30609499
100	63	120	100	R	CN.. 1606..	MTH-HSK-T100-PCLNR-100-63-16	30609500
100	63	120	100	L	CN.. 1606..	MTH-HSK-T100-PCLNL-100-63-16	30609501

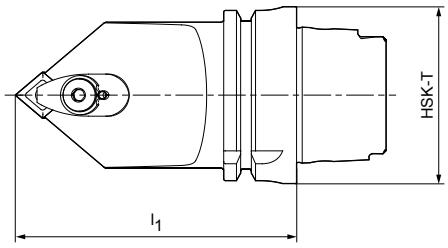
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

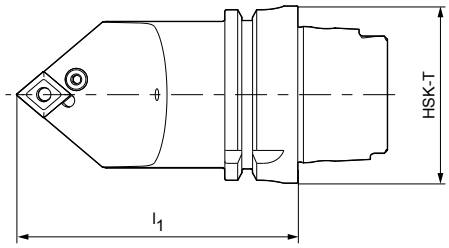
DCMNN | PCMNN



Turning holders DCMNN 50°/80°/50°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	CN..1204..	MTH-HSK-T040-DCMNN-080-00-12	30335779
63	-	-	100	N	CN..1204..	MTH-HSK-T063-DCMNN-100-00-12	30609502
63	-	-	130	N	CN..1204..	MTH-HSK-T063-DCMNN-130-00-12	30609503
63	-	-	100	N	CN..1606..	MTH-HSK-T063-DCMNN-100-00-12	30609504
63	-	-	130	N	CN..1606..	MTH-HSK-T063-DCMNN-130-00-12	30609505
100	-	-	125	N	CN..1204..	MTH-HSK-T100-DCMNN-125-00-12	30609506
100	-	-	125	N	CN..1606..	MTH-HSK-T100-DCMNN-125-00-12	30609507



Turning holders PCMNN 50°/80°/50°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	CN..1204..	MTH-HSK-T040-PCMNN-080-00-12	30335780
63	-	-	100	N	CN..1204..	MTH-HSK-T063-PCMNN-100-00-12	30609508
63	-	-	130	N	CN..1204..	MTH-HSK-T063-PCMNN-130-00-12	30609509
63	-	-	100	N	CN..1606..	MTH-HSK-T063-PCMNN-100-00-12	30609510
63	-	-	130	N	CN..1606..	MTH-HSK-T063-PCMNN-130-00-12	30609511
100	-	-	125	N	CN..1204..	MTH-HSK-T100-PCMNN-125-00-12	30609512
100	-	-	125	N	CN..1606..	MTH-HSK-T100-PCMNN-125-00-12	30609513

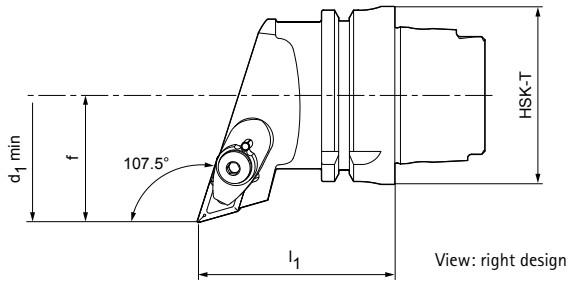
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

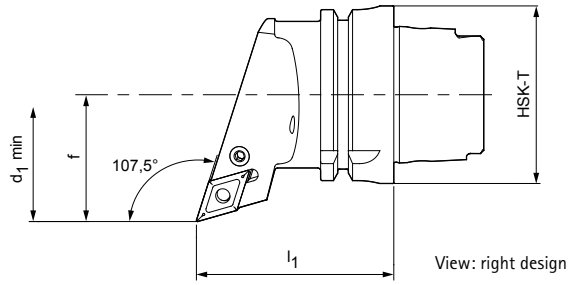
DDHN... | PDHN...



Turning holders DDHNR | DDHNL 107.5°/55°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DN..1506..	MTH-HSK-T040-DDHNR-055-27-15	30462004
40	27	50	55	L	DN..1506..	MTH-HSK-T040-DDHNL-055-27-15	30462005
63	45	80	70	R	DN..1506..	MTH-HSK-T063-DDHNR-070-45-15	30609514
63	45	80	70	L	DN..1506..	MTH-HSK-T063-DDHNL-070-45-15	30609515
100	63	120	100	R	DN..1506..	MTH-HSK-T100-DDHNR-100-63-15	30609516
100	63	120	100	L	DN..1506..	MTH-HSK-T100-DDHNL-100-63-15	30609517



Turning holders PDHNR | PDHNL 107.5°/55°

Negative indexable insert

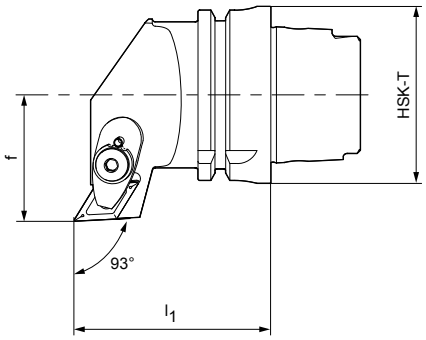
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DN..1506..	MTH-HSK-T040-PDHNR-055-27-15	30335756
40	27	50	55	L	DN..1506..	MTH-HSK-T040-PDHNL-055-27-15	30335757
63	45	80	70	R	DN..1506..	MTH-HSK-T063-PDHNR-070-45-15	30609518
63	45	80	70	L	DN..1506..	MTH-HSK-T063-PDHNL-070-45-15	30609519
100	63	120	100	R	DN..1506..	MTH-HSK-T100-PDHNR-100-63-15	30609520
100	63	120	100	L	DN..1506..	MTH-HSK-T100-PDHNL-100-63-15	30609521

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

DDJN... | PDJN...

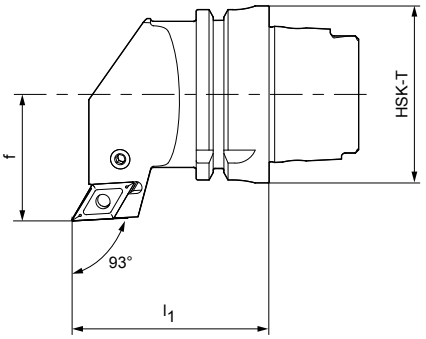


View: right design

Turning holders DDJNR | DDJNL 55°/93°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	57	R	DN..1506..	MTH-HSK-T040-DDJNR-057-27-15	30335770
40	27	-	57	L	DN..1506..	MTH-HSK-T040-DDJNL-057-27-15	30335771
63	45	-	70	R	DN..1506..	MTH-HSK-T63-DDJNR-075-45-15	30609522
63	45	-	70	L	DN..1506..	MTH-HSK-T63-DDJNL-075-45-15	30609523
100	63	-	100	R	DN..1506..	MTH-HSK-T100-DDJNR-100-63-15	30609524
100	63	-	100	L	DN..1506..	MTH-HSK-T100-DDJNL-100-63-15	30609525



View: right design

Turning holders PDJNR | PDJNL 55°/93°

Negative indexable insert

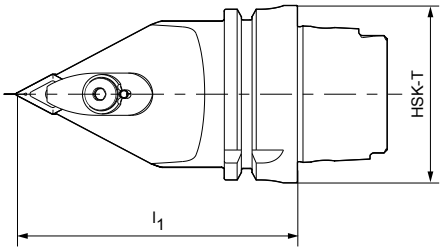
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	57	R	DN..1506..	MTH-HSK-T040-PDJNR-057-27-15	30335772
40	27	-	57	L	DN..1506..	MTH-HSK-T040-PDJNL-057-27-15	30335773
63	45	-	70	R	DN..1506..	MTH-HSK-T063-PDJNR-070-45-15	30609526
63	45	-	70	L	DN..1506..	MTH-HSK-T063-PDJNL-070-45-15	30609527
100	63	-	100	R	DN..1506..	MTH-HSK-T100-PDJNR-100-63-15	30609528
100	63	-	100	L	DN..1506..	MTH-HSK-T100-PDJNL-100-63-15	30609529

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

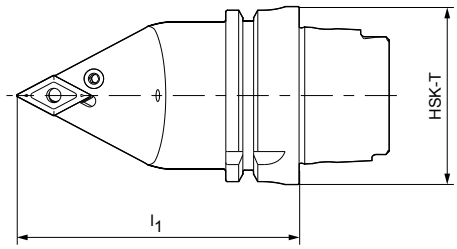
DDNNN | PDNNN



Turning holders DDNNN 62.5°/55°/62.5°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	DN..1506..	MTH-HSK-T040-DDNNN-080-00-15	30335782
63	-	-	100	N	DN.. 1506..	MTH-HSK-T063-DDNNN-100-00-15	30609530
63	-	-	130	N	DN.. 1506..	MTH-HSK-T063-DDNNN-130-00-15	30609531
100	-	-	125	N	DN.. 1506..	MTH-HSK-T100-DDNNN-125-00-15	30609532



Turning holders PDNNN 62.5°/55°/62.5°

Negative indexable insert

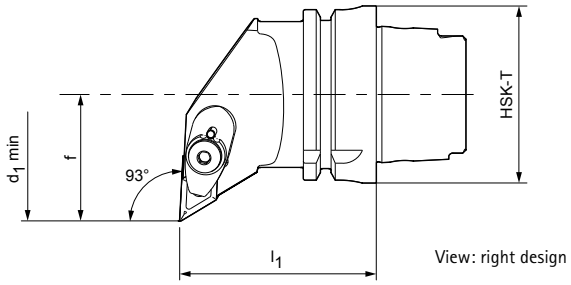
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	DN..1506..	MTH-HSK-T040-PDNNN-080-00-15	30335783
63	-	-	100	N	DN.. 1506..	MTH-HSK-T063-PDNNN-100-00-15	30609533
63	-	-	130	N	DN.. 1506..	MTH-HSK-T063-PDNNN-130-00-15	30609534
100	-	-	125	N	DN.. 1506..	MTH-HSK-T100-PDNNN-125-00-15	30609535

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

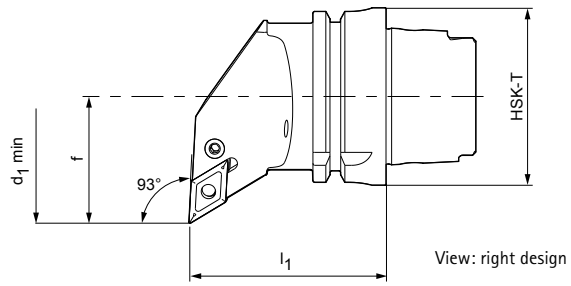
DDUN... | PDUN...



Turning holders DDUNR | DDUNL 93°/55°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DN..1506..	MTH-HSK-T040-DDUNR-055-27-15	30335764
40	27	50	55	L	DN..1506..	MTH-HSK-T040-DDUNL-055-27-15	30335765
63	45	80	70	R	DN..1506..	MTH-HSK-T063-DDUNR-070-45-15	30609536
63	45	80	70	L	DN..1506..	MTH-HSK-T063-DDUNL-070-45-15	30609537
100	63	120	100	R	DN..1506..	MTH-HSK-T100-DDUNR-100-63-15	30609538
100	63	120	100	L	DN..1506..	MTH-HSK-T100-DDUNL-100-63-15	30609539



Turning holders PDUNR | PDUNL 93°/55°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DN..1506..	MTH-HSK-T040-PDUNR-055-27-15	30335766
40	27	50	55	L	DN..1506..	MTH-HSK-T040-PDUNL-055-27-15	30335767
63	45	80	70	R	DN..1506..	MTH-HSK-T063-PDUNR-070-45-15	30609540
63	45	80	70	L	DN..1506..	MTH-HSK-T063-PDUNL-070-45-15	30609541
100	63	120	100	R	DN..1506..	MTH-HSK-T100-PDUNR-100-63-15	30609542
100	63	120	100	L	DN..1506..	MTH-HSK-T100-PDUNL-100-63-15	30609543

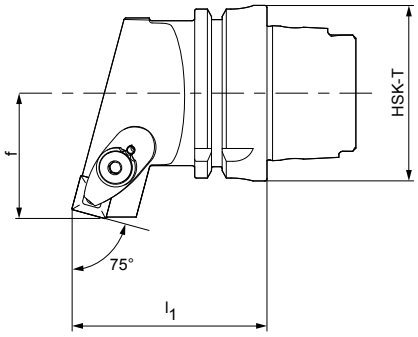
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

DSBN... | PSBN...

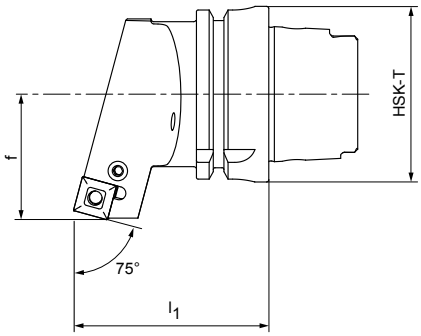


View: right design

Turning holders DSBNR | DSBNL 90°/75°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SN.. 1204..	MTH-HSK-T040-DSBNR-055-27-12	30609544
40	27	-	55	L	SN.. 1204..	MTH-HSK-T040-DSBNL-055-27-12	30609545
63	45	-	70	R	SN.. 1204..	MTH-HSK-T063-DSBNR-070-45-12	30609546
63	45	-	70	L	SN.. 1204..	MTH-HSK-T063-DSBNL-070-45-12	30609547
100	63	-	100	R	SN.. 1204..	MTH-HSK-T100-DSBNR-100-63-12	30609548
100	63	-	100	L	SN.. 1204..	MTH-HSK-T100-DSBNL-100-63-12	30609549



View: right design

Turning holders PSBNR | PSBNL 90°/75°

Negative indexable insert

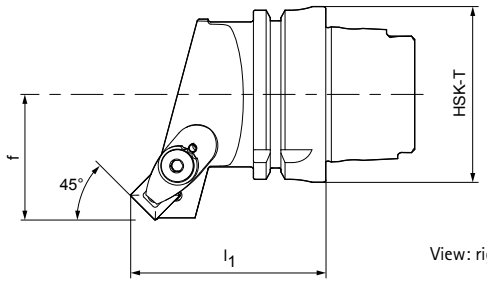
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SN.. 1204..	MTH-HSK-T040-PSBNR-055-27-12	30609550
40	27	-	55	L	SN.. 1204..	MTH-HSK-T040-PSBNL-055-27-12	30609551
63	45	-	70	R	SN.. 1204..	MTH-HSK-T063-PSBNR-070-45-12	30609552
63	45	-	70	L	SN.. 1204..	MTH-HSK-T063-PSBNL-070-45-12	30609553
100	63	-	100	R	SN.. 1204..	MTH-HSK-T100-PSBNR-100-63-12	30609554
100	63	-	100	L	SN.. 1204..	MTH-HSK-T100-PSBNL-100-63-12	30609555

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

DSSN... | PSSN...

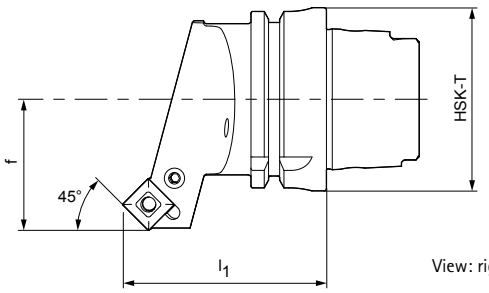


View: right design

Turning holders DSSNR | DSSNL 45°/90°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SN.. 1204..	MTH-HSK-T040-DSSNR-055-27-12	30609556
40	27	-	55	L	SN.. 1204..	MTH-HSK-T040-DSSNL-055-27-12	30609557
63	45	-	70	R	SN.. 1204..	MTH-HSK-T063-DSSNR-070-45-12	30609558
63	45	-	70	L	SN.. 1204..	MTH-HSK-T063-DSSNL-070-45-12	30609559
100	63	-	100	R	SN.. 1204..	MTH-HSK-T100-DSSNR-100-63-12	30609560
100	63	-	100	L	SN.. 1204..	MTH-HSK-T100-DSSNL-100-63-12	30609561



View: right design

Turning holders PSSNR | PSSNL 45°/90°

Negative indexable insert

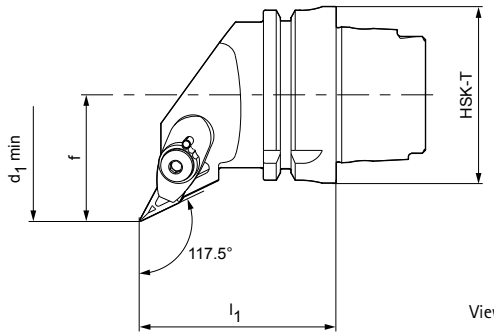
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SN.. 1204..	MTH-HSK-T040-PSSNR-055-27-12	30609562
40	27	-	55	L	SN.. 1204..	MTH-HSK-T040-PSSNL-055-27-12	30609563
63	45	-	70	R	SN.. 1204..	MTH-HSK-T063-PSSNR-070-45-12	30609564
63	45	-	70	L	SN.. 1204..	MTH-HSK-T063-PSSNL-070-45-12	30609565
100	63	-	100	R	SN.. 1204..	MTH-HSK-T100-PSSNR-100-63-12	30609566
100	63	-	100	L	SN.. 1204..	MTH-HSK-T100-PSSNL-100-63-12	30609567

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

DVPN... | DVUN...

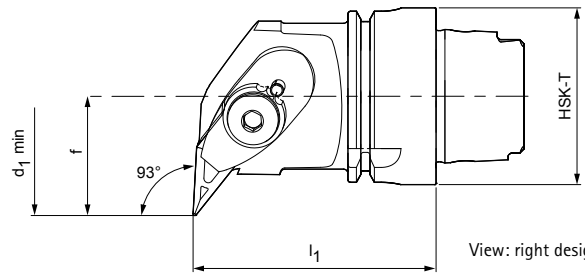


View: right design

Turning holders DVPNR | DVPNL 117.5°/35°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	VN..1604..	MTH-HSK-T040-DVPNR-055-27-16	30335776
40	27	-	55	L	VN..1604..	MTH-HSK-T040-DVPNL-055-27-16	30335777
63	45	80	70	R	VN..1604..	MTH-HSK-T063-DVPNR-070-45-16	30609568
63	45	80	70	L	VN..1604..	MTH-HSK-T063-DVPNL-070-45-16	30609569
100	63	120	100	R	VN..1604..	MTH-HSK-T100-DVPNR-100-63-16	30609570
100	63	120	100	L	VN..1604..	MTH-HSK-T100-DVPNL-100-63-16	30609571



View: right design

Turning holders DVUNR | DVUNL 93°/35°

Negative indexable insert

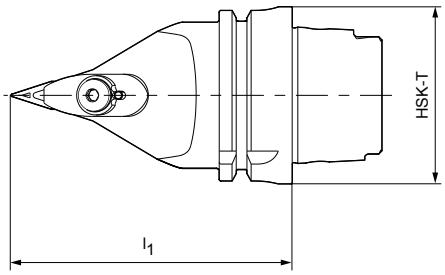
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	VN..1604..	MTH-HSK-T040-DVUNR-055-27-16	30335760
40	27	-	55	L	VN..1604..	MTH-HSK-T040-DVUNL-055-27-16	30335761
63	45	80	70	R	VN..1604..	MTH-HSK-T063-DVUNR-070-45-16	30609572
63	45	80	70	L	VN..1604..	MTH-HSK-T063-DVUNL-070-45-16	30609573
100	63	120	100	R	VN..1604..	MTH-HSK-T100-DVUNR-100-63-16	30609574
100	63	120	100	L	VN..1604..	MTH-HSK-T100-DVUNL-100-63-16	30609575

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

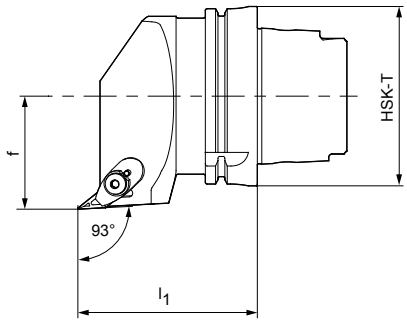
DVVNN | DVJN...



Turning holders DVVNN 72.5°/35°/72.5°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	VN..1604..	MTH-HSK-T040-DVVNN-080-00-16	30335785
63	-	-	100	N	VN..1604..	MTH-HSK-T063-DVVNN-100-00-16	30609576
63	-	-	130	N	VN..1604..	MTH-HSK-T063-DVVNN-130-00-16	30609577
100	-	-	125	N	VN..1604..	MTH-HSK-T100-DVVNN-125-00-16	30609578



View: right design

Turning holders DVJNR | DVJNL 93°/35°

Negative indexable insert

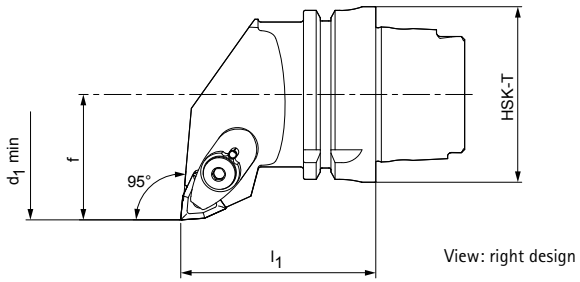
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
100	63	-	100	R	VN..1604..	MTH-HSK-T100-DVJNR-100-63-16	30609579
100	63	-	100	L	VN..1604..	MTH-HSK-T100-DVJNL-100-63-16	30609580

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

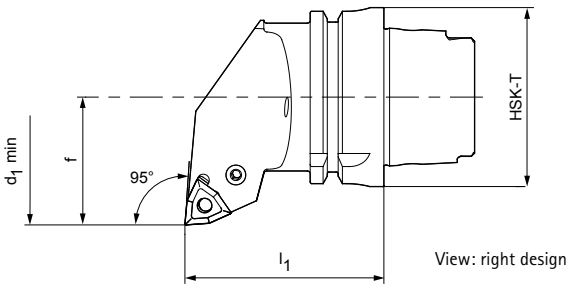
DWLN... | PWLN...



Turning holders DWLNR | DWLNL 95°/80°

Negative indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	WN..0804..	MTH-HSK-T040-DWLNR-055-27-08	30609581
40	27	50	55	L	WN..0804..	MTH-HSK-T040-DWLNL-055-27-08	30609582
63	45	80	70	R	WN..0804..	MTH-HSK-T063-DWLNR-070-45-08	30609583
63	45	80	70	L	WN..0804..	MTH-HSK-T063-DWLNL-070-45-08	30609584
100	63	120	100	R	WN..0804..	MTH-HSK-T100-DWLNR-100-63-08	30609586
100	63	120	100	L	WN..0804..	MTH-HSK-T100-DWLNL-100-63-08	30609585



Turning holders PWLNR | PWLNL 95°/80°

Negative indexable insert

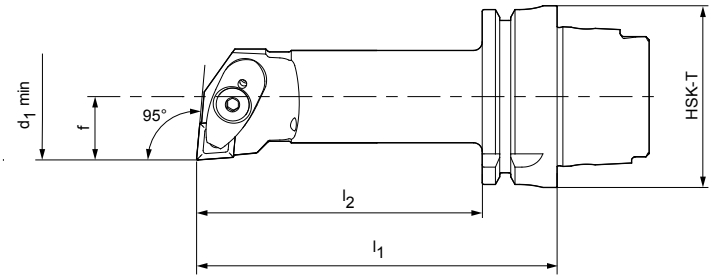
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	WN..0804..	MTH-HSK-T040-PWLNR-055-27-08	30609587
40	27	50	55	L	WN..0804..	MTH-HSK-T040-PWLNL-055-27-08	30609588
63	45	80	70	R	WN..0804..	MTH-HSK-T063-PWLNR-070-45-08	30609589
63	45	80	70	L	WN..0804..	MTH-HSK-T063-PWLNL-070-45-08	30609590
100	63	120	100	R	WN..0804..	MTH-HSK-T100-PWLNR-100-63-08	30609591
100	63	120	100	L	WN..0804..	MTH-HSK-T100-PWLNL-100-63-08	30609592

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

DCLN...



View: right design

Turning holders DCLNR | DCLNL 95°/80°

Negative indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
63	27	50	140	114	R	CN.. 1204..	MTH-HSK-T063-DCLNR-140-27-12	30609661
63	27	50	140	114	L	CN.. 1204..	MTH-HSK-T063-DCLNL-140-27-12	30609662
63	27	50	180	154	R	CN.. 1204..	MTH-HSK-T063-DCLNR-180-27-12	30609663
63	27	50	180	154	L	CN.. 1204..	MTH-HSK-T063-DCLNL-180-27-12	30609664
100	27	50	150	121	R	CN.. 1204..	MTH-HSK-T100-DCLNR-150-27-12	30609665
100	27	50	150	121	L	CN.. 1204..	MTH-HSK-T100-DCLNL-150-27-12	30609666
100	27	50	200	171	R	CN.. 1204..	MTH-HSK-T100-DCLNR-200-27-12	30609667
100	27	50	200	171	L	CN.. 1204..	MTH-HSK-T100-DCLNL-200-27-12	30609668
100	35	63	150	121	R	CN.. 1204..	MTH-HSK-T100-DCLNR-150-35-12	30609669
100	35	63	150	121	L	CN.. 1204..	MTH-HSK-T100-DCLNL-150-35-12	30609670
100	35	63	200	171	R	CN.. 1204..	MTH-HSK-T100-DCLNR-200-35-12	30609671
100	35	63	200	171	L	CN.. 1204..	MTH-HSK-T100-DCLNL-200-35-12	30609672

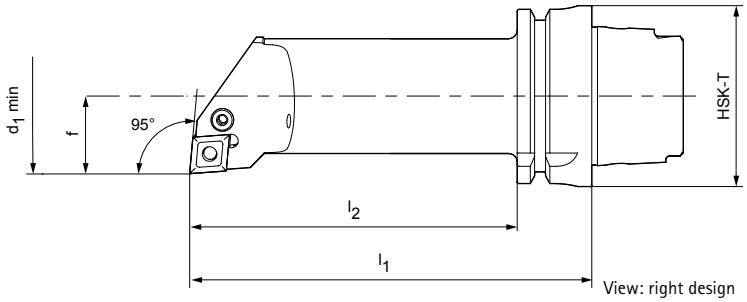
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

PCLN...



Turning holders PCLNR | PCLNL 95°/80°

Negative indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
63	27	50	140	114	R	CN.. 1204..	MTH-HSK-T063-PCLNR-140-27-12	30609673
63	27	50	140	114	L	CN.. 1204..	MTH-HSK-T063-PCLNL-140-27-12	30609674
63	27	50	180	154	R	CN.. 1204..	MTH-HSK-T063-PCLNR-180-27-12	30609675
63	27	50	180	154	L	CN.. 1204..	MTH-HSK-T063-PCLNL-180-27-12	30609676
100	27	50	150	121	R	CN.. 1204..	MTH-HSK-T100-PCLNR-150-27-12	30609677
100	27	50	150	121	L	CN.. 1204..	MTH-HSK-T100-PCLNL-150-27-12	30609678
100	27	50	200	171	R	CN.. 1204..	MTH-HSK-T100-PCLNR-200-27-12	30609679
100	27	50	200	171	L	CN.. 1204..	MTH-HSK-T100-PCLNL-200-27-12	30609680
100	35	63	150	121	R	CN.. 1204..	MTH-HSK-T100-PCLNR-150-35-12	30609681
100	35	63	150	121	L	CN.. 1204..	MTH-HSK-T100-PCLNL-150-35-12	30609682
100	35	63	200	171	R	CN.. 1204..	MTH-HSK-T100-PCLNR-200-35-12	30609683
100	35	63	200	171	L	CN.. 1204..	MTH-HSK-T100-PCLNL-200-35-12	30609684

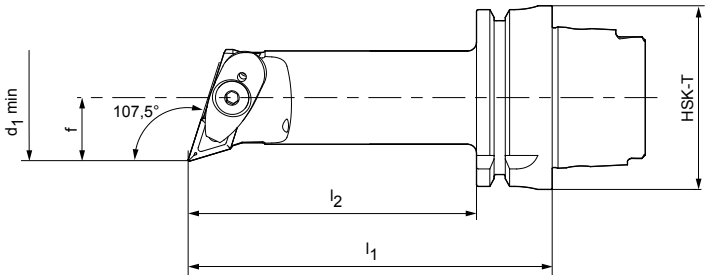
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

DDQN...



View: right design

Turning holders DDQNR | DDQNL 107.5°/55°

Negative indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
63	27	50	140	114	R	DN.. 1506..	MTH-HSK-T063-DDQNR-140-27-15	30609685
63	27	50	140	114	L	DN.. 1506..	MTH-HSK-T063-DDQNL-140-27-15	30609686
63	27	50	180	154	R	DN.. 1506..	MTH-HSK-T063-DDQNR-180-27-15	30609687
63	27	50	180	154	L	DN.. 1506..	MTH-HSK-T063-DDQNL-180-27-15	30609688
100	27	50	150	121	R	DN.. 1506..	MTH-HSK-T100-DDQNR-150-27-15	30609689
100	27	50	150	121	L	DN.. 1506..	MTH-HSK-T100-DDQNL-150-27-15	30609690
100	27	50	200	171	R	DN.. 1506..	MTH-HSK-T100-DDQNR-200-27-15	30609691
100	27	50	200	171	L	DN.. 1506..	MTH-HSK-T100-DDQNL-200-27-15	30609692
100	35	63	150	121	R	DN.. 1506..	MTH-HSK-T100-DDQNR-150-35-15	30609693
100	35	63	150	121	L	DN.. 1506..	MTH-HSK-T100-DDQNL-150-35-15	30609694
100	35	63	200	171	R	DN.. 1506..	MTH-HSK-T100-DDQNR-200-35-15	30609695
100	35	63	200	171	L	DN.. 1506..	MTH-HSK-T100-DDQNL-200-35-15	30609696

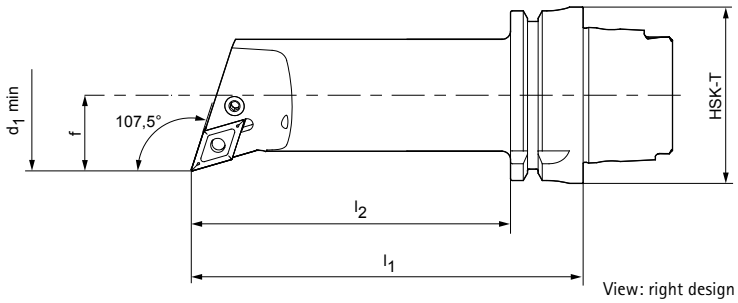
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

PDQN...



View: right design

Turning holders PDQNR | PDQNL 107.5°/55°

Negative indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
63	27	50	140	114	R	DN.. 1506..	MTH-HSK-T063-PDQNR-140-27-15	30609697
63	27	50	140	114	L	DN.. 1506..	MTH-HSK-T063-PDQNL-140-27-15	30609698
63	27	50	180	154	R	DN.. 1506..	MTH-HSK-T063-PDQNR-180-27-15	30609699
63	27	50	180	154	L	DN.. 1506..	MTH-HSK-T063-PDQNL-180-27-15	30609700
100	27	50	150	121	R	DN.. 1506..	MTH-HSK-T100-PDQNR-150-27-15	30609701
100	27	50	150	121	L	DN.. 1506..	MTH-HSK-T100-PDQNL-150-27-15	30609702
100	27	50	200	171	R	DN.. 1506..	MTH-HSK-T100-PDQNR-200-27-15	30609703
100	27	50	200	171	L	DN.. 1506..	MTH-HSK-T100-PDQNL-200-27-15	30609704
100	35	63	150	121	R	DN.. 1506..	MTH-HSK-T100-PDQNR-150-35-15	30609705
100	35	63	150	121	L	DN.. 1506..	MTH-HSK-T100-PDQNL-150-35-15	30609706
100	35	63	200	171	R	DN.. 1506..	MTH-HSK-T100-PDQNR-200-35-15	30609707
100	35	63	200	171	L	DN.. 1506..	MTH-HSK-T100-PDQNL-200-35-15	30609708

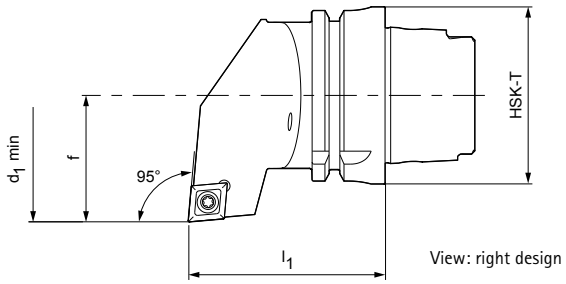
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

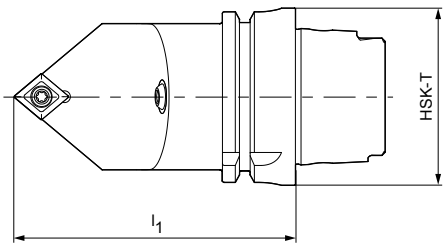
SCLC... | SCMCN



Turning holders SCLCR | SCLCL 95°/80°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	CC..1204..	MTH-HSK-T040-SCLCR-055-27-12	30335746
40	27	50	55	L	CC..1204..	MTH-HSK-T040-SCLCL-055-27-12	30335747
63	45	80	70	R	CC..1204..	MTH-HSK-T063-SCLCR-070-45-12	30609593
63	45	80	70	L	CC..1204..	MTH-HSK-T063-SCLCL-070-45-12	30609594
100	63	120	100	R	CC..1204..	MTH-HSK-T100-SCLCR-100-63-12	30609595
100	63	120	100	L	CC..1204..	MTH-HSK-T100-SCLCL-100-63-12	30609596



Turning holders SCMCN 50°/80°/50°

Positive indexable insert

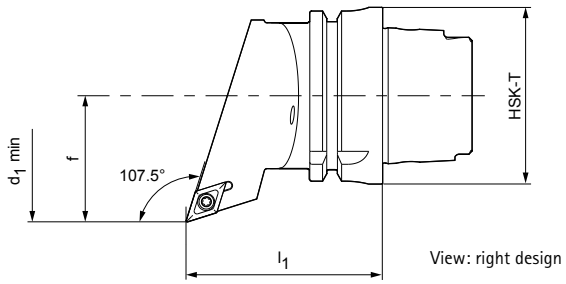
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	CC..1204..	MTH-HSK-T040-SCMCN-080-00-12	30335778
63	-	-	100	N	CC.. 1204..	MTH-HSK-T063-SCMCN-100-00-12	30609597
63	-	-	130	N	CC.. 1204..	MTH-HSK-T063-SCMCN-130-00-12	30609598
100	-	-	125	N	CC.. 1204..	MTH-HSK-T100-SCMCN-125-00-12	30609599

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

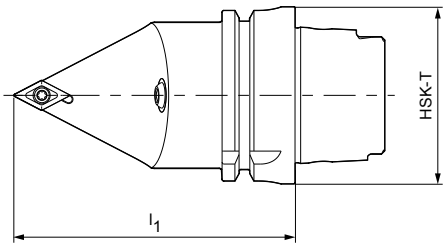
SDHC... | SDNCN



Turning holders SDHCR | SDHCL 107.5°/55°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DC..11 T3..	MTH-HSK-T040-SDHCR-055-27-11	30335752
40	27	50	55	L	DC..11 T3..	MTH-HSK-T040-SDHCL-055-27-11	30335753
63	45	80	70	R	DC..11 T3..	MTH-HSK-T063-SDHCR-070-45-11	30609600
63	45	80	70	L	DC..11 T3..	MTH-HSK-T063-SDHCL-070-45-11	30609601
100	63	120	100	R	DC..11 T3..	MTH-HSK-T100-SDHCR-100-63-11	30609602
100	63	120	100	L	DC..11 T3..	MTH-HSK-T100-SDHCL-100-63-11	30609603



Turning holders SDNCN 62.5°/55°/62.5°

Positive indexable insert

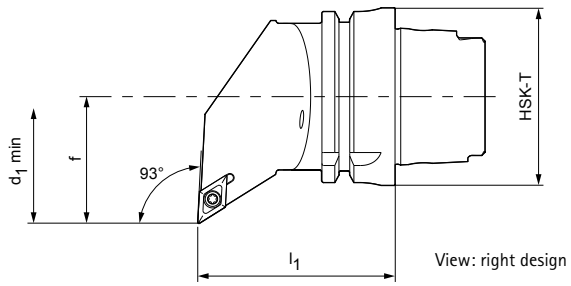
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	DC..11 T3..	MTH-HSK-T040-SDNCN-080-00-11	30335781
63	-	-	100	N	DC..11 T3..	MTH-HSK-T063-SDNCN-100-00-11	30609604
63	-	-	130	N	DC..11 T3..	MTH-HSK-T063-SDNCN-130-00-11	30609605
100	-	-	125	N	DC..11 T3..	MTH-HSK-T100-SDNCN-125-00-11	30609606

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

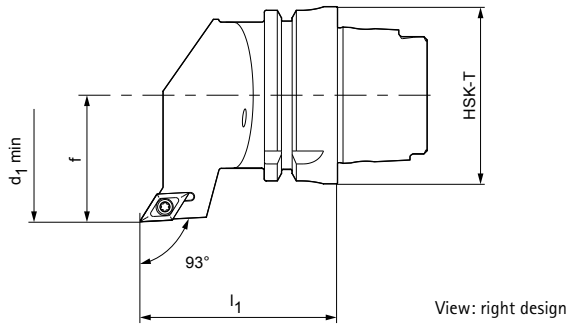
SDJC... | SDUC...



Turning holders SDJCR | SDJCL 93°/55°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DC..11 T3..	MTH-HSK-T040-SDJCR-055-27-11	30335768
40	27	50	55	L	DC..11 T3..	MTH-HSK-T040-SDJCL-055-27-11	30335769
63	45	80	70	R	DC..11T3..	MTH-HSK-T063-SDJCR-070-45-11	30609611
63	45	80	70	L	DC..11T3..	MTH-HSK-T063-SDJCL-070-45-11	30609612
100	63	120	100	R	DC..11T3..	MTH-HSK-T100-SDJCR-100-63-11	30609613
100	63	120	100	L	DC..11T3..	MTH-HSK-T100-SDJCL-100-63-11	30609614



Turning holders SDUCR | SDUCL 93°/55°

Positive indexable insert

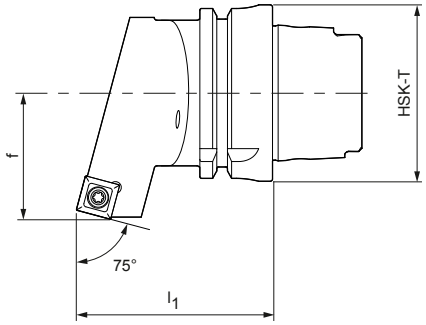
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	DC..11 T3..	MTH-HSK-T040-SDUCR-055-27-11	30335762
40	27	50	55	L	DC..11 T3..	MTH-HSK-T040-SDUCL-055-27-11	30335763
63	45	80	70	R	DC..11 T3..	MTH-HSK-T063-SDUCR-070-45-11	30609607
63	45	80	70	L	DC..11 T3..	MTH-HSK-T063-SDUCL-070-45-11	30609608
100	63	120	100	R	DC..11 T3..	MTH-HSK-T100-SDUCR-100-63-11	30609609
100	63	120	100	L	DC..11 T3..	MTH-HSK-T100-SDUCL-100-63-11	30609610

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

SSBC... | SSSC...

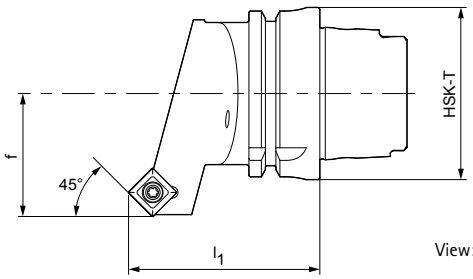


View: right design

Turning holders SSBCR | SSBCL 75°/90°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SC.. 1204..	MTH-HSK-T040-SSBCR-055-27-12	30609615
40	27	-	55	L	SC.. 1204..	MTH-HSK-T040-SSBCL-055-27-12	30609616
63	45	-	70	R	SC.. 1204..	MTH-HSK-T063-SSBCR-070-45-12	30609617
63	45	-	70	L	SC.. 1204..	MTH-HSK-T063-SSBCL-070-45-12	30609618
100	63	-	100	R	SC.. 1204..	MTH-HSK-T100-SSBCR-100-63-12	30609619
100	63	-	100	L	SC.. 1204..	MTH-HSK-T100-SSBCL-100-63-12	30609620



View: right design

Turning holders SSSCR | SSSCL 45°/90°

Positive indexable insert

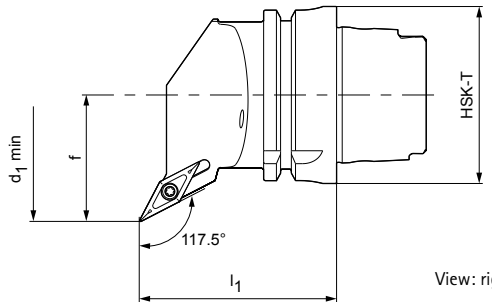
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	-	55	R	SC.. 1204..	MTH-HSK-T040-SSSCR-055-27-12	30609621
40	27	-	55	L	SC.. 1204..	MTH-HSK-T040-SSSCL-055-27-12	30609622
63	45	-	70	R	SC.. 1204..	MTH-HSK-T063-SSSCR-070-45-12	30609623
63	45	-	70	L	SC.. 1204..	MTH-HSK-T063-SSSCL-070-45-12	30609624
100	63	-	100	R	SC.. 1204..	MTH-HSK-T100-SSSCR-100-63-12	30609625
100	63	-	100	L	SC.. 1204..	MTH-HSK-T100-SSSCL-100-63-12	30609626

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

SVPB... | SVPC...



View: right design

Turning holders SVPBR | SVPBL | SVPCR | SVPCL 117.5°/35°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	VB..1604..	MTH-HSK-T040-SVPBR-055-27-16	30609635
40	27	50	55	L	VB..1604..	MTH-HSK-T040-SVPBL-055-27-16	30609636
40	27	50	55	R	VC..1604..	MTH-HSK-T040-SVPCR-055-27-16	30335774
40	27	50	55	L	VC..1604..	MTH-HSK-T040-SVPCL-055-27-16	30335775
63	45	80	70	R	VB..1604..	MTH-HSK-T063-SVPBR-070-45-16	30609637
63	45	80	70	L	VB..1604..	MTH-HSK-T063-SVPBL-070-45-16	30609638
63	45	80	70	R	VC..1604..	MTH-HSK-T063-SVPCR-070-45-16	30609639
63	45	80	70	L	VC..1604..	MTH-HSK-T063-SVPCL-070-45-16	30609640
100	63	120	100	R	VB..1604..	MTH-HSK-T100-SVPBR-100-63-16	30609641
100	63	120	100	L	VB..1604..	MTH-HSK-T100-SVPBL-100-63-16	30609642
100	63	120	100	R	VC..1604..	MTH-HSK-T100-SVPCR-100-63-16	30609643
100	63	120	100	L	VC..1604..	MTH-HSK-T100-SVPCL-100-63-16	30609644

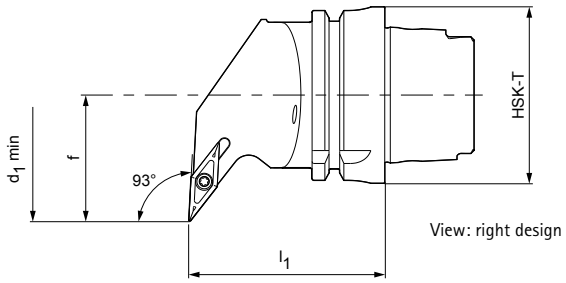
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

SVUB... | SVUC...



Turning holders SVUBR | SVUBL | SVUCR | SVUCL 93°/35°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	27	50	55	R	VB..1604..	MTH-HSK-T040-SVUBR-055-27-12	30609645
40	27	50	55	L	VB..1604..	MTH-HSK-T040-SVUBL-055-27-12	30609646
40	27	50	55	R	VC..1604..	MTH-HSK-T040-SVUCR-055-27-12	30335758
40	27	50	55	L	VC..1604..	MTH-HSK-T040-SVUCL-055-27-12	30335759
63	45	80	70	R	VB..1604..	MTH-HSK-T063-SVUBR-070-45-12	30609647
63	45	80	70	L	VB..1604..	MTH-HSK-T063-SVUBL-070-45-12	30609648
63	45	80	70	R	VC..1604..	MTH-HSK-T063-SVUCR-070-45-12	30609649
63	45	80	70	L	VC..1604..	MTH-HSK-T063-SVUCL-070-45-12	30609650
100	63	120	100	R	VB..1604..	MTH-HSK-T100-SVUBR-100-63-12	30609651
100	63	120	100	L	VB..1604..	MTH-HSK-T100-SVUBL-100-63-12	30609652
100	63	120	100	R	VC..1604..	MTH-HSK-T100-SVUCR-100-63-12	30609653
100	63	120	100	L	VC..1604..	MTH-HSK-T100-SVUCL-100-63-12	30609654

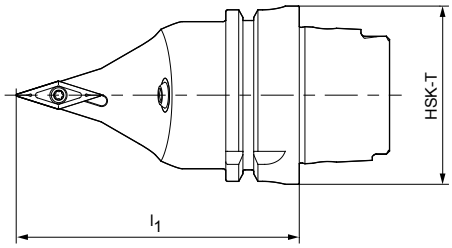
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders

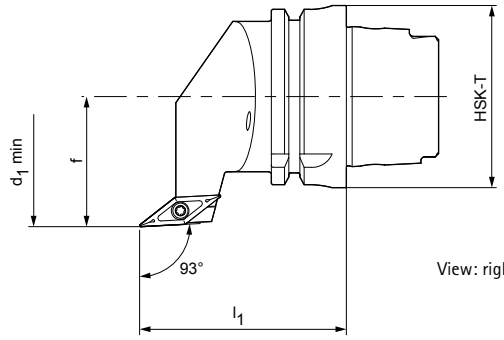
SVVBN | SVVCN | SVJB... | SVJC...



Turning holders SVVBN | SVVCN 72.5°/35°/72.5°

Positive indexable insert

Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
40	-	-	80	N	VB..1604..	MTH-HSK-T040-SVVBN-080-00-16	30609655
40	-	-	80	N	VC..1604..	MTH-HSK-T040-SVVCN-080-00-16	30335784
63	-	-	100	N	VB..1604..	MTH-HSK-T063-SVVBN-100-00-16	30609656
63	-	-	130	N	VB..1604..	MTH-HSK-T063-SVVBN-130-00-16	30609657
63	-	-	100	N	VC..1604..	MTH-HSK-T063-SVVCN-100-00-16	30606133
63	-	-	130	N	VC..1604..	MTH-HSK-T063-SVVCN-130-00-16	30609658
100	-	-	125	N	VB..1604..	MTH-HSK-T100-SVVBN-125-00-16	30609659
100	-	-	125	N	VC..1604..	MTH-HSK-T100-SVVCN-125-00-16	30609660



View: right design

Turning holders SVJBR | SVJBL | SVJCR | SVJCL 93°/35°

Positive indexable insert

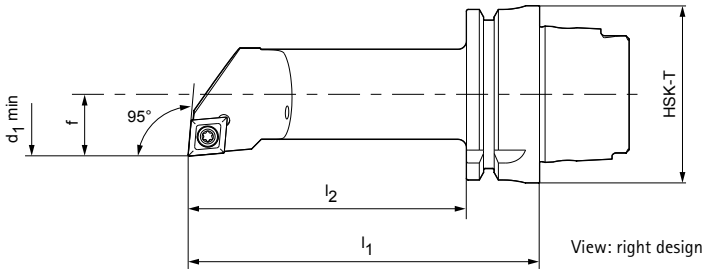
Nominal size HSK-T	Dimensions			Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1				
63	45	80	71,5	R	VB..1604..	MTH-HSK-T063-SVJBR-072-45-16	30609627
63	45	80	71,5	L	VB..1604..	MTH-HSK-T063-SVJBL-072-45-16	30609628
63	45	80	71,5	R	VC..1604..	MTH-HSK-T063-SVJCR-072-45-16	30609629
63	45	80	71,5	L	VC..1604..	MTH-HSK-T063-SVJCL-072-45-16	30609630
100	63	120	100	R	VB..1604..	MTH-HSK-T100-SVJBR-100-63-16	30609631
100	63	120	100	L	VB..1604..	MTH-HSK-T100-SVJBL-100-63-16	30609632
100	63	120	100	R	VC..1604..	MTH-HSK-T100-SVJCR-100-63-16	30609633
100	63	120	100	L	VC..1604..	MTH-HSK-T100-SVJCL-100-63-16	30609634

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

SCLCR | SCLCL



Turning holders SCLCR | SCLCL 95°/80°

Positive indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
40	17	32	110	90	R	CC..1204..	MTH-HSK-T040-SCLCR-110-17-12	30270295
40	17	32	110	90	L	CC..1204..	MTH-HSK-T040-SCLCL-110-17-12	30461609
40	17	32	140	120	R	CC..1204..	MTH-HSK-T040-SCLCR-140-17-12	30461611
40	17	32	140	120	L	CC..1204..	MTH-HSK-T040-SCLCL-140-17-12	30461615
63	22	40	125	99	R	CC..1204..	MTH-HSK-T063-SCLCR-125-22-12	30609709
63	22	40	125	99	L	CC..1204..	MTH-HSK-T063-SCLCL-125-22-12	30609710
63	22	40	160	134	R	CC..1204..	MTH-HSK-T063-SCLCR-160-22-12	30609711
63	22	40	160	134	L	CC..1204..	MTH-HSK-T063-SCLCL-160-22-12	30609712
63	27	50	140	114	R	CC..1204..	MTH-HSK-T063-SCLCR-140-27-12	30609713
63	27	50	140	114	L	CC..1204..	MTH-HSK-T063-SCLCL-140-27-12	30609714
63	27	50	180	154	R	CC..1204..	MTH-HSK-T063-SCLCR-180-27-12	30609715
63	27	50	180	154	L	CC..1204..	MTH-HSK-T063-SCLCL-180-27-12	30609716

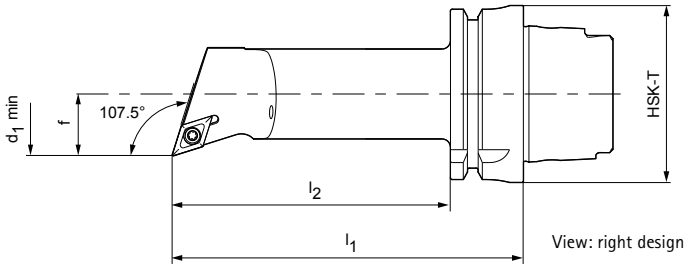
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T turning holders, long

SDQCR | SDQCL



Turning holders SDQCR | SDQCL 107.5°/55°

Positive indexable insert

Nominal size HSK-T	Dimensions				Direction of rotation	Insert	Specification	Order No.
	f	d_1 min	l_1	l_2				
40	17	32	110	90	R	DC..11T3..	MTH-HSK-T040-SDQCR-110-17-11	30461623
40	17	32	110	90	L	DC..11T3..	MTH-HSK-T040-SDQCL-110-17-11	30461627
40	17	32	140	120	R	DC..11T3..	MTH-HSK-T040-SDQCR-140-17-11	30461629
40	17	32	140	120	L	DC..11T3..	MTH-HSK-T040-SDQCL-140-17-11	30461631
63	22	40	125	99	R	DC..11T3..	MTH-HSK-T063-SDQCR-125-22-11	30609717
63	22	40	125	99	L	DC..11T3..	MTH-HSK-T063-SDQCL-125-22-11	30609718
63	22	40	160	134	R	DC..11T3..	MTH-HSK-T063-SDQCR-160-22-11	30609719
63	22	40	160	134	L	DC..11T3..	MTH-HSK-T063-SDQCL-160-22-11	30609720
63	27	50	140	114	R	DC..11T3..	MTH-HSK-T063-SDQCR-140-27-11	30609721
63	27	50	140	114	L	DC..11T3..	MTH-HSK-T063-SDQCL-140-27-11	30609722
63	27	50	180	154	R	DC..11T3..	MTH-HSK-T063-SDQCR-180-27-11	30609723
63	27	50	180	154	L	DC..11T3..	MTH-HSK-T063-SDQCL-180-27-11	30609724

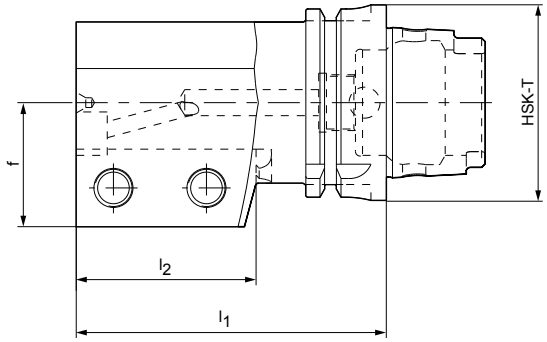
Dimensions in mm.

You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T shank holders, axial

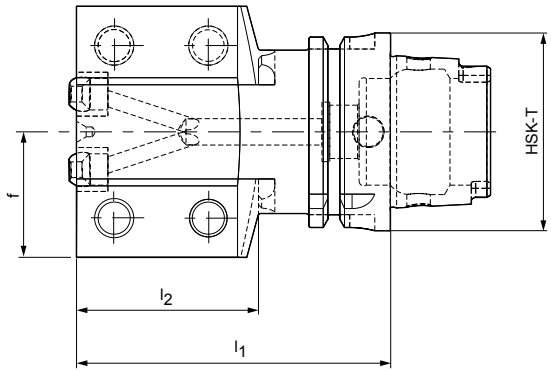
SH... | SH2R00



Shank holders SHR | SHL

For square connections, axial

Nominal size HSK-T	Dimensions				Direction of rotation	Specification	Order No.
	l_1	l_2	f	Square			
40	80	45	30	20x20	R	MTH-HSK-T040-SHR00-2020	30416653
40	80	45	30	20x20	L	MTH-HSK-T040-SHL00-2020	30416654
63	90	45	30	20x20	R	MTH-HSK-T063-SHR00-2020	30610264
63	90	45	30	20x20	L	MTH-HSK-T063-SHL00-2020	30610265
63	100	58	40	25x25	R	MTH-HSK-T063-SHR00-2525	30610266
63	100	58	40	25x25	L	MTH-HSK-T063-SHL00-2525	30610267
100	125	80	50	25x25	R	MTH-HSK-T100-SHR00-2525	30610268
100	125	80	50	25x25	L	MTH-HSK-T100-SHL00-2525	30610269



Shank holders SH2R00

For square connections, axial, double

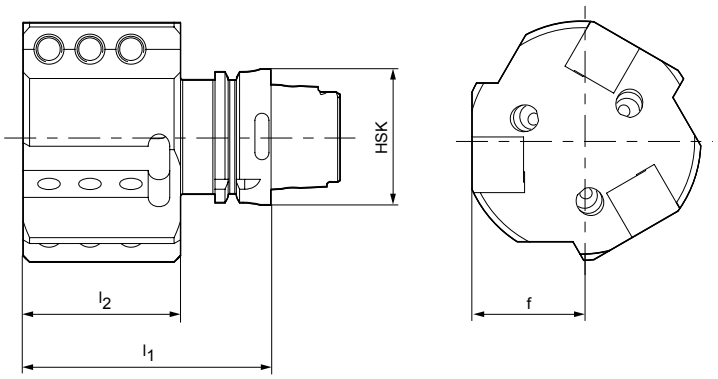
Nominal size HSK-T	Dimensions				Direction of rotation	Specification	Order No.
	l_1	l_2	f	Square			
40	80	45	30	20x20	R	MTH-HSK-T040-SH2R00-2020	30610270
63	90	45	30	20x20	R	MTH-HSK-T063-SH2R00-2020	30610271
63	100	58	40	25x25	R	MTH-HSK-T063-SH2R00-2525	30610272
100	125	80	50	25x25	R	MTH-HSK-T100-SH2R00-2525	30610273

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T shank holders, axial

SH3R00 | BH



Shank holders SH3R00

For square connections, axial, triple

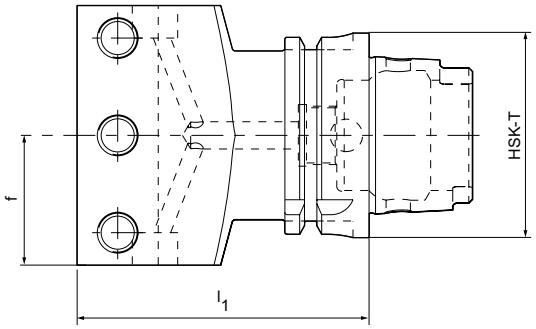
Nominal size HSK-T	Dimensions				Direction of rotation	Specification	Order No.
	l_1	l_2	f	Square			
63	90	45	30	20x20	R	MTH-HSK-T063-SH3R00-2020	30610271
63	100	58	40	25x25	R	MTH-HSK-T063-SH3R00-2525	30610272
100	125	80	50	25x25	R	MTH-HSK-T100-SH3R00-2525	30610276

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T shank holders, radial I diagonal

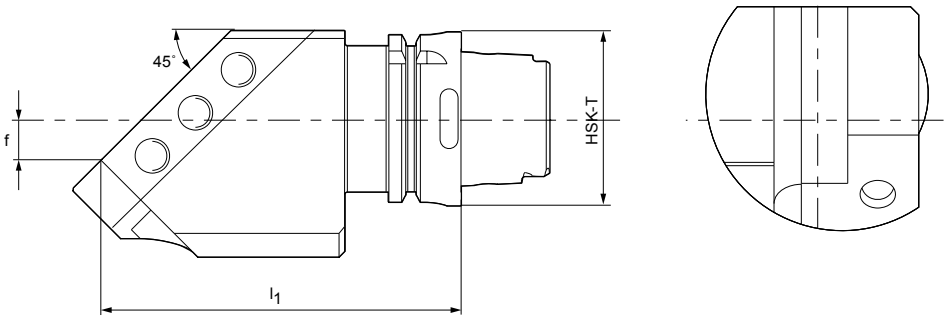
SHN90 | BH



Shank holders SHN90

For square connections, radial

Nominal size HSK-T	Dimensions				Direction of rotation	Specification	Order No.
	l_1	l_2	f	Square			
40	75	-	30	20x20	N	MTH-HSK-T040-SHN90-2020	30416652
63	90	-	30	20x20	N	MTH-HSK-T063-SHN90-2020	30416648
63	90	-	40	25x25	N	MTH-HSK-T063-SHN90-2525	30610277
100	100	-	50	25x25	N	MTH-HSK-T100-SHN90-2525	30610278



Shank holders SHR45 I SHL45

For square connections, diagonal

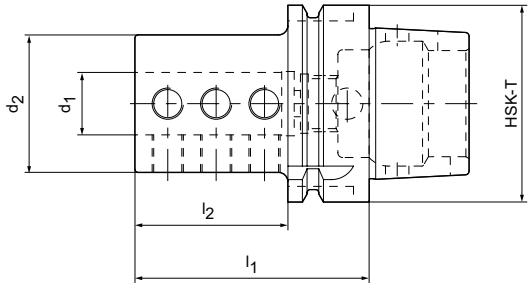
Nominal size HSK-T	Dimensions				Direction of rotation	Specification	Order No.
	l_1	l_2	f	Square			
63	100	-	5	20 x20	R	MTH-HSK-T063-SHR45-2020	30610279
63	100	-	5	20x20	L	MTH-HSK-T063-SHL45-2020	30610280
63	100	-	5	25x25	R	MTH-HSK-T063-SHR45-2525	30610281
63	100	-	5	25x25	L	MTH-HSK-T063-SHL45-2525	30610282

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

HSK-T shank holders, round

SH3R00 | BH



Shank holders BH
for round connections

Nominal size HSK-T	Dimensions				Specification	Order No.
	d_1	d_2	l_1	l_2		
40	6	34	55	35	MTH-HSK-T040-BH06-055	30416668
40	8	34	55	35	MTH-HSK-T040-BH08-055	30416669
40	10	34	55	35	MTH-HSK-T040-BH10-055	30416670
40	12	36	55	35	MTH-HSK-T040-BH12-055	30416671
40	16	40	70	50	MTH-HSK-T040-BH16-070	30416672
40	20	44	85	65	MTH-HSK-T040-BH20-085	30821786
63	6	34	60	34	MTH-HSK-T063-BH06-060	30610245
63	8	34	60	34	MTH-HSK-T063-BH08-060	30610246
63	10	34	60	34	MTH-HSK-T063-BH10-060	30610247
63	12	36	60	34	MTH-HSK-T063-BH12-060	30610248
63	16	40	75	49	MTH-HSK-T063-BH16-075	30610249
63	20	44	75	49	MTH-HSK-T063-BH20-075	30610250
63	25	50	75	49	MTH-HSK-T063-BH25-075	30610251
63	32	56	90	64	MTH-HSK-T063-BH32-090	30610252
63	40	63	90	64	MTH-HSK-T063-BH40-090	30610253
100	6	34	70	41	MTH-HSK-T100-BH06-070	30610254
100	8	34	70	41	MTH-HSK-T100-BH08-070	30610255
100	10	34	70	41	MTH-HSK-T100-BH10-070	30610256
100	12	36	70	41	MTH-HSK-T100-BH12-070	30610257
100	16	40	85	56	MTH-HSK-T100-BH16-085	30610258
100	20	44	85	56	MTH-HSK-T100-BH20-085	30610260
100	25	50	85	56	MTH-HSK-T100-BH25-085	30610261
100	32	56	100	71	MTH-HSK-T100-BH32-100	30610262
100	40	63	100	71	MTH-HSK-T100-BH40-100	30610263

Dimensions in mm.
You will find accessories and spare parts on pages 128-130.

You will find information on the HSK standard and fitting dimensions, as well as on the shank position and position of the slots in the section "Technical appendix".

Spare parts for turning tools

For turning holders, negative indexable insert (clamping jaw clamping)

Indexable insert	Indexable insert size	Direction of rotation	Backing plate		Clamping screw		Coolant outlet (nozzle ring)		Clamping jaw	
			Description	Order No.	Description	Order No.	Description	Order No.	Description	Order No.
CN..	1204...	R/L, N	CN_1204 ø6.4	30554799	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632
CN..	1606..	R/L	CN_1606 ø8	30554796	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632
CN..	1606..	N	CN_1606 ø8	30554796	M6x32	30554626	ø14x12	30554787	38x15x12.1	30554635
DN..	1506..	R/L	DN_1506 ø6.4	30554800	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632
SN..	1204..	R/L	SN_1204 ø6.4	30554802	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632
VN..	1604..	R/L	VN_1604 ø4.95	30554805	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632
VN..	1604..	N	VN_1604 ø4.95	30554805	M6x32	30554626	ø14x12	30554787	38x15x12.1	30554635
WN..	0804..	R/L	WN_0804 ø6.7	30554806	M6x32	30554626	ø14x12	30554787	33x15x11.7	30554632

For turning holders, negative indexable insert (toggle lever clamping)

Indexable insert	Indexable insert size	Direction of rotation	Backing plate		Clamping screw		Toggle lever		Pipe pin	
			Description	Order No.	Description	Order No.	Description	Order No.	Description	Order No.
CN..	1204...	R/L, N	CN_1204 ø6.4	30554799	M8x1x17.3 SW3	30554816	13.5xø4.4x12.8	30554820	ø6.4x5.8	30554831
CN..	1606..	R/L	CN_1606 ø8	30554796	M8x1x20.3 SW3	30554818	16.25xø6x17.5	30554822	ø8x8.7	30554832
CN..	1606..	N	CN_1606 ø8	30554796	M8x1x20.3 SW3	30554818	16.25xø6x17.5	30554822	ø8x8.7	30554832
DN..	1506..	R/L	DN_1506 ø6.4	30554800	M8x1x17.3 SW3	30554816	16.95xø4.7x14.8	30554825	ø6.4x5.8	30554831
DN..	1506..	N	DN_1506 ø6.4	30554800	M8x1x17.3 SW3	30554816	16.95xø4.7x14.8	30554825	ø6.4x5.8	30554831
SN..	1204..	R/L	SN_1204 ø6.4	30554802	M8x1x17.3 SW3	30554816	13.5xø4.4x12.8	30554820	ø6.4x5.8	30554831
WN..	0804..	R/L	WN_0804 ø6.7	30554806	M8x1x17.3 SW3	30554816	16.95xø4.7x14.8	30554825	ø6.4x5.8	30554831

For turning holders, positive indexable insert (screw clamping)

Indexable insert	Indexable insert size	Clamping screw		Torx screwdriver	
		Torx size	Order No.	Description	Order No.
CC..	1204...	20	30554615	T20	10019470
DC..	11T3..	15	30554618	T15	10019469
SC..	1204..	20	30554615	T20	10019470
VB..	-	15	30554618	T15	10019469
VC..	1604..	15	30554618	T15	10019469

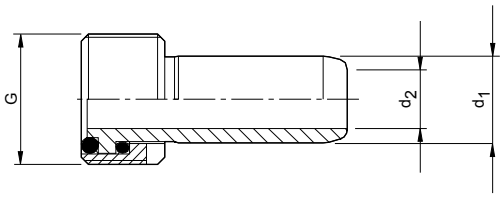
For tool holders with round connection

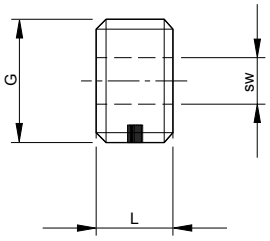
d_1	Threaded pin in accordance with DIN 4026	
	Description	Order No.
6	M6x10-45H	10003451
8-12	M8x10-45H	10003465
16-20	M10x12-45H	10003945

For tool holders with square connection

Square	Threaded pin in accordance with DIN 4026	
	Description	Order No.
20x20	M10x18-45H	30554621
25x25	M12x25-45H	10003957

Coolant tubes, blanking plugs





Coolant tubes in accordance with DIN 69895

HSK	Dimensions			Order No.
	G	d_1	d_2	
32	M10x1	6	3,5	30326003
40	M12x1	8	5	30326004
50	M16x1	10	6,4	30326005
63	M18x1	12	8	30326006
80	M20x1,5	14	10	30326007
100	M24x1,5	16	12	30326008

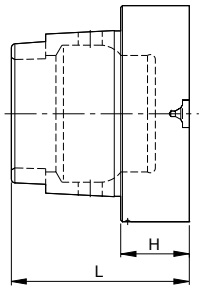
Blanking plugs

HSK	Dimensions			Order No.
	G	L	Wrench size	
32	M10x1	5,5	4	30326075
40	M12x1	7,5	5	30326076
50	M16x1	9,5	6	30326077
63	M18x1	11,5	8	30326078
80	M20x1,5	13,5	10	30326079
100	M24x1,5	15,5	12	30326074

Dimensions in mm.
Items included: Coolant tube with two O-rings and union nut.
Design: Free angular movement 1° self-centring, axially sealed.
Note: Designed in accordance with DIN 69895. Leak tested up to 80 bar.
Use: For sealing the threaded bore in HSK tool shanks if a coolant tube is not used.

Design: With Nylok insert for screw locking.
Material: Stainless steel.

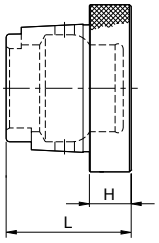
Balancing gauges



HSK	Dimensions		Order No.
	L	H	
32	31	15	30326032
40	35	15	30326033
50	43	18	30326034
63	52	20	30326035
80	65	25	30326036
100	75	25	30326037

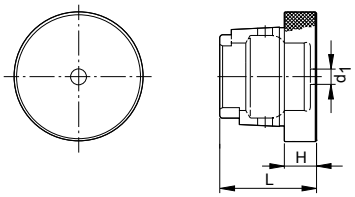
Use: For balancing HSK spindles and adapters as well as for sealing fast-rotating HSK spindles and adapters without a tool fitted.
Design: Permissible residual imbalance in accordance with DIN ISO 1940 part 1 quality G 2.5 at 8,000 min^{-1}
Material: Stainless steel.
Balancing value: G 2.5 at 8,000 min^{-1}

Blanking caps



HSK	Dimensions		Order No.
	L	H	
32	23	10	30326020
40	26	10	30326021
50	33	12,5	30326022
63	38	12,5	30326023
80	48	16	30326024
100	56	16	30326025

Use: For sealing spindle mountings without a tool fitted.
Design: Unbalanced.
Note: HSK balance gauges are recommended for sealing fast-rotating HSK adapters.



HSK	Dimensions			Order No.
	d_1	L	H	
32	3	23	10	30326027
40	3	26	10	30326028
50	4	33	12,5	30326029
63	6	38	12,5	30326030
80	7	48	16	30326031
100	7	56	16	30326026

Dimensions in mm.
Use: For sealing spindle mountings without a tool fitted.
Design: Unbalanced, with central coolant bore.
Note: HSK balance gauges are recommended for sealing fast-rotating HSK adapters.

CONVERSION SYSTEMS AND ADAPTERS TO HSK-T

Introduction

Designation key 134

Conversion systems, adapters and blanks

KS flange adapters 136
Tool adapters 137
Extensions and reducers 152
Blanks 153

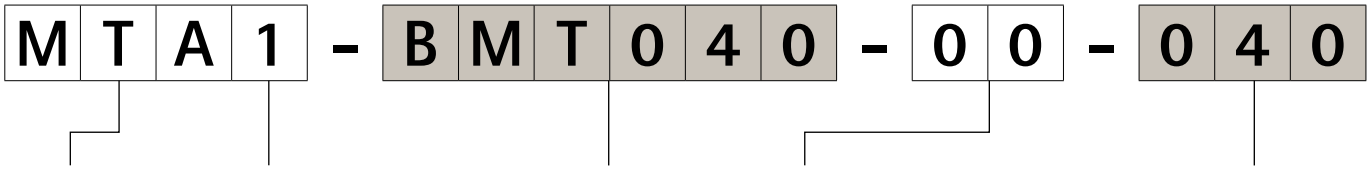
HSK-T conversion systems make it possible to integrate the advantages of the HSK-T connection in an existing environment. Often the output and therefore the productivity in existing processes is not optimal, as the portion of non-productive times is too high. Non-productive times occur during the tool change necessary due to tool wear, however above all on re-tooling for different parts in variant production and small-scale series production.

The process can be specifically optimised in these cases using the conversion systems to HSK-T, as due to the high accuracy on changing the tools, times for setting up or breaking-in are practically not required.
Using the conversion systems almost all existing CNC machines can be converted easily, safely and cost-effectively to HSK-T by means of conversion adapters. Only information on the machine manufacturer, machine type and revolver type is required for the technical design of the necessary conversion adapters. All other technical data are known.

Designation key

Conversion systems and adapters to HSK-T connection

Conversion adapters



Series/type

MTA	MAPAL Turning adapter

Type of input

1	Stationary
2	Driven

Connection and size

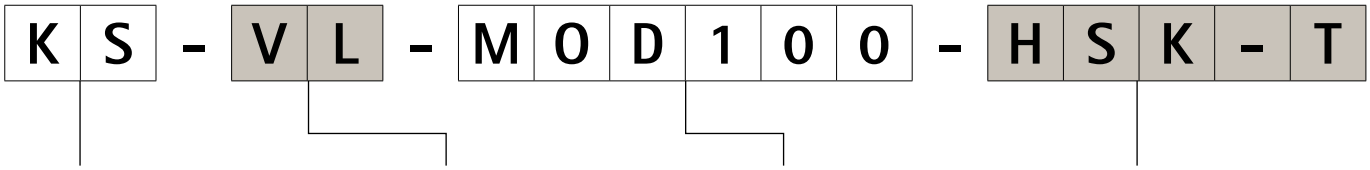
VDI
BMT

Connection index

HSK-T connection size

040	HSK-T40
063	HSK-T63
100	HSK-T100

KS flange adapter



Clamping unit

KS	KS clamping cartridge

Adaptation

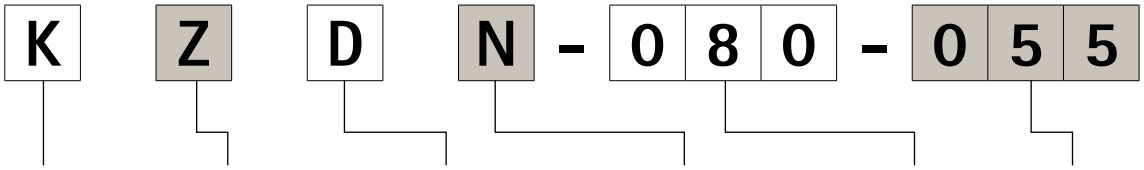
VL	Flange adapter

Shank | Form and size

MOD	Module connection

Adaptation | Form and size

HSK-T	Hollow shank taper Form T



Design

L	Long
K	Short

Characteristic

N	Normal
Z	Set back

Connections

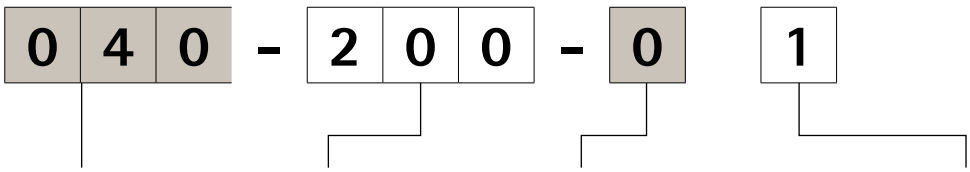
E	Single
D	Double
T	Triple

Direction of rotation

R	Right
L	Left

l_1 [mm]

l_2 [mm]



Adaptation size

040	HSK-T40
063	HSK-T63
100	HSK-T100

Projection length

l_1 [mm]

Alignment

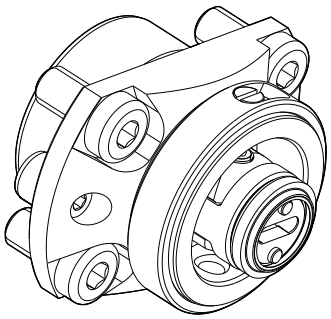
0	Without alignment
1	Radial alignment
2	Radial and angular alignment

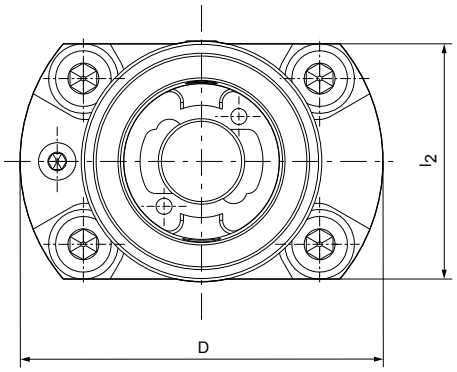
Internal cooling/MQL

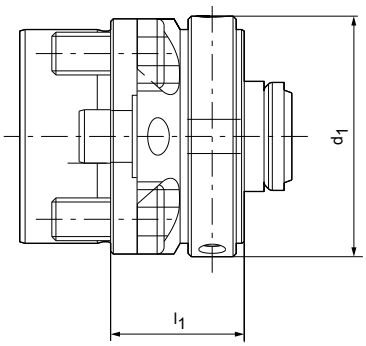
0	Without
1	Internal
2	Lateral (SK)
3	Internal and lateral combined
4	With MQL (1-channel)
5	With MQL (2-channels)
6	With MQL (not specified)
7	With MQL 1
8	With MQL
9	With high pressure HP

KS flange adapters

For turning applications







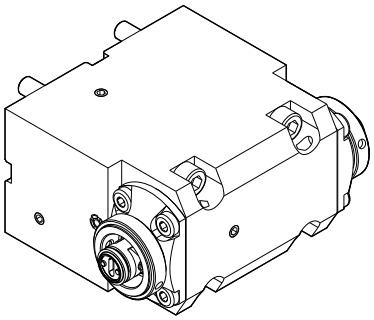
Module ø D	HSK-T	Design	Dimensions			Specification	Order No.
			d_1	l_1	l_2		
68	40	links	45	25	44	KS-VL-MOD068-HSK-T040-025-01	30429656
68	40	rechts	45	25	44	KS-VL-MOD068-HSK-T040-025-01	30438946
102	63	links	70	37	72	KS-VL-MOD102-HSK-T063-037-01	30429657
102	63	rechts	70	37	72	KS-VL-MOD102-HSK-T063-037-01	30438947
165	100	links	110	55	112	KS-VL-MOD165-HSK-T100-055-01	30429658
165	100	rechts	110	55	112	KS-VL-MOD165-HSK-T100-055-01	30438948

Dimensions in mm.
Use: For fitting in the revolver and in conversion adapters for the manual clamping of HSK shanks on lathes.
Items included: Complete with KS clamping cartridge, sealing ring, eccentric pin and cylinder head screw.
Design: Can be exactly adjusted to the centre height by means of the actuating element in the flange adapter.
With internal coolant supply.

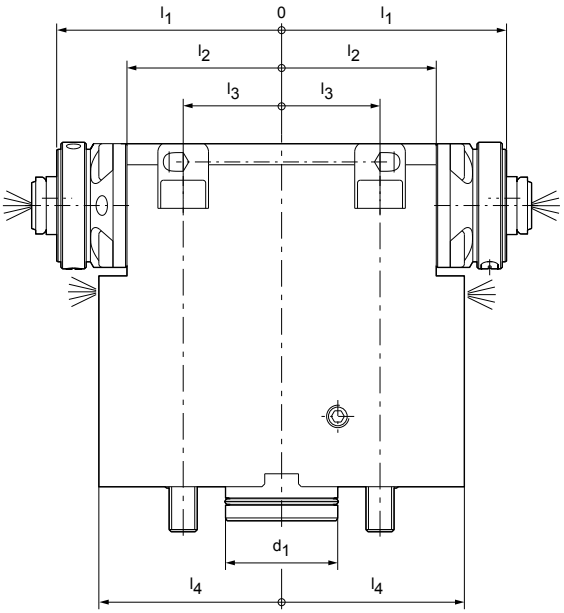
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

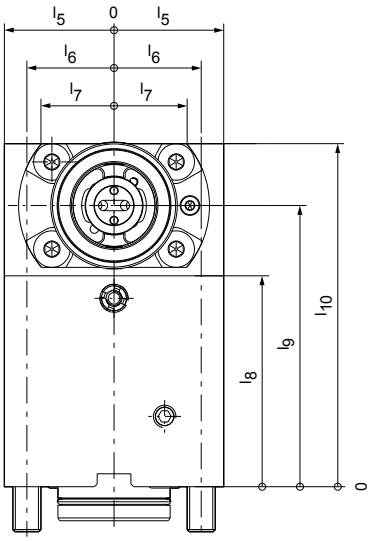
Tool adapters

Mori Seiki | NZ series



Coolant outlets





Mori Seiki NZ series

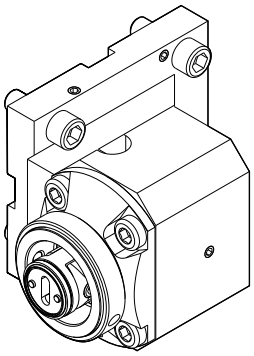
HSK-T	Dimensions											Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	d_1		
40	80	55	35	65	39	31	26	75	100	122	40	MTA1-BMT040-00-040KZDN-080-055	30432370

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Double design.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

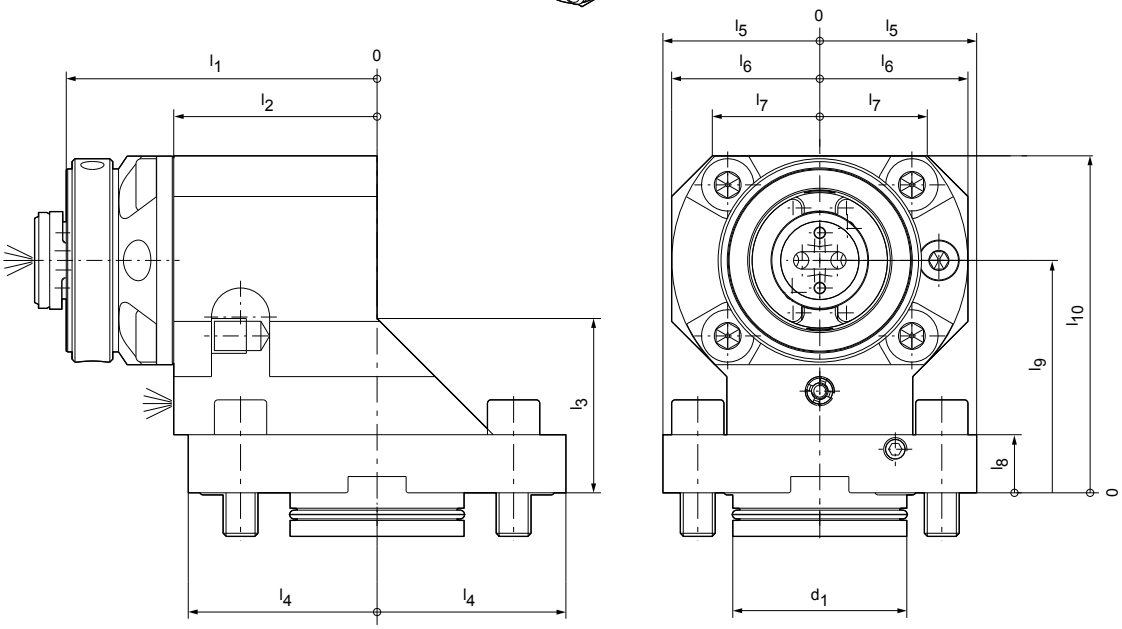
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.

Tool adapters

Mori Seiki | NL series



Coolant outlets



Mori Seiki NL series

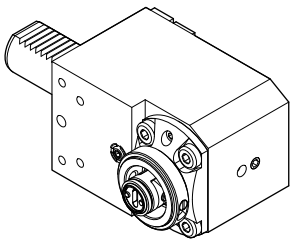
HSK-T	Dimensions											Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	d_1		
63	107	70	60	65	54	51	37	20	80	116	60	MTA1-BMT060-00-063KNEN-107-070	30432368

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
Can be used on both sides.

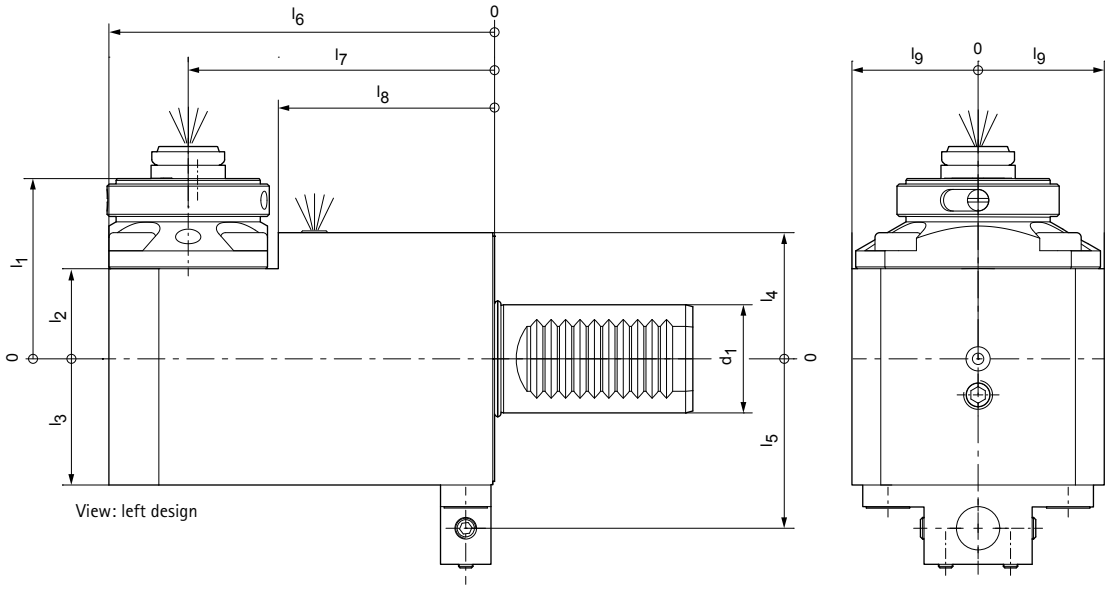
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.

Tool adapters

Gildemeister | CTX LZ (VDI30)



Coolant outlets



Gildemeister CTX LZ series (VDI 30 star revolver)

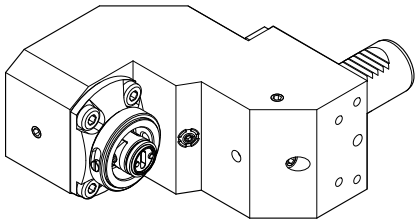
HSK-T	Dimensions										Design	Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	d_1			
40	50	25	35	35	47	110	85	60	35	30	Left	MTA1-VDI030-00-040KZEL-050-025	30432360
40	50	25	35	35	47	110	85	60	35	30	Right	MTA1-VDI030-00-040KZER-050-025	30432353

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
Left and right design. It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

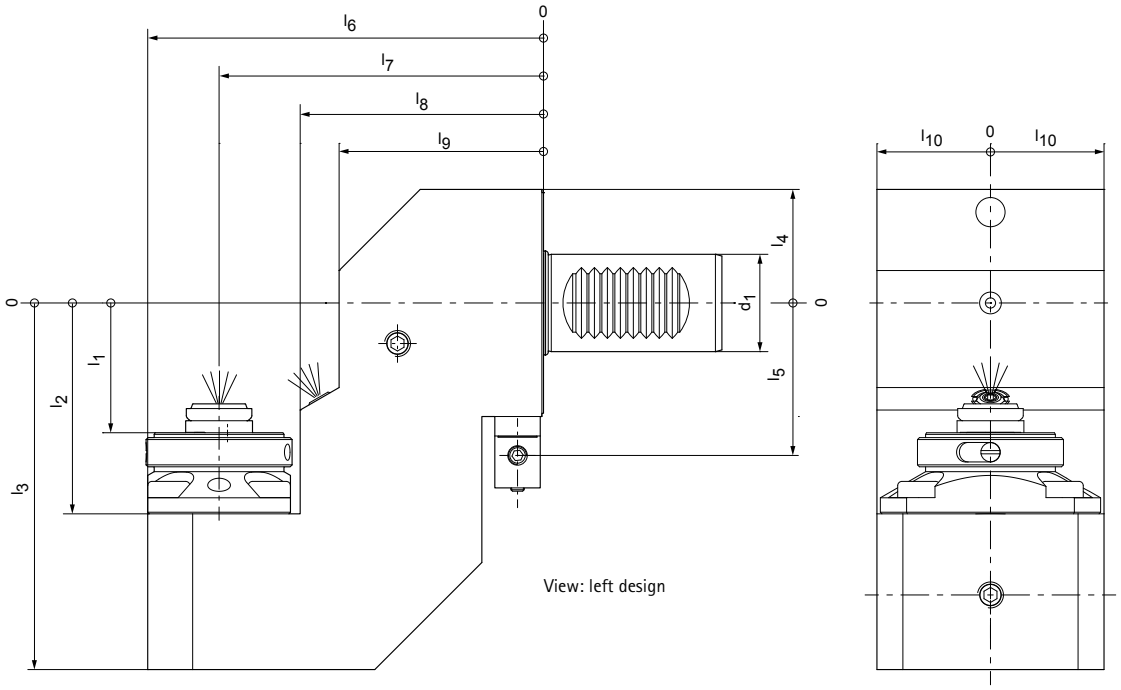
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Gildemeister | CTX RLZ(VDI30)



Coolant outlets



Gildemeister CTX RLZ series (VDI 30 star revolver)

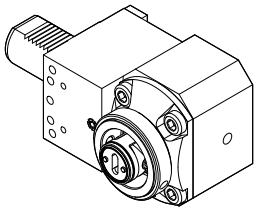
HSK-T	Dimensions											Design	Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	d_1			
40	40	65	113	35	47	122,5	100	75	63	35	30	Right/left	MTA1-VDI030-00-040KZEN-040-065	30432359

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Set back left/right design with double teeth. It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

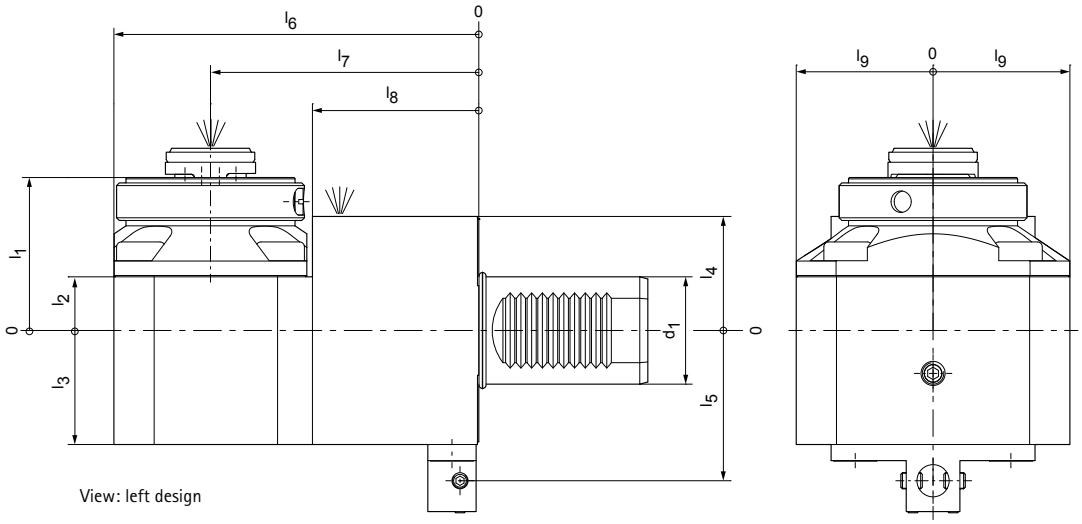
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Gildemeister | CTX LZ (VDI40)



Coolant outlets



View: left design

Gildemeister CTX LZ series (VDI 40 star revolver)

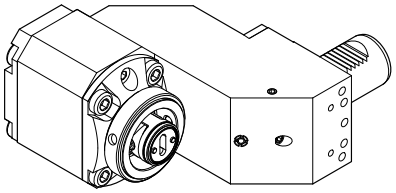
HSK-T	Dimensions										Design	Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	d_1			
63	60	20	42,5	42,5	56	136	100	62	51	40	Right	MTA1-VDI040-00-063-KZER-060-020	30432364
63	60	20	42,5	42,5	56	136	100	62	51	40	Left	MTA1-VDI040-00-063-KZEL-060-020	30432351

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Left and right design.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

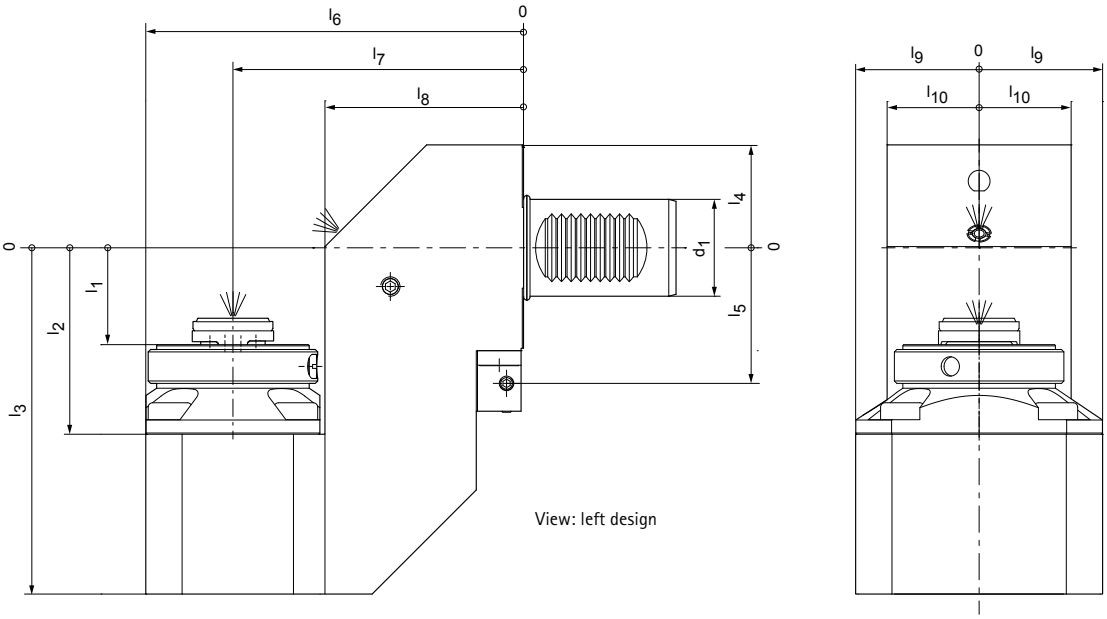
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Gildemeister | CTX RLZ (VDI 40)



Coolant outlets



View: left design

Gildemeister CTX RLZ series

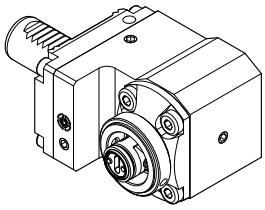
HSK-T	Dimensions											Design	Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	d_1			
63	40	77	130	42,5	56	156	120	82	51	38	40	Right/left	MTA1-VDI040-00-063KZEN-040-077	30432357

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Set back left/right design with double teeth. It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

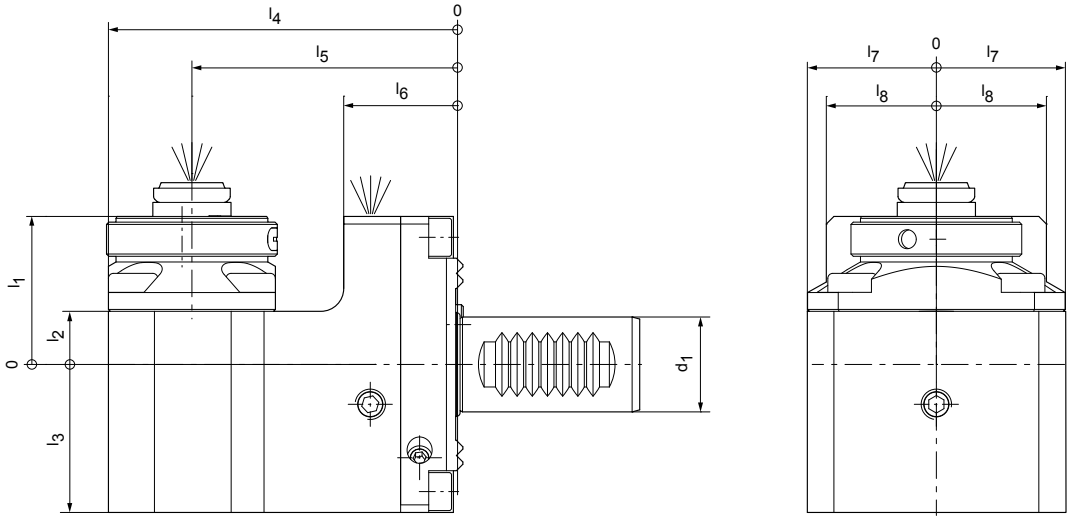
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Index G200 | VDI 25 (w serration)



Coolant outlets



View: left design

Index G200 (VDI 25)

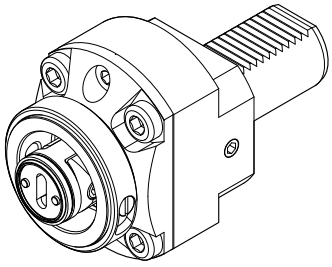
HSK-T	Dimensions									Design	Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	d_1			
40	39	14	39	92	70	30	34	29	25	Right/left	MTA1-VDI025-00-040KZEN-039-014	30429575

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Left/right design with double teeth. It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

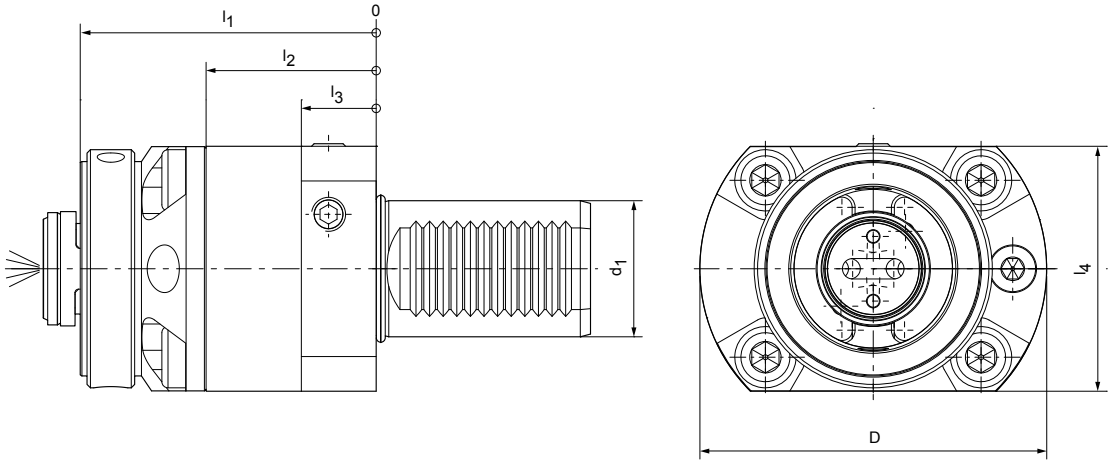
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

VDI axial



Coolant outlets



ISO 10889-1-80x124xHSK-T...

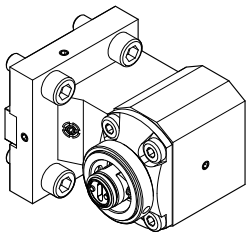
HSK-T	Dimensions						Specification	Order No.
	l_1	l_2	l_3	l_4	d_1	D		
40	57	32	22	44	30	68	MTA1-VDI030-00-040KNEN-057-032	30432371
63	87	50	22	76	40	102	MTA1-VDI040-00-063KNEN-087-050	30432372
100	125	70	30	112	80	165	MTA1-VDI080-00-100KNEN-125-070	30432373

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40, HSK-T63 and HSK-T100.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above. Axial design.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

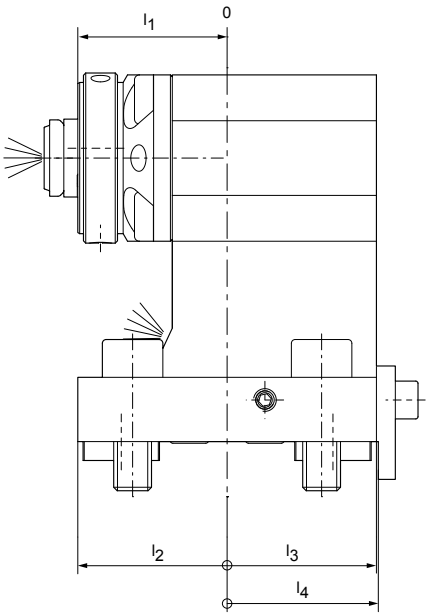
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

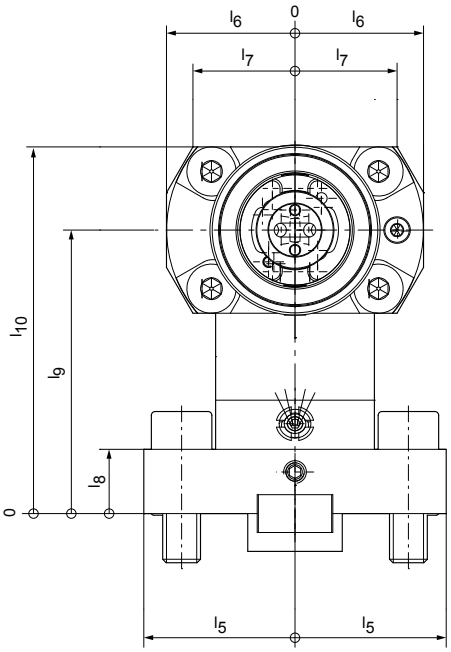
Tool adapters

Nakamura NTJ



Coolant outlets





Nakamura NTJ

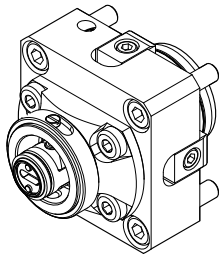
HSK-T	Dimensions										Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}		
40	39.5	39,5	39,5	40	40	34	27	17	75	97	MTA1-NTJSON-00-040KZE-040-040	30429573

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height. Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

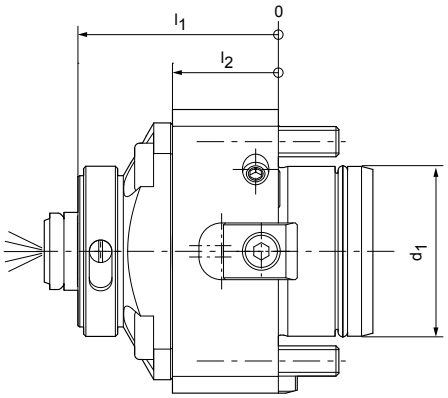
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

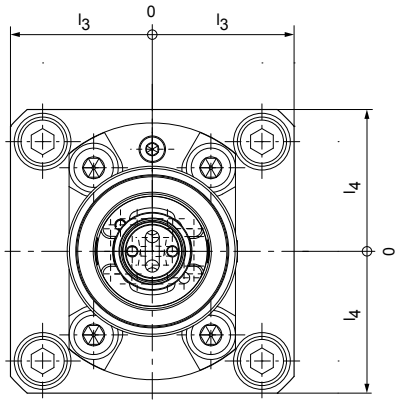
Tool adapters

Hardinge | T-42 axial



Coolant outlets





Hardinge T-42 (axial)

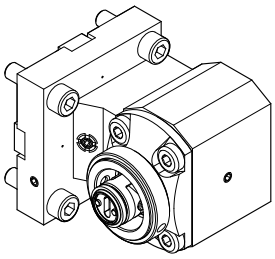
HSK-T	Dimensions					Specification	Order No.
	l_1	l_2	l_3	l_4	d_1		
40	53	28	37,5	37,5	44,9	MTA1-BMT045-00-040KNE-053-028	30437949

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

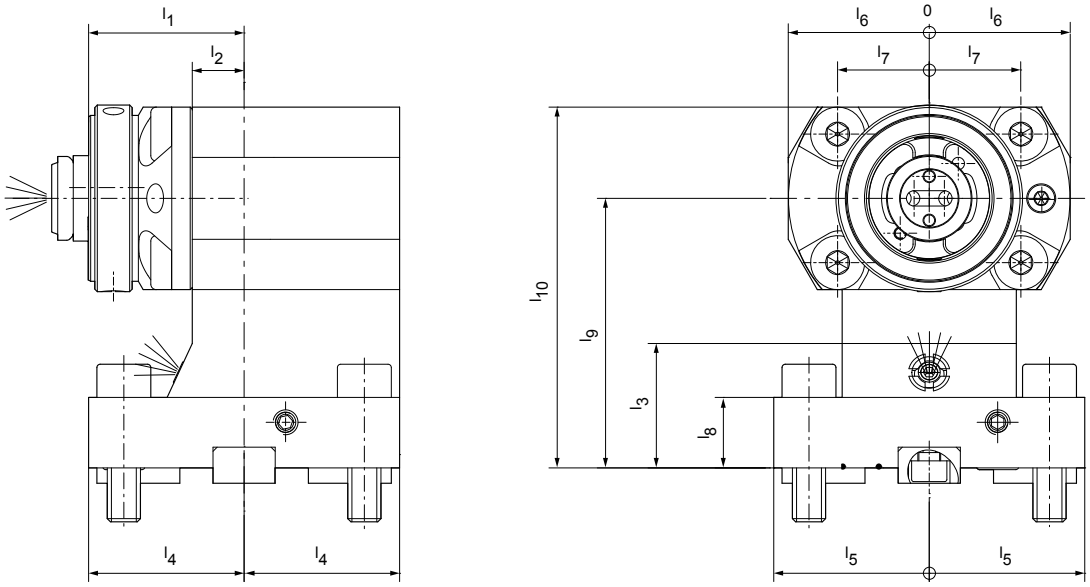
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Hardinge | T-42 radial



Coolant outlets



Hardinge T-42 (radial)

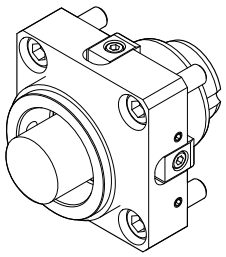
HSK-T	Dimensions										Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}		
40	37,5	12,5	30	37,5	37,5	34	21	17	65	87	MTA1-HRDT42-00-040KZE-038-013	30559499

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T40.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

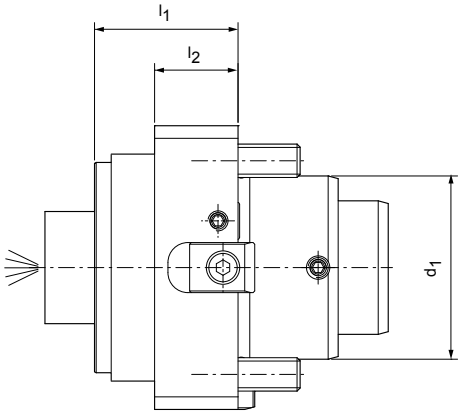
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

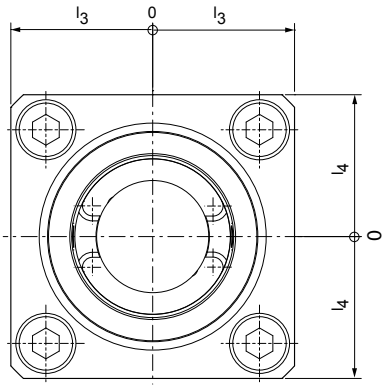
Tool adapters

Hardinge | T-51 SP axial



Coolant outlets





Hardinge T-51 SP (axial)

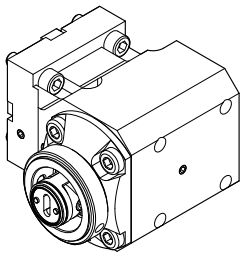
HSK-T	Dimensions					Specification	Order No.
	l_1	l_2	l_3	l_4	d_1		
63	43	25	42,5	42,5	55	MTA1-HRDT51-00-063KNE-043-025	30524879

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

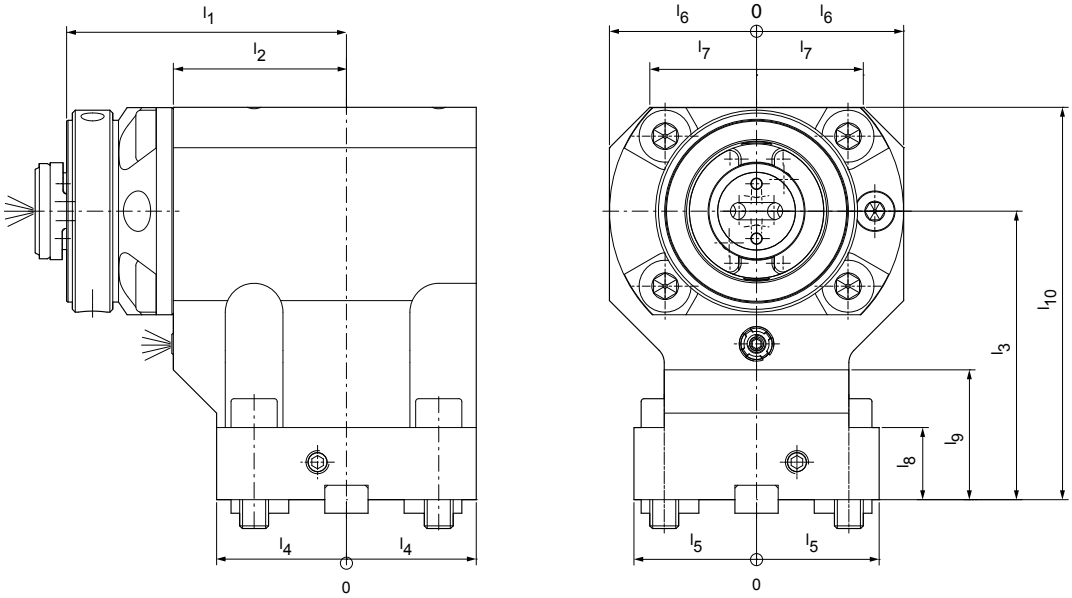
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Hardinge | T-51 SP radial



Coolant outlets



Hardinge T-51 SP (radial)

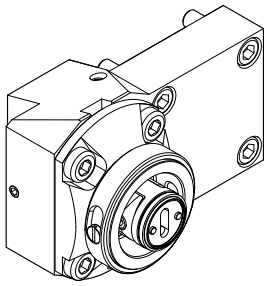
HSK-T	Dimensions										Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}		
63	97	60	100	45	42,5	51	37	25	45	136	MTA1-HRDT51-00-063KNE-097-060	30524881

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

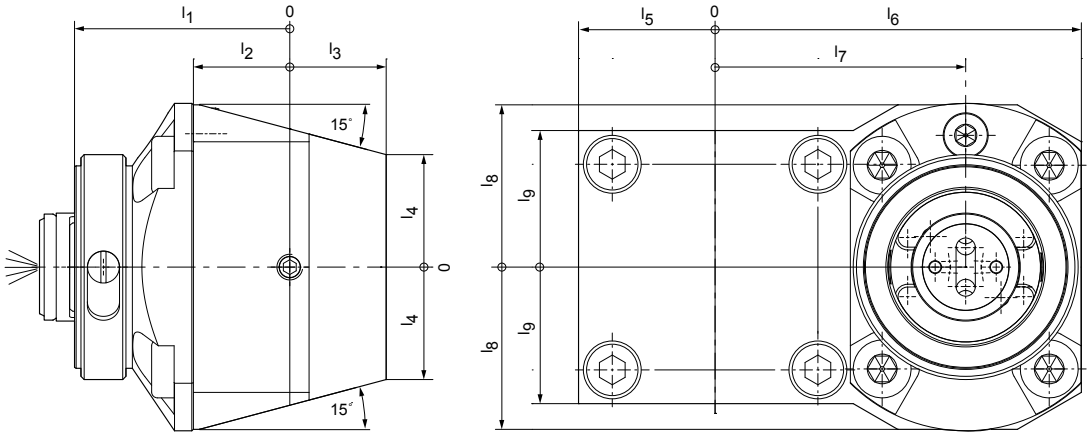
Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Tool adapters

Hardinge | T-51 SP MSY



Coolant outlets



Hardinge T-51 SP MSY

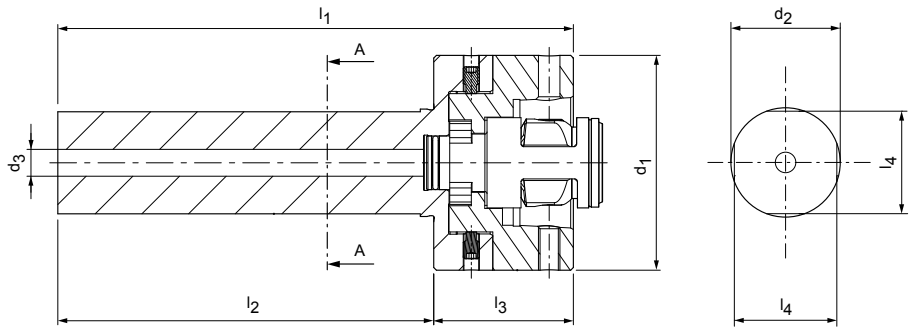
HSK-T	Dimensions							Specification	Order No.
	l_1	l_2	l_3	l_4	l_5	l_6	l_7		
63	67	30	30	35	42,5	114	78	MTA1-HRDT51-00-063KNE-067-030	30431643

Dimensions in mm.
Use: For the modification of existing revolvers to HSK-T63.
Items included: Complete with basic holder and KS flange adapter.
Adjusted to lathe centre height.
Design: Basic holder suitable for the machines stated above.
It is possible to react to inaccuracies in the manufacturing peripherals by means of the actuating element in the KS flange adapter.

Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
In the section "Technical appendix" you will find information on the "right" and "left" designs and the fitting dimensions.

Round shank adapters

With KS clamping and radial and angular alignment



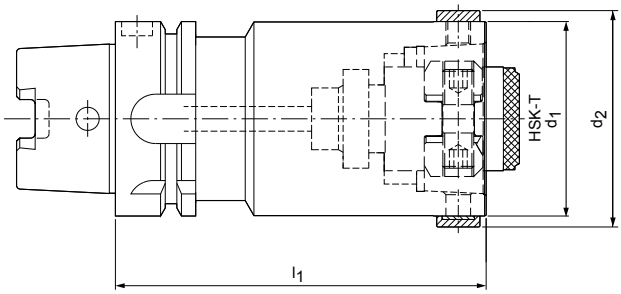
HSK-T	Dimensions							Specification	Order No.
	d_1	d_2	d_3	l_1	l_2	l_3	l_4		
40	50	32	6	128,5	90	38,5	30	KS-AD-ZYL032-HSK-T040-039-21	30439364
40	63	40	8	150	110	40	38	KS-AD-ZYL040-HSK-T040-040-21	30439366
63	80	40	10	192	140	52	38	KS-AD-ZYL040-HSK-T063-052-21	30440883
63	80	50	10	192	140	52	48	KS-AD-ZYL050-HSK-T063-052-21	30439368

Dimensions in mm.
Use: For fitting in boring bar holders for manual clamping of HSK shanks on lathes.
Items included: Complete with basic holder and KS flange adapter.
Design: Exactly adjustable by means of threaded pins and thrust pads (for aligning).

Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.
Locating shank can be shortened to the required length.

HSK-T extensions

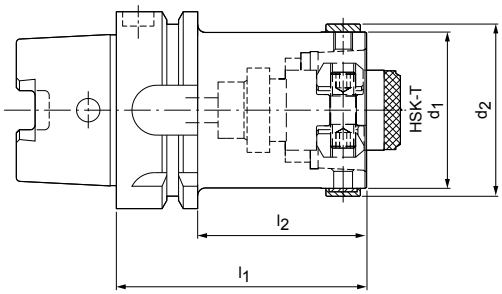
Shank HSK-T in accordance with ISO 1264-3



HSK-T	HSK-T d_1	Dimensions		Weight kg	Specification	Order No.
		d_2	l_1			
40	40	45	60	0,5	KS-AD-HSK-T040-HSK-T040-060-01	30317312
40	40	45	80	0,7	KS-AD-HSK-T040-HSK-T040-080-01	30317310
63	63	70	120	2,3	KS-AD-HSK-T063-HSK-T063-120-01	30298734
63	63	70	80	1,7	KS-AD-HSK-T063-HSK-T063-080-01	30298733
100	100	110	120	6,3	KS-AD-HSK-T100-HSK-T100-120-01	30298737

HSK-T reducers

Shank HSK-T in accordance with ISO 1264-3



HSK-T	HSK-T d_1	Dimensions			Weight kg	Specification	Order No.
		d_2	l_1	l_2			
63	40	45	70	54	1,1	KS-AD-HSK-T063-HSK-T040-070-01	30317308
100	63	70	100	71	3,6	KS-AD-HSK-T100-HSK-T063-100-01	30298740
100	40	45	80	51	2,5	KS-AD-HSK-T100-HSK-T040-080-01	30317309

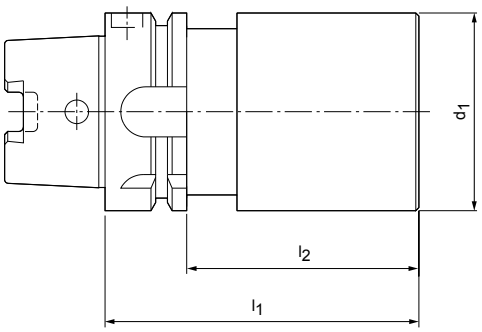
Dimensions in mm.
Items included: Complete with clamping cartridges and sealing ring, without coolant tube.
Design: Permissible run-out deviation on the hollow taper shank in relation to the internal taper = 0.005 mm.

Note: You will find suitable KS clamping cartridges, sealing rings and angle setting gauges in the MAPAL catalogue Clamping.

Balancing value: G 6.3 at 3,000 min^{-1} as delivered.

HSK-T blanks

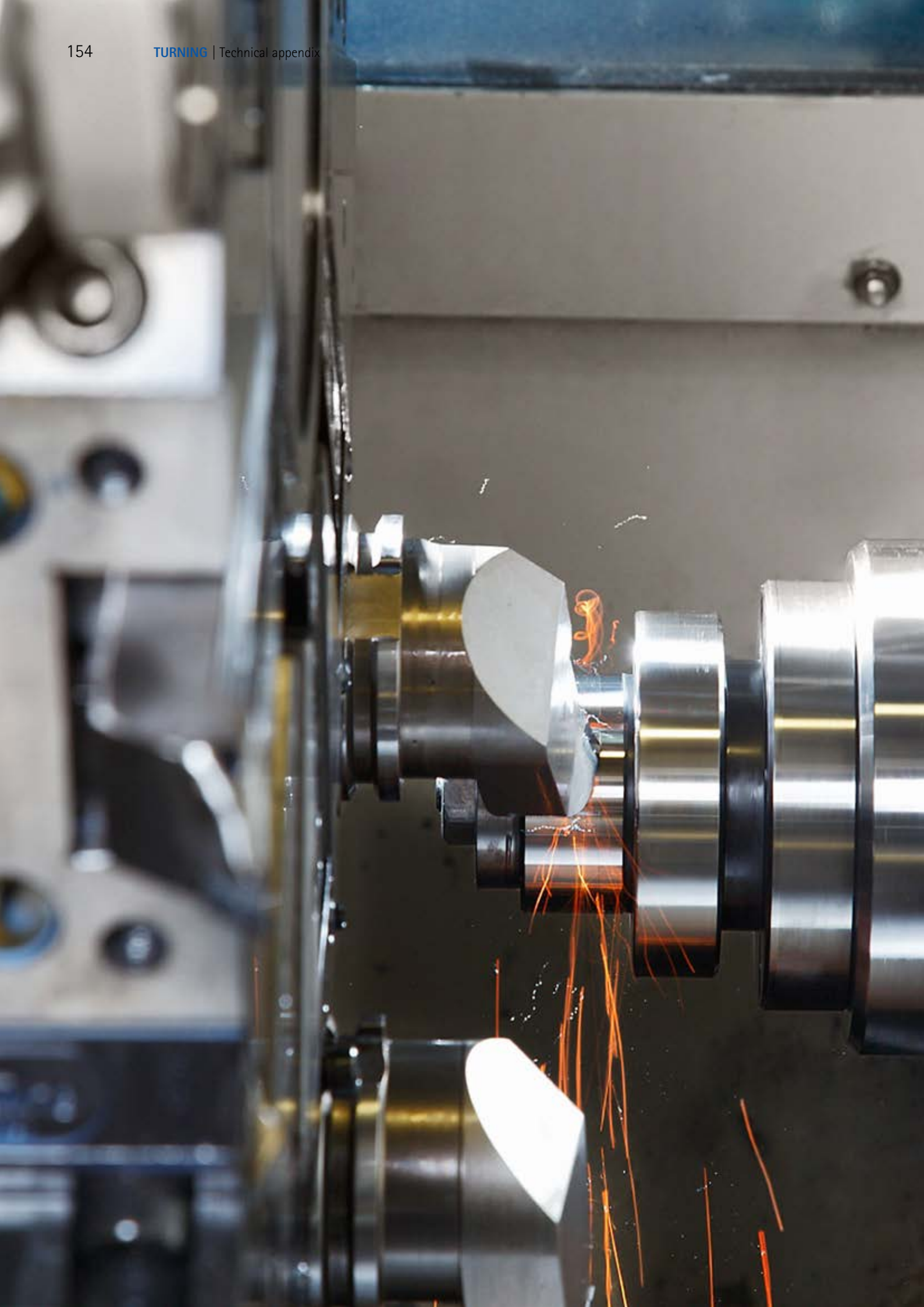
Shank HSK-T in accordance with ISO 12164-3

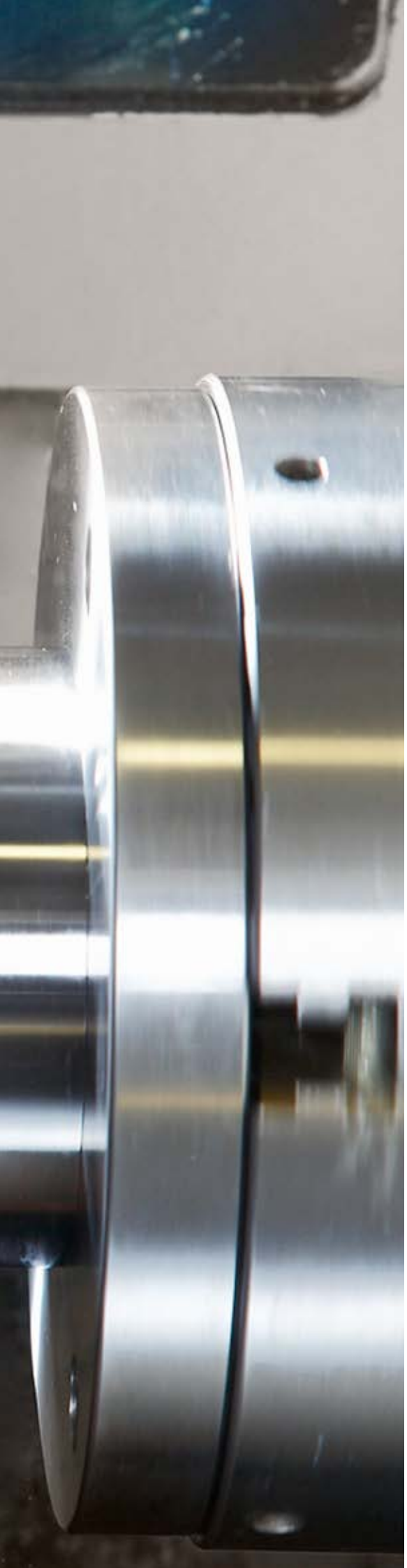


HSK-T	Dimensions			Specification	Order No.
	l_1	l_2	d_1		
40	55	35	54	OS-BL-HSK-T040-BLANK054-055-00	30308741
63	90	64	90	OS-BL-HSK-T063-BLANK090-090-00	30317098
63	210	184	72	OS-BL-HSK-T063-BLANK072-210-00	30317099
63	150	124	100	OS-BL-HSK-T063-BLANK100-150-00	30308742
100	100	71	110	OS-BL-HSK-T100-BLANK110-100-00	30308743
100	250	221	100	OS-BL-HSK-T100-BLANK100-250-00	30317101
100	160	131	120	OS-BL-HSK-T100-BLANK120-160-00	30317100

Dimensions in mm.
Design: Taper including collar hardened and finish ground.
Front part of blank not hardened or ground for further processing.
Items included: Without coolant tube.

Note: Excessive machining and any heat treatments of the completed blank may cause unacceptable distortion of the HSK shank. Claims against the warranty can therefore only be made for blanks that have not been processed.





TECHNICAL APPENDIX

HSK-T

Standard 156
Flanges 158
Description right/left design 159

VersaCut

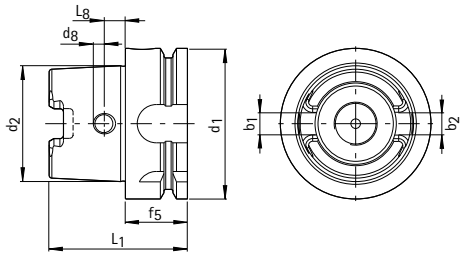
Handling notes 160

Cutting data

PcBN cutting materials 161
PCD cutting materials 161

HSK-T standard

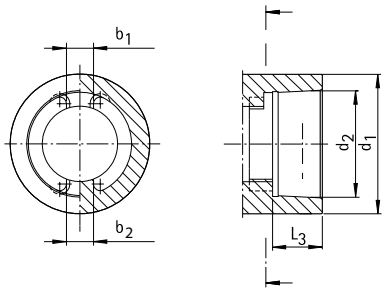
For hollow shanks DIN 69893-1 HSK-T



HSK-T for automatic and manual tool change

		HSK size		
Nominal size	d_1 h10	40	63	100
Taper diameter	d_2	30.007	48.01	75.013
Shank length	L_1 0/-0.2	20	32	50
Slot width	b_1 +/–0.04	8.05	12.54	20.02
Bore diameter	d_8	4.6	7.5	12
Bore spacing	L_8 +/-0.1	6	9	15
Flange width HSK-A	f_1 0/–0.1	20	26	29
Flange width HSK-C	f_5	10	12.5	16
Additional for HSK-T				
Slot width	b_2 +/0.030	7.932	–	–
Slot width	b_2 +/0.0350	–	12.425	19.91

For adapters DIN 12164 HSK-T



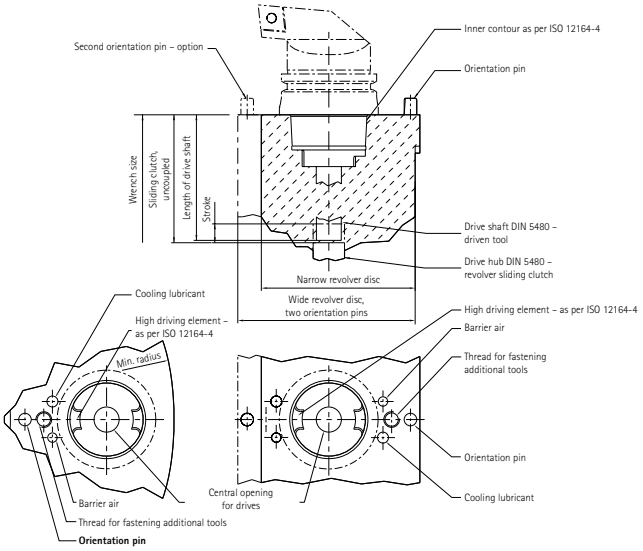
HSK-T for automatic and manual tool change

		HSK size		
Nominal size	d_1	40	63	100
Taper diameter	d_2	29.998	47.998	74.997
Depth	L_3 +0.2	14.4	22.4	35.4
Driving element width	b_1 +/-0.05	7.8	12.3	19.78
Additional for HSK-C				
Bore diameter	d_6	5	8	11
Bore spacing	L_8 +/-0.1	6	9	15
Additional for HSK-T				
Driving element width	b_2 –0.025	7.92	12.41	–
Driving element width	b_2 -0.03	–	–	19.98

Dimensions in mm.

Addition to the HSK-T standard

In addition to the standard, the connection of driven tools using the HSK-T interface has been adopted.

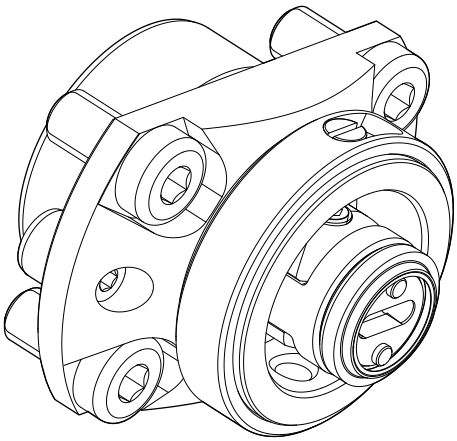


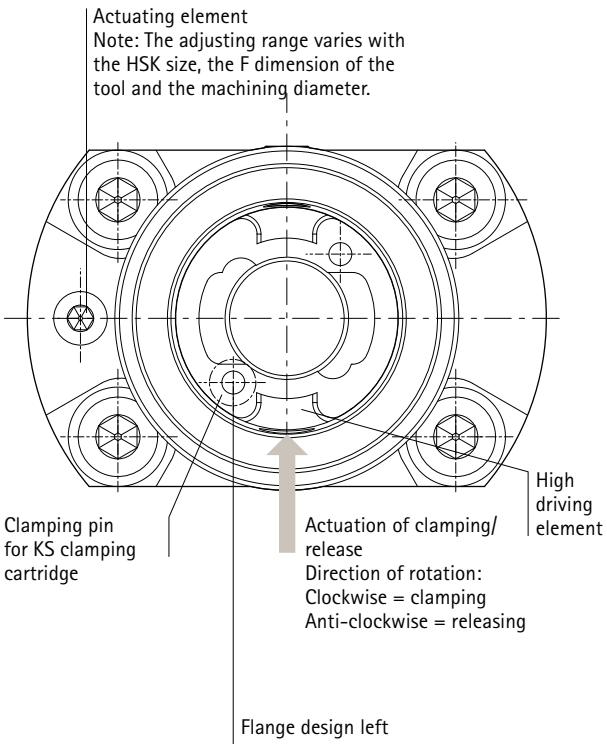
The following definitions were also established in the HSK-T working group:

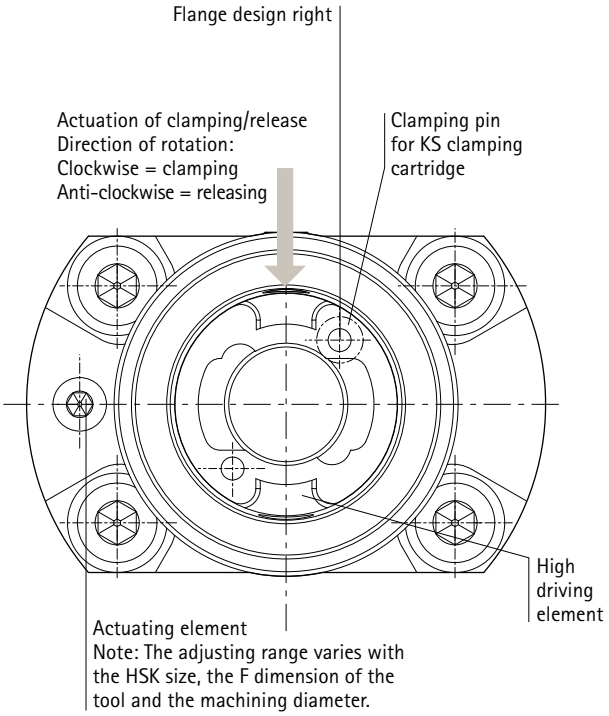
- Diameter of the drive shaft
- Drive shaft coupling type
- Position of the coupling
- Revolver wrench size
- Related HSK size
- Transfer point for cooling lubricants and barrier air
- Additional alignment feature for angled tool connections

General explanation, flanges

- The flanges are designed such that the direction of rotation during clamping is in the clockwise direction and releasing is always in the anti-clockwise direction.
- The flange design right is actuated on the side with the low driving element, the flange design left on the side with the high driving element.
- The location of the clamping cartridge and hence the flange design can be changed by moving the heavy-duty clamping pin to the opposite side.







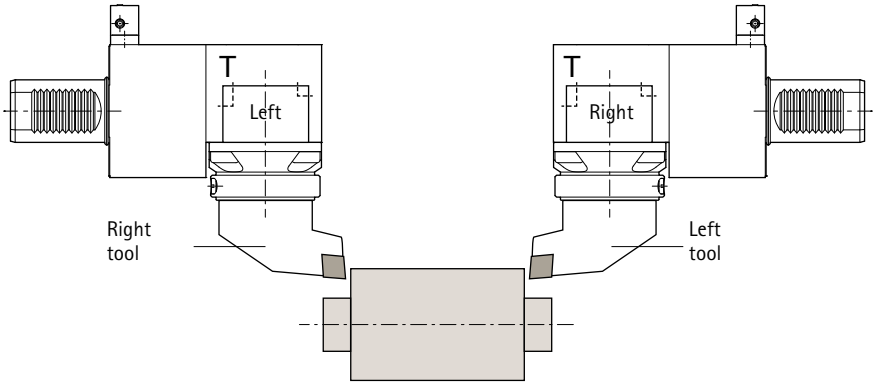
HSK-T description left/right design

Revolver top:

- Clamping unit shank in revolver disc
- DIN-serration top
- Cutting head axis perpendicular to rotating axis

- Left design:
  if shank left,
  suitable for right tools

- Right design:
  if shank right,
  suitable for left tools

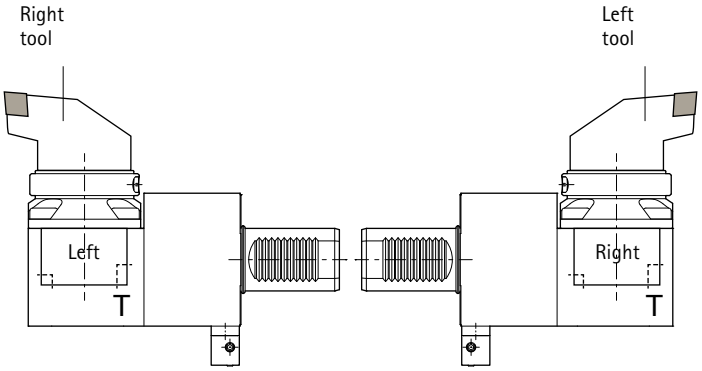


Revolver bottom:

- Clamping unit shank in revolver disc
- DIN-serration top

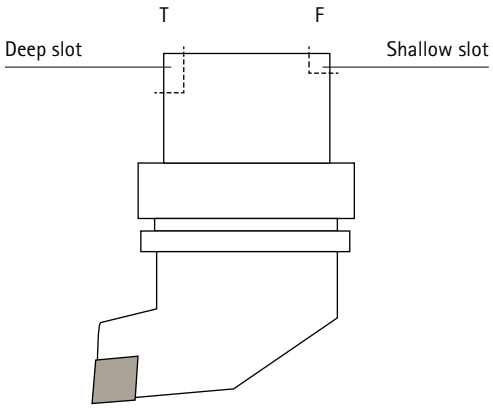
- Left design:
  if shank left,
  suitable for right tools

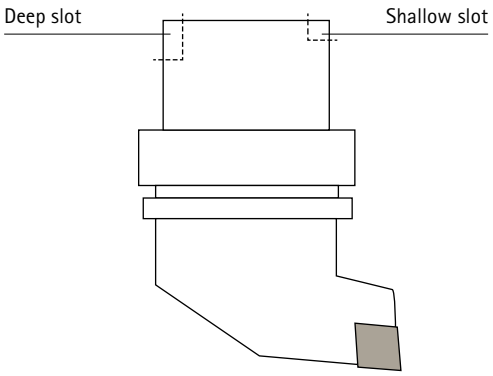
- Right design:
  if shank right,
  suitable for left tools



Shank position and position of the slots

(T = deep slot, F = shallow slot) as shown





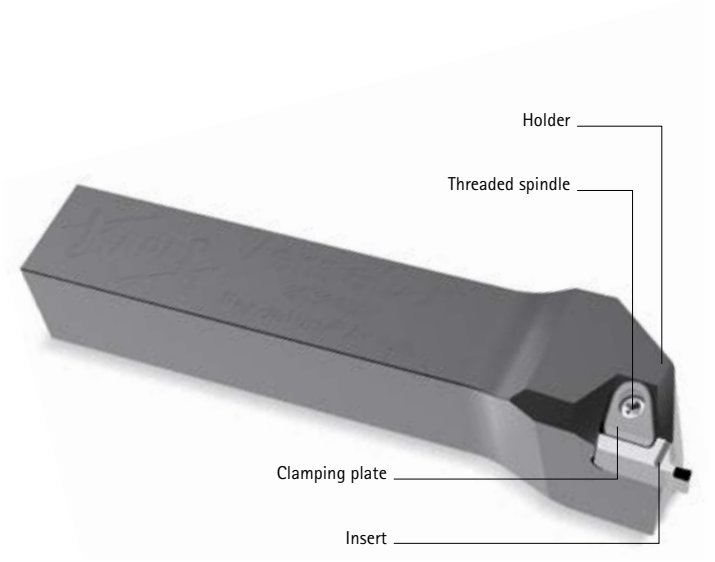
Left design:
Cutting edge points to left,
Cutting force from above

Right design:
Cutting edge points to right,
Cutting force from above

Handling for VersaCut

Easier and quicker to insert change

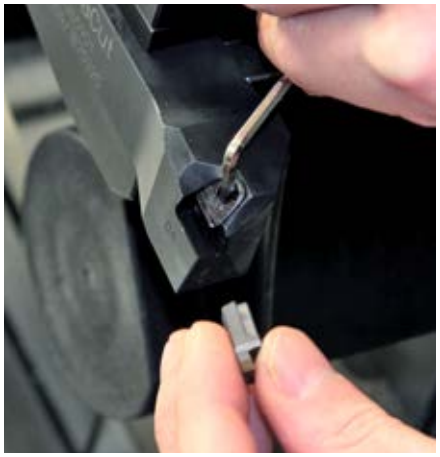
For the special requirements of hard machining, for example grooving, groove turning or thread cutting, it is very important that the inserts are very stable. MAPAL relies on extremely stably clamped inserts on the grooving system VersaCut. The stability is ensured by a heavy clamping plate that presses the insert into a prismatic insert seat. To change the insert it is only necessary to undo the clamping plate using a hex-wrench. It is then possible to remove the insert from the prismatic insert seat and replace it.



Note: Only for trained personnel.

Step 1:
Undo clamping

Undo the threaded spindle using a hex-wrench until the insert can be removed easily from the prismatic insert seat.



Step 2:
Remove insert

Remove the insert from the prismatic insert seat.

Step 3:
Clean connection

Clean the prismatic insert seat using compressed air.

Step 4:
Fit blade

Push the new insert into the prismatic insert seat against the stop face. Then tighten the threaded spindle using a hex-wrench.

Cutting data PcBN cutting materials

The values stated are indicative. The optimal data for the specific machining case should be determined in trials or during the machining.

				Cutting material	FP823	FP834	FP853	FU430		FU720		FU824		FU872
				Machining	Turning gen.	Turning gen.	Turning gen.	Turning Finishing		Turning Finishing		Groov-ing	Chasing	Turning Roughing
				Cutting edge design	T13	S14	S12	E01	T51	E01	T51	T51	T51	S09
				Cutting conditions	● ●	● ●	●	●	● ●	●	● ●	●	●	●
Machining group			Material	Strength/ hardness	Cutting speed v_c [mm/rev]									
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm²				700	700	700	700			1.000
	K2	K2.1	Cast iron with spheroidal graphite, GJS	< 500 N/mm²		150		300	300	300	300			
		K2.2	Cast iron with spheroidal graphite, GJS	500-800 N/mm²		160	160							
		K2.3	Cast iron with spheroidal graphite, GJS	> 800 N/mm²		160	160							
S	S2	S2.1	Titanium, titanium alloys	< 1.200 N/mm²		100		100	100					
		S2.2	Titanium, titanium alloys	> 1.200 N/mm²		100		100	100					
	S4	S4.1	High-temperature super alloy Ni, Co and Fe-based		100					100	100			
H	H1	H1.1	Hardened steel/cast steel	52-58 HRC	180	170	220					180	120	
		H1.2	Hardened steel/cast steel	58-63 HRC	140	140	180					160	100	
		H1.3	Hardened steel/cast steel	> 63 HRC	150		150					140	80	
	H2	H2.1	Wear-resistant cast iron/chilled cast iron, GJN					110	110	110	110			
Sintered steel			e.g. SintD30	< 60 HRC	140									
			e.g. SintD32	> 60 HRC				230	230					

Cutting data PCD cutting materials

The values stated are indicative. The optimal data for the specific machining case should be determined in trials or during the machining.

				Cutting material	PU 620			PU660 with C1			PU670 with C2		
				Cutting conditions	●	●	●	●	●	●	●	●	●
Machining group			Material	Strength/ hardness	Cutting speed v_c [mm/rev]								
N	N1	N1.1	Aluminium, non-alloy and alloy < 3 % Si		200-2.500	200-1.500		200-2.500	200-1.500		200-1.500	200-1.500	200-1.200
		N1.2	Aluminium, alloy ≤ 7 % Si		150-2.200	150-1.200		150-2.200	150-1.300		150-1.200	150-1.200	150-1.000
		N1.3	Aluminium, alloy > 7-12 % Si		100-2.000	100-1.900					100-1.100	100-1.100	100-1.000
		N1.4	Aluminium, alloy > 12 % Si		100-1.800	100-1.800							100-1.000
	N2	N2.1	Copper, non-alloy and low-alloy	< 300 N/mm²	200-2.000	180-1.700					200-1.600	200-1.300	200-1.000
		N2.2	Copper, alloy	> 300 N/mm²	180-1.800	180-1.500	150-1.400				200-1.500	200-1.200	200-1.000
		N2.3	Brass, bronze, gunmetal	< 1.200 N/mm²	180-1.500	180-1.200	150-1.200						
	N3	N3.1	Graphite		100-1.000	100-1.000	100-1.000						
	N4	N4.1	Plastic, thermoplastics		100-800	100-800	100-750						
		N4.2	Plastic, thermosets		100-800	100-800	100-700						
		N4.3	Plastic, foams		100-1.500	100-1.500	100-1.500						

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