

# Clamping systems

Leitz Lexicon Edition 7

Version 2

07/2025



## Explanation of abbreviations

A	= dimension A
$a_e$	= cutting thickness (radial)
$a_p$	= cutting depth (axial)
ABM	= dimension
APL	= panel raising length
APT	= panel raising depth
AL	= working length
AM	= number of knives
AS	= anti sound (low noise design)

b	= overhang
B	= width
BDD	= thickness of shoulder
BEM	= note
BEZ	= description
BH	= tipping height
BO	= bore diameter

CNC	= Computerized Numerical Control
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d	= diameter
D	= cutting circle diameter
D0	= zero diameter
DA	= outside Diameter
DB	= diameter of shoulder
DFC	= Dust Flow Control (optimised chip clearance)
DGL	= number of links
DIK	= thickness
DKN	= double keyway
DP	= polycrystalline diamond
DRI	= rotation

FAB	= width of rebate
FAT	= depth of rebate
FAW	= bevel angle
FLD	= flange diameter
$f_z$	= tooth feed
$f_{z\text{ eff}}$	= effective tooth feed

GEW	= thread
GL	= total length
GS	= Plunging edge

H	= height
HC	= tungsten carbide, coated
HD	= wood thickness (thickness of workpiece)
HL	= high-alloyed tool steel
HS	= high-speed steel (HSS)
HW	= tungsten carbide (TCT)

ID	= ident number
IV	= insulation glazing

KBZ	= abbreviation
KLH	= clamping height
KM	= edge breaker
KN	= single keyway
KNL	= combination pinhole consists of 2/7/42 2/9/46,35 2/10/60

L	= length
I	= clamping length
LD	= left hand twist
LEN	= Leitz standard profiles

LH	= left hand rotation
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M	= metric thread
MBM	= minimum order quantity
MC	= multi-purpose steel, coated
MD	= thickness of knife
$\text{min}^{-1}$	= revolutions per minute (RPM)
MK	= morse taper
$\text{m min}^{-1}$	= metres per minute
$\text{m s}^{-1}$	= metres per second

n	= RPM
$n_{\text{max}}$	= maximum permissible RPM
NAL	= position of hub
ND	= thickness of hub
NH	= zero height
NL	= cutting length
NLA	= pinhole dimensions
NT	= grooving depth

P	= profile
POS	= cutter position
PT	= profile depth
PG	= profile group

QAL	= cutting material quality
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R	= radius
RD	= right hand twist
RH	= right hand rotation
RP	= radius of cutter

S	= shank dimension
SB	= cutting width
SET	= set
SLB	= slotting width
SLL	= slotting length
SLT	= slotting depth
SP	= tool steel
ST	= Cobalt-basis cast alloys, e.g. Stellite®
STO	= shank tolerance
SW	= cutting angle

TD	= diameter of tool body
TDI	= thickness of tool
TG	= pitch
TK	= reference diameter

UT	= cutting edges with irregular pitch
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V	= number of spurs
$v_c$	= cutting speed
$v_f$	= feed speed
VE	= packing unit
VSB	= adjustment range

WSS	= workpiece material
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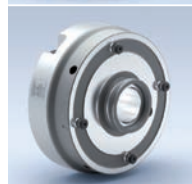
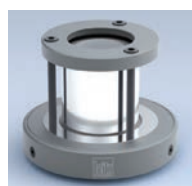
Z	= number of teeth
ZA	= number of fingers
ZF	= tooth shape (cutting edge shape)
ZL	= finger length

### Notes to the Lexicon concerning the diagrams and tables

The statements made in the diagrams and tables relate to specific conditions and represent parameters from tests subjected to defined conditions. Variations when using tools in individual case due to special application conditions may be possible. Our support team will provide you with detailed information.



















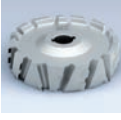












## 7. Clamping systems




























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## 7. Clamping systems











Adaptors  Tool types	 <b>Spindle without safety against twisting</b>	 <b>Spindle with safety against twisting - keyway</b>	 <b>Spindle with safety against twisting - hexagon Spindle D 30 Spindle D 40</b>	 <b>Spindle with HSK-F63 modified</b>
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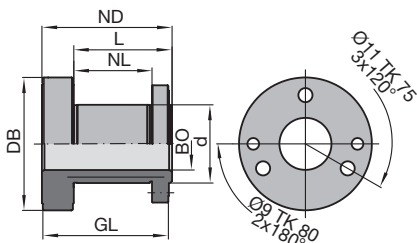
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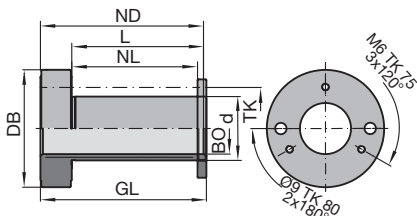


## 7. Clamping systems

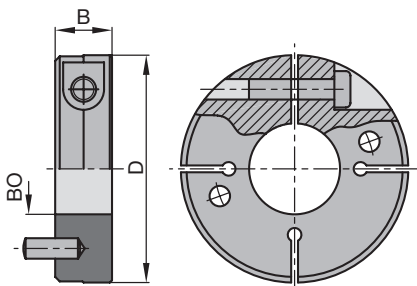
 <b>HSK-E 63</b>	 <b>HSK-F 63</b>	 <b>HSK 85 WS</b>	 <b>Threaded shank with/without tapered seating</b>
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Hydro-Duo clamping element PH 130 0 01 with clamping nut



Hydro-Duo clamping element PH 130 0 02 with end ring and clamping screws



Clamping collar without thread

### For spindle without safety device against twisting

#### Application:

Clamping sleeve for centric, play-free clamping of tools and cutterheads.

#### Machine:

Machines with high precision spindles e.g. moulders etc.

#### Technical information:

Hydro-Duo open clamping system, activation of hydro clamping by a grease gun. Suitable for right and left hand rotation.

#### With clamping nut

PH 130 0 01

d	BO	NL	L	GL	ND	DB	ID
mm	mm	mm	mm	mm	mm	mm	
60	40	60	75	100	100	102	030503 ●
60	50	60	75	100	100	102	030507 ●
60	50	40	55	80	80	102	030515 ●

#### Spare parts:

BEZ	ABM	ID
	mm	
Sickle spanner adjustable	D90/155; L290; DIN1816; tenon 6	005462 ●
Grease gun		008239 ●
Grease cartridge	for Hydro sleeve	007934 ●
Grease nipple	M10x1	007935 ●

#### With end ring and clamping screws

PH 130 0 02

d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
50	40	98	105	130	100	92	65	030600 ●
60	50	98	105	130	130	102	75	030602 ●

#### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 5	005452 ●
Grease gun		008239 ●
Grease cartridge	for Hydro sleeve	007934 ●
Grease nipple	M10x1	007935 ●
Cylindrical screw with ISK	M6x70	005936 ●
Cylindrical screw with ISK	M6x120	005942 ●

#### Clamping collars without thread

TD 870 0

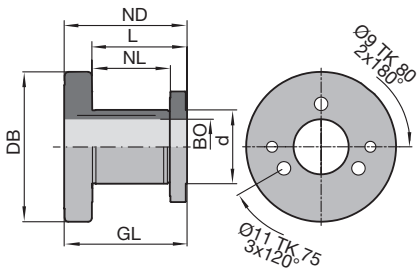
D	B	BO	ID
mm	mm	mm	
100	25	40	030700 ●
100	25	45	030701 ●
100	25	50	030702 ●



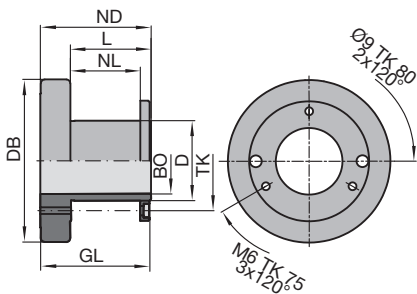
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### 7.1 Clamping elements

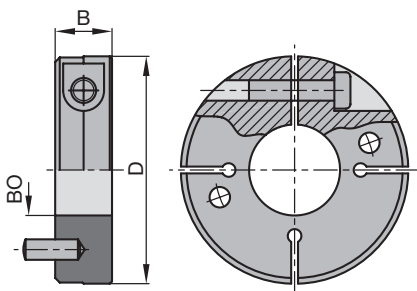
#### 7.1.2 Hydro clamping - closed system



Hydro-Duo clamping element  
PH 130 0 05 with clamping nut



Hydro-Duo clamping element  
PH 130 0 06 with end ring and clamping  
screws



Clamping collar without thread

#### For spindle without safety device against twisting

##### Application:

Clamping sleeve for centric clamping of tools, tool sets and cutterheads.

##### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines, window production machines etc.

##### Technical information:

Hydro-Duo closed hydro clamping system, activation of hydro clamping by internal clamping system without grease gun. Suitable for right and left hand rotation.

##### With clamping nut

PH 130 0 05

d	BO	NL	L	GL	ND	DB	ID
mm	mm	mm	mm	mm	mm	mm	
60	50	63	77	100	100	122	031601 ●
70	60	43	57	80	80	130	031604 ●

##### Spare parts:

BEZ	ABM	ID
	mm	
Sickle spanner adjustable	D90/155; L290; DIN1816; tenon 6	005462 ●

##### With end ring and clamping screws

PH 130 0 06

d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
60	50	52	60	83	83	122	75	031650 ●

##### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 5	005452 ●
Cylindrical screw with ISK	M6x70	005936 ●

##### Clamping collars without thread

TD 870 0

D	B	BO	ID
mm	mm	mm	
100	25	45	030701 ●
100	25	50	030702 ●



#### For spindle without safety device against twisting

##### Application:

Clamping sleeve for centric, play-free clamping of tool sets, for window tools on stacked spindle machines.

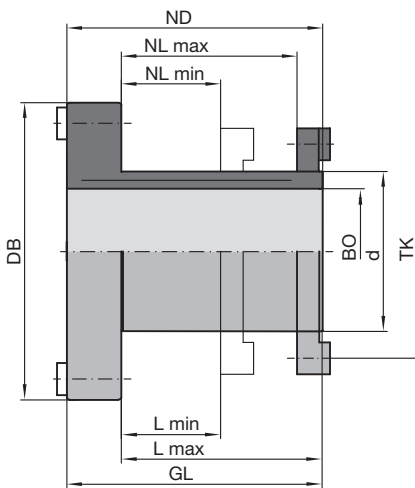
##### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines, window production machines etc.

##### Technical information:

Hydro-Duo closed hydro clamping system, activation of hydro clamping by internal clamping system without grease gun.

Total length of sleeves adjusted as required.



Hydro-Duo clamping element  
PH 130 0 13 with end ring, clamping  
screws and safety device against  
twisting

#### With end ring, clamping screws and safety device against twisting

PH 130 0 13

d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
50	40	35 - 55	43 - 63	80	80	93	65	031658 ●
50	40	55 - 75	63 - 83	100	100	93	65	031659 ●
50	40	75 - 95	83 - 103	120	120	93	65	031660 ●
60	40	95 - 115	103 - 123	140	140	93	75	031661 ●
60	50	35 - 55	43 - 63	80	80	93	75	031655 ●
60	50	55 - 75	63 - 83	100	100	93	75	031652 ●
60	50	75 - 95	83 - 103	120	120	93	75	031653 ●
60	50	95 - 115	103 - 123	140	140	93	75	031654 ●
60	50	115 - 135	123 - 143	160	160	93	75	031657 ●

##### Spare parts:

BEZ	ABM	BEM	ID
	mm		
Cylindrical screw with ISK	M6x50		005932 ●
Cylindrical screw with ISK	M6x70		005936 ●
Cylindrical screw with ISK	M6x90		005939 ●
Cylindrical screw with ISK	M6x100		005940 ●
Cylindrical screw with ISK	M6x110		005941 ●
Cylindrical screw with ISK	M6x130		006542 ●
Cylindrical screw with ISK	M6x150		006400 ●
Countersink screw, Torx® 15	M4x6	for feather key 3	007436 ●
Countersink screw, Torx® 15	M4x10-12.9	for feather key 1,2,4	007437 ●
Feather key 1	19x8x7		008525 ●
Feather key 2	10x8,5x6,5		008526 ●
Feather key 3	19x8x3,5		008527 ●
Allen key	SW 5		005452 ●
Torx® key	Torx® 15		117507 ●

#### End ring with safety device against twisting

TR 112 0

D	BO	TK	B	ID
mm	mm	mm	mm	
85	50	65	8	008245
93	60	75	8	008222 ●



### Spindle without safety device against twisting - Hydro-Duo clamping sleeve with stepless fine adjustment of 2 part tool sets

#### Application:

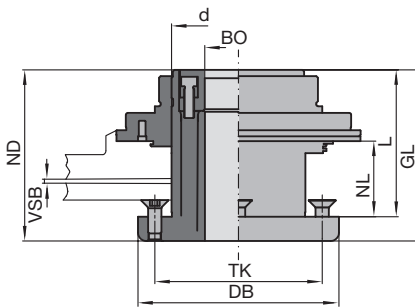
Hydro-Duo clamping sleeve with fine thread and axial piston clamping for stepless adjustment of 2 part tool sets. Additional clamping collar with safety device against twisting.

#### Machine:

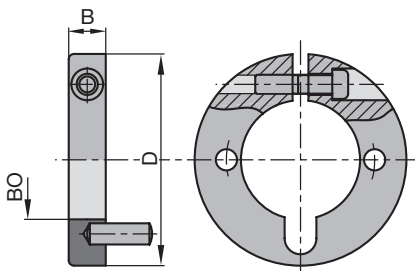
Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines etc.

#### Technical information:

High precision fine thread adjustment with a 0.01 mm scale for fine adjustment of 2 part cuttersets with repeatability. Adjustment range 10 mm. Maintenance free hydro clamping mechanism.



Hydro-Duo clamping element with axial piston clamping and fine adjustment  
PH 130 0 11



Clamping collar without thread

#### With Hydro-Duo 2 chamber axial piston clamping and fine adjustment

PH 130 0 11

d	BO	BO	NL	L	GL	ND	DB	VSB	TK	ID
mm	mm	in	mm	mm	mm	mm	mm	mm	mm	
80	40		33,5 - 43,5	88	108	108	120	10	100	031555 □
100	50		60 - 70	102	117	117	140	10	120	030566 ●
100	53,97	2 1/8"	60 - 70	102	112	117	140	10	120	031552 ●

#### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 5	005452 ●

#### Clamping collars without thread

TD 870 0

D	B	BO	BO	ID
mm	mm	mm	in	
80	14	40		030713
80	14	45		030714
80	14	50		030716



### For spindle without safety device against twisting - Hydro-Duo clamping sleeve for saws, cutters and hoggers

#### Application:

Hydro-Duo clamping sleeve for high precision clamping and flexible positioning of saws, cutters and hoggers on spindles without using spacers or spindle nuts.

#### Machine:

Multi-blade circular saw machines, four-sided moulders, double-end tenoners etc.

#### Technical information:

Closed hydro clamping system with maintenance free pressure piston mechanism.

#### With integrated safety device against twisting

PH 130 0 10

d	BO	NLA	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	mm	
60	40	3/M6/75	35	35	69	69	100	75	<b>030572 ●</b>
60	50	3/M6/75	35	35	69	69	100	75	<b>030574 ●</b>
90	70	6/M6/106	35	35	70	70	120	106	<b>030571</b>
115	100	6/M6/131	14	14	49,5	49,5	145	131	<b>030557 ●</b>
115	100	6/M6/131	48,5	48,5	84	84	145	131	<b>030555 ●</b>

with clamping screws.

#### Spacer set, aluminium screwed, for mounting saws

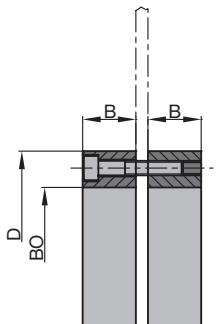
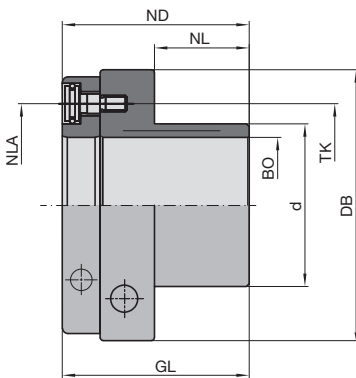
AT 102 0

D	B	BO	NLA	ID
mm	mm	mm	mm	
120	30	90	6/7/106	<b>028482</b>
145	44	115	6/7/131	<b>028480 ●</b>

#### Steel spacers, for mounting sets of sawblades

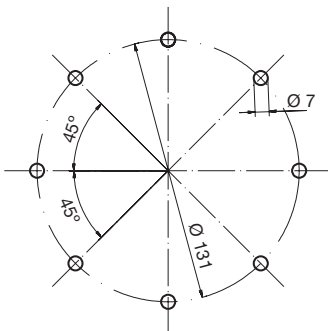
TR 100 0

D	B	BO	NLA	ID
mm	mm	mm	mm	
120	0,5	90	8/7/106	<b>028679 ●</b>
120	1	90	8/7/106	<b>028680 ●</b>
145	0,5	115	8/7/131	<b>028683 ●</b>
145	1	115	8/7/131	<b>028684 ●</b>
145	3	115	8/7/131	<b>028685</b>
145	5	115	8/7/131	<b>028686</b>

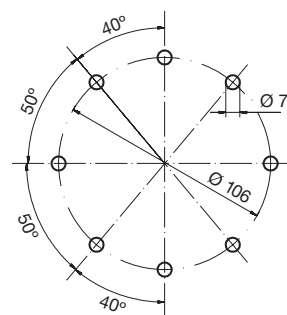


Set of spacers

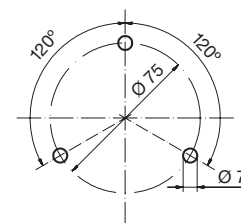
Bore pattern for tools for mounting on:



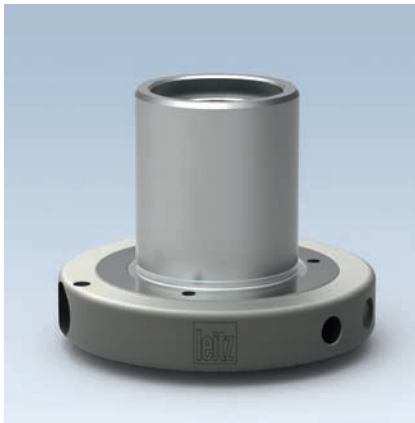
Hydro sleeve ID **030555** and **030557**



Hydro sleeve ID **030571**



Hydro sleeve ID **030572** und **030574**



#### Spindle with safety device against twisting - hexagon HF spindle 40 Hydro-Duo clamping sleeve

##### Application:

Hydro-Duo clamping element for play-free clamping of cutting tools on high precision spindle with hexagon safety device against twisting (HF spindle) for high concentricity.

##### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressure piston mechanism.  
RPM  $n_{\max}$  12000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!



##### With end ring and clamping screws, for tool sets with bore 60 mm

PH 130 0 04

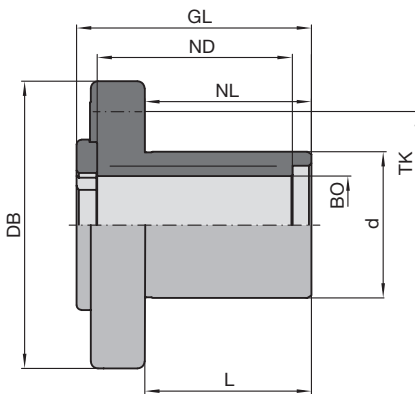
d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
60	40	68	68	96,5	88	118	75	<b>030559 ●</b>

Spindle fixture consisting of:

Conical spring washer, clamping screw, hexagon spanner, brace.

##### Spare parts:

BEZ	ABM	ID
	mm	
Securing part	for HF-spindle HF 40	<b>066473 ●</b>
Allen key	SW 5	<b>005452 ●</b>

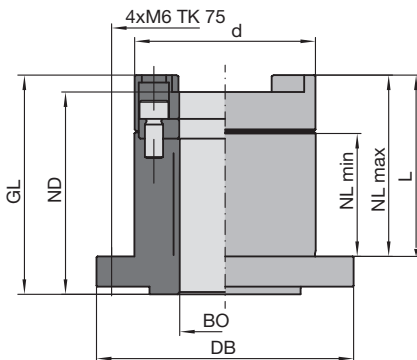


Hydro Duo clamping element  
PH 130 0 04

## 7. Clamping systems

### 7.1 Clamping elements

#### 7.1.2 Hydro clamping - closed system



Hydro clamping sleeve PH 130 0

#### Spindle with safety device against twisting - hexagon HF spindle 30 Hydro clamping sleeve

##### Application:

Hydro clamping sleeve for play-free clamping of cutting tools on high precision spindle with hexagon safety device against twisting (HF spindle 30) for high concentricity.

##### Machine:

Machines with high precision spindles diameter 30 mm, e.g. edgebanding machines, double-end tenoners, moulders etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressure piston mechanism. User friendly axial handling of the hydro clamping screw from top. Safety against twisting on the spindle through an appropriate hexagon in the spindle fixture. RPM  $n_{\max}$  12000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!

##### For cutting tools with bore 60 mm

PH 130 0

d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
60	30	40 - 60	60	72,5	67	85	75	<b>030567 •</b>

Spindle securing part consists of:

Securing parts, clamping screw, hexagon spanner, brace.

##### Spare parts:

BEZ	ABM	ID
	mm	
Securing part	for HF-spindle HF 30	<b>066563 •</b>
Allen key	SW 5, L 150	<b>005501 •</b>



## 7. Clamping systems

### 7.1 Clamping elements

#### 7.1.2 Hydro clamping - closed system



#### Spindle with safety device against twisting - hexagon HF spindle 40 Hydro clamping sleeve

##### Application:

Hydro clamping sleeve for play-free clamping of hogging/cutting tools on high precision spindle with hexagon safety device against twisting (HF spindle) for high concentricity.

##### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressure piston mechanism.  
RPM  $n_{\max}$  12000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!



##### For cutting tools and hoggers with bore 60/80 mm

PH 130 0 03

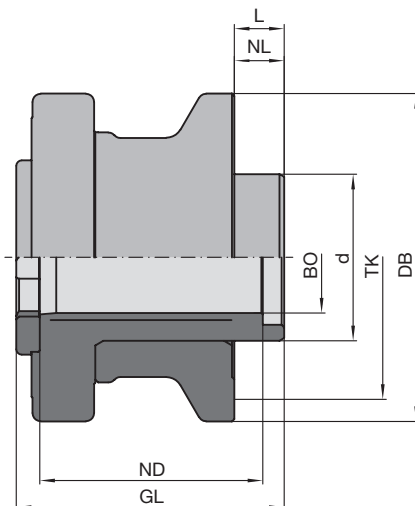
d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
60	40	18	18	96,5	80,3	118	100	<b>061702 ●</b>
80	40	18	18	96,5	80,3	118	100	<b>061703 ●</b>

Spindle fixture consisting of:

Conical spring washer, clamping screw, hexagon spanner, brace.

##### Spare parts:

BEZ	ABM	ID
	mm	
Securing part	for HF-spindle HF 40	<b>066473 ●</b>

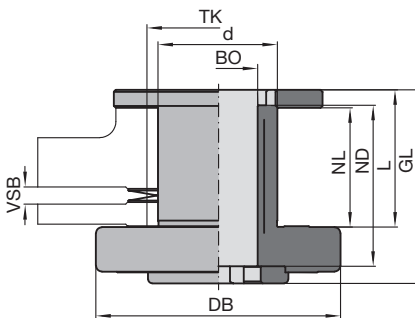


Hydro clamping sleeve PH 130 0 03

## 7. Clamping systems

### 7.1 Clamping elements

#### 7.1.2 Hydro clamping - closed system



Hydro-Duo clamping sleeve with fine adjustment PH 130 0 07

#### Spindle with safety device against twisting - hexagon HF spindle 40 Hydro-Duo clamping sleeve, adjustable

##### Application:

Hydro-Duo clamping sleeve for play-free clamping of cutting tools on high precision spindle with hexagon safety device against twisting (HF spindle). With extra fine thread and dual piston clamping for stepless adjustment of 2 part tool sets on the spindle.

##### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressure piston mechanism. RPM  $n_{\max}$  12000 min<sup>-1</sup>. Dual piston clamping, independent clamping: sleeve - spindle and sleeve - tool.

**Attention:** Comply with maximum admissible speed for the mounted tools!

##### With dual piston clamping and hexagon safety device against twisting, fine adjustment

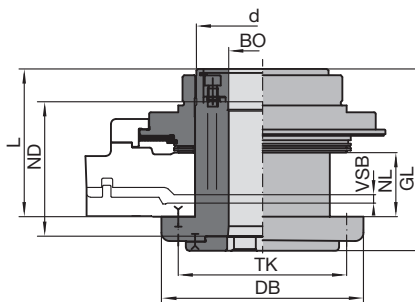
PH 130 0 07

d	BO	NL	L	GL	ND	DB	TK	VSB	ID
mm	mm	mm	mm	mm	mm	mm	mm		
60	40	57 - 59	68	96,5	80	122	75	2	<b>030553 •</b>
60	40	49 - 59	68	106,5	80	122	75	10	<b>030556 •</b>

Included in delivery: Duo sleeve complete with parts for mounting cutter and adjusting mechanism.

##### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 5	<b>005452 •</b>



Hydro-Duo clamping element with axial piston clamping and fine adjustment  
PH 130 0 14

### Spindle with safety device against twisting - hexagon HF spindle 40 Hydro-Duo clamping sleeve, adjustable

#### Application:

Hydro-Duo clamping sleeve for play-free clamping of cutting tools on high precision spindle with hexagon safety device against twisting (HF spindle). Model with extra fine thread and axial dual piston clamping for stepless adjustment of 2 part tool sets on the spindle.

#### Machine:

Machines with high precision spindles, e.g. moulders, double-end tenoners, edgebanding machines etc.

#### Technical information:

Closed Hydro-Duo clamping system with axial dual piston clamping, independent clamping: sleeve - spindle and sleeve - tool.

#### With dual piston clamping and hexagon safety device against twisting, fine adjustment

PH 130 0 14

d	BO	NL	L	GL	ND	DB	TK	VSB	ID
mm	mm	mm	mm	mm	mm	mm	mm	mm	
80	40	33,5 - 43,5	88	108	80	120	100	10	031560 ●
80	40	44,4 - 54,4	88	108	80	120	100	10	030562 □

#### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 5	005452 ●



#### Flanged sleeve

##### Application:

Flanged sleeve for mounting scoring and grooving sawblades.

##### Machine:

Double-end tenoners, edgebanding machines etc.

##### Technical information:

For standard spindle (DKN). Case hardened steel tool body with high concentricity. Spindle fixing parts are supplied by the machine manufacturer.

##### For circular sawblades with bore 65 mm

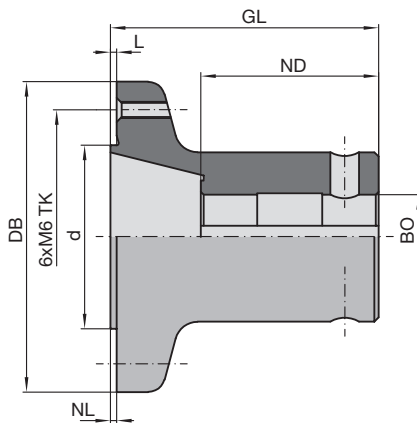
TB 300 0

Machine	d mm	BO mm	NL mm	L mm	GL mm	ND mm	DB mm	TK mm	ID
Homag, IMA	65	30 DKN	2,2	2,2	95	63	110	90	<b>065600 •</b>
Homag, IMA	65	35 DKN	2,2	2,2	95	63	110	90	<b>065606 •</b>

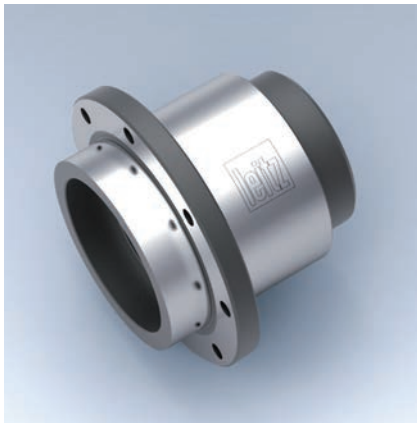
When ordering ID **65600**, check whether locking disk ID **66567** is required.

##### Spare parts:

BEZ	Machine	ABM mm	ID
Countersink screw with ISK		M6x10	<b>005780 •</b>
Spindle fixture left for sleeve ID 65600	Homag, IMA	48x24x18	<b>066561 •</b>
Spindle fixture right for sleeve ID 65600	Homag, IMA	48x24x18	<b>066562 •</b>
Spindle fixture left for sleeve ID 65606	Homag, IMA	60x18x21	<b>116015 •</b>
Spindle fixture right for sleeve ID 65606	Homag, IMA	60x18x21	<b>116016 •</b>
Locking disc for sleeve ID 65600	Homag, IMA	40x9x17	<b>066567 •</b>



Flanged sleeve TB 300 0



#### Flanged sleeve

##### Application:

Flanged sleeve for mounting hoggers, segment hoggers, solid hoggers and folding hoggers.

##### Machine:

Double-end tenoners, finger joint machines, edgebanding machines etc.

##### Technical information:

For standard spindle (with or without keyway). Case hardened steel tool body with high concentricity. Spindle fixing parts are supplied by the machine manufacturer.

##### For cutting and hogging tools with bore 80 mm

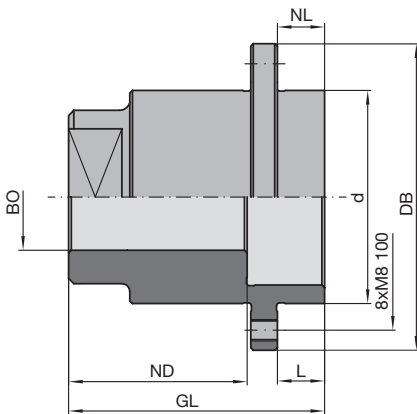
TB 300 0, TB 300 0 01, TB 300 0 03, TB 300 0 06, TB 300 0 08, TB 300 0 11, TB 300 0 12

Machine	d	BO	NL	L	GL	ND	DB	TK	ID
	mm	mm	mm	mm	mm	mm	mm	mm	
Schwabedissen	80	40 DKN	17,7	17,7	82	53	115	100	<b>061654 ●</b>
Torwegge	80	35 DKN	17,7	17,7	90	63	115	100	<b>061655 ●</b>
Celaschi	80	35 KN	17,7	17,7	95	65	115	100	<b>061652 ●</b>
Grecon, Weinig	80	30 KN	17,7	17,7	75	45	115	100	<b>061660 ●</b>
Homag, IMA	80	35 DKN	17,7	17,7	90	63	115	100	<b>061650 ●</b>
Homag	80	35 DKN	17,7	17,7	104	63	115	100	<b>061685 ●</b>
* Gabbiani	80	40 DKN	17,7	17,7	82	52	115	100	<b>061657 ●</b>
Dimter, Grecon, Weinig	80	40 DKN	12,7	12,7	59	44	113	100	<b>061679 ●</b>

\* = L and KLH values include 13 mm spacer thickness.

##### Spare parts:

BEZ	ABM	ID
	mm	
Cylindrical screw with ISK	M8x18	<b>005945 ●</b>
Cylindrical screw with ISK	M8x20	<b>005946 ●</b>



Flanged sleeve TB 300 0



#### Clamping sleeve with end ring

##### Application:

Clamping sleeve for mounting sets of single tools.

##### Machine:

Spindle moulders, moulders, double-end tenoners, edgebanding machines and window production machines.

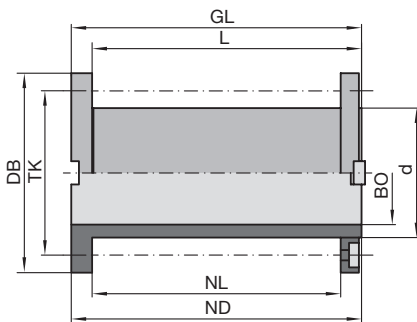
##### Technical information:

Suitable for the use with several tool sets mounted on top of each other e.g. stacked spindle machines.

##### With end ring and safety device against twisting

TB 260 0

d	BO	NL	L	GL	ND	DB	TK	ID
mm	mm	mm	mm	mm	mm	mm	mm	
50	40	96	104	112	112	77	65	029676 ●
60	40	96	104	112	112	90	75	029677 ●
60	40	84	92	100	100	90	75	029678 ●
60	50	84	92	100	100	90	75	029679 ●
60	50	79	87	95	95	90	75	029680 ●
60	50	64	72	80	80	90	75	029697 ●



Clamping sleeve TB 260 0 with end ring and safety device against twisting

##### Spare parts:

BEZ	for L	ABM	ID
	mm	mm	
Cylindrical screw with ISK	72	M6x74	007075 ●
Cylindrical screw with ISK	92	M6x94	007077 ●
Cylindrical screw with ISK	104	M6x106	007078 ●
Countersink screw, Torx® 15		M4x10-12.9	007437 ●
Feather key		B 8x7x16	008506 ●
Allen key		SW 5	005452 ●
Torx® key		Torx® 15	117507 ●

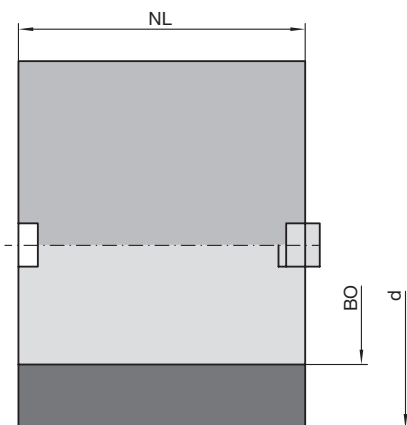
##### Application:

Spacer element for use with clamping sleeves with safety device against twisting to fill free spindle lengths.

##### Spindle filler spacers with safety device against twisting

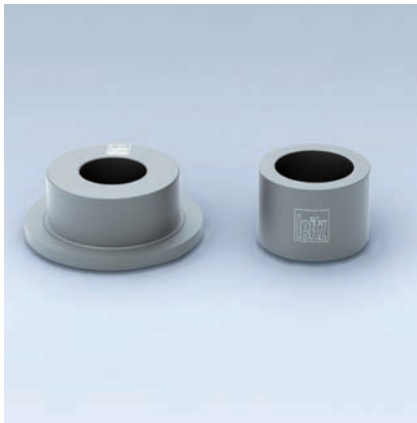
TR 112 0

d	BO	NL	ID
mm	mm	mm	
77	50	60	027875
77	50	80	027876
77	50	100	027878



Spacer with safety device against twisting





### Reducing sleeve

#### Application:

Reducing sleeve with/without flange for cutting tools and tool sets for use on spindles of various diameters.

#### Machine:

Spindle moulders, plug cutters etc.

#### Technical information:

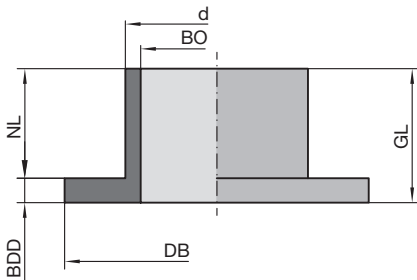
The length of the reducing sleeve should be approximately 2 mm shorter than the width of the hub or the total height of the tool/tool set.

For safety reasons, the use of reducing sleeves should be avoided if possible.

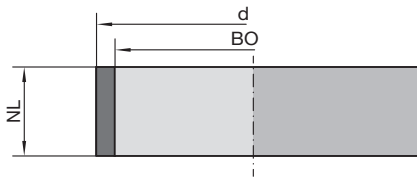
#### With flange

TB 200 0

d	BO	BO	NL	GL	DB	BDD	ID
mm	mm	in	mm	mm	mm	mm	
30	25		18	22	50	4	028201
35	30		18	23	55	5	028204 ●
40	30		18	24	60	6	028206 ●
40	35		18	24	60	6	028207 ●
40	31,75	1 1/4"	18	24	60	6	028220
50	30		18	24	70	6	028208 ●
50	35		18	24	70	6	028210
50	40		18	24	70	6	028211 ●
50	45		18	24	70	6	028209
60	30		18	24	80	6	028212
60	40		18	24	80	6	028214 ●
60	50		18	24	80	6	028216



Reducing sleeve TB 200 0 with flange



Reducing sleeve TB 100 0 01 without flange

#### Without flange

TB 100 0 01

d	BO	NL	ID
mm	mm	mm	
35	30	10	028290 ●
35	30	40	028293 ●
35	30	60	028294
35	30	96	028295
40	30	20	028296 ●
40	30	40	028298 ●
40	30	53	028300
40	30	60	028301
40	30	96	028302 ●
40	35	30	028304
40	35	40	028305
40	35	60	028306
40	35	96	028307
50	40	96	028310 ●

## 7. Clamping systems

### 7.2 Quick clamping elements

#### 7.2.1 Hydro clamping - closed system



#### Spindle with safety device against twisting - hexagon HF spindle 40 Quick clamping sleeve type 160 Hydro

##### Application:

Quick clamping sleeve for tools and hoggers on high precision spindle  $D = 40$  mm with hexagon safety device against twisting.

##### Machine:

Double-end tenoners, edgebanding machines etc.

##### Technical information:

Hardened steel tool body, with mechanical quick clamping mechanism without compressed air. Tool is mounted directly on the quick clamping system without intermediate flange, closed hydro clamping system with maintenance free pressure piston mechanism, suitable for right hand and left hand rotation.

$RPM n_{max} = 9000 \text{ min}^{-1}$ . Tools must have four bayonet holes on 130 mm pitch.

**Attention:** Comply with maximum admissible speed for the mounted tools!

##### For tools and hoggers

PH 110 0 01

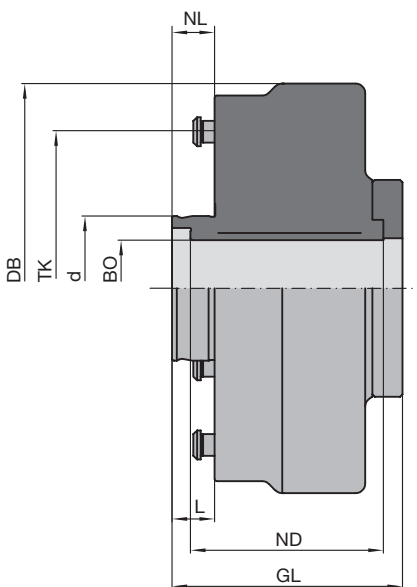
d	BO	NL	L	GL	ND	DB	TK	Clamping bolts	ID
mm	mm	mm	mm	mm	mm	mm	mm	PCS	
60	40	17,7	17,7	95,7	80	170	130	4	<b>150100 •</b>

##### Spare parts:

BEZ	ABM	ID
	mm	
Securing part	for HF-spindle HF 40	<b>066473 •</b>
Hexagon key	SW 6	<b>117516 •</b>

Spindle securing part consists of:

Conical spring washer, clamping screw, hexagon spanner, brace.



Hydro quick clamping sleeve  
type 160 HF



### Spindle with safety device against twisting - hexagon HF spindle 40 Quick clamping sleeve type 160 Hydro-Duo

#### Application:

Quick clamping sleeve for tools and hoggers on high precision spindle  $D = 40$  mm with hexagon safety device against twisting. Double acting hydro centering clamping eliminating the tolerance between spindle, clamping element and tool.

#### Machine:

Double-end tenoners, edgebanding machines etc.

#### Technical information:

Hardened steel tool body, with mechanical quick clamping mechanism without compressed air. Tool is mounted directly on the quick clamping system without intermediate flange, closed hydro clamping system with maintenance free pressure piston mechanism, suitable for right hand and left hand rotation.

$RPM n_{max} = 9000 \text{ min}^{-1}$ . Tools must have four bayonet holes on 130 mm pitch.

**Attention:** Comply with maximum admissible speed for the mounted tools!

#### For tools and hoggers

PH 110 0 02

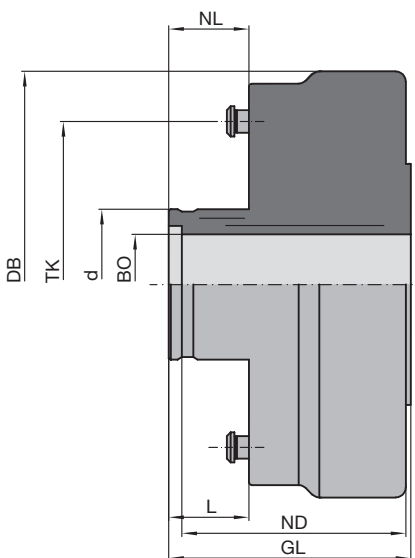
d	BO	NL	L	GL	ND	DB	TK	Clamping bolts	ID
mm	mm	mm	mm	mm	mm	mm	mm	PCS	
60	40	32	32	96,5	80	170	130	4	<b>150200 ●</b>

#### Spare parts:

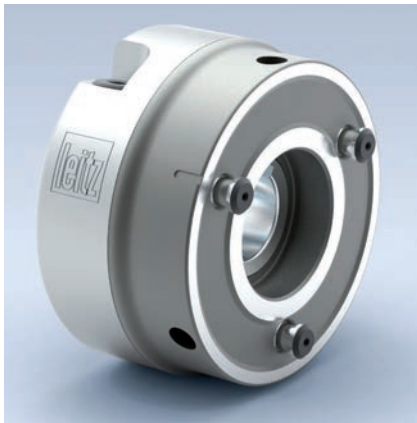
BEZ	ABM	ID
	mm	
Securing part	for HF-spindle HF 40	<b>066473 ●</b>
Hexagon key	SW 6	<b>117516 ●</b>

Spindle securing part consists of:

Conical spring washer, clamping screw, hexagon spanner, brace.



Hydro-Duo quick clamping sleeve type 160 HF



### Spindle with safety device against twisting - keyway Quick clamping sleeve type 110

#### Application:

For quick clamping of scoring sawblades, grooving sawblades and tools.

#### Machine:

Double-end tenoners, finger joint machines, edgebanding machines etc.

#### Technical information:

For standard spindle (DKN), hardened steel tool body with mechanical operation of the quick clamping mechanism without compressed air. Tool is mounted directly or by using a flange, suitable for right hand rotation and left hand rotation.

#### For scoring sawblades and tools

PM 110 0 01

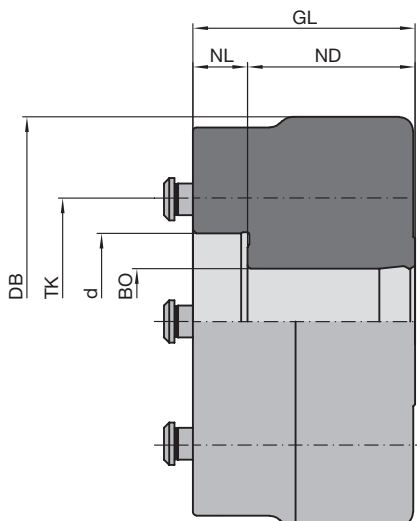
d	BO	NL	L	GL	ND	DB	TK	Clamping bolts	ID
mm	mm	mm	mm	mm	mm	mm	mm	PCS	
50	30 DKN	15,5	15,5	72	47,5	116	80	3	<b>150000 •</b>

#### Spare parts:

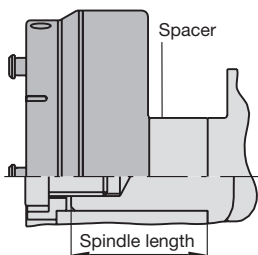
BEZ	Machine	ID	ID
		LH	RH
Securing part	IMA	<b>066477 •</b>	<b>066477 •</b>
Securing part	Homag	<b>066541 •</b>	<b>066540 •</b>
Hexagon key			<b>117516 •</b>

Spindle securing part consists of:

Conical spring washer, clamping nut or clamping screw, spanner or hexagon spanner, brace.



Quick clamping sleeve



Quick clamping sleeve, flush mounted on spindle

#### Application:

Spacer for flush mounting when using flanges type 110/2.

#### Spacer for flush mounting

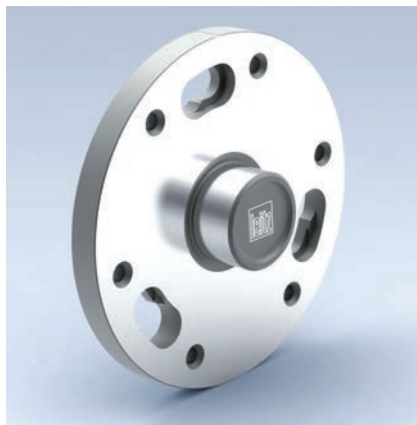
TR 111 0

Machine	ABM	ABM-spindle	ID
	mm	mm	
Homag, IMA	60x26x30,DKN	30 DKN x68	<b>028800</b>

## 7. Clamping systems

### 7.2 Quick clamping elements

#### 7.2.2 Mechanical clamping



#### Spindle with safety device against twisting - keyway tool flange type 110

##### Application:

Tool flange for quick clamping sleeve type 110. Hardened steel tool body for quick clamping of scoring/grooving sawblades.

##### Machine:

Double-end tenoners, finger joint machines, edgebanding machines etc.

##### Technical information:

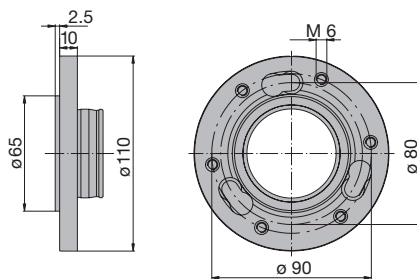
Tool mounted directly on tool flange. RPM  $n_{\max}$  12000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!

##### Tool flange

TD 883 0 01

Tool Type	ID LH	ID RH
110/2 for scoring saws mounted on flange	159051	159052



Tool flange type 110/2 for scoring saws



### Spindle with safety device against twisting - keyway Quick clamping sleeve type 160

#### Application:

For quick clamping of hoggers and tools.

#### Machine:

Double-end tenoners, edgebanding machines etc.

#### Technical information:

For standard spindle (KN/DKN). Hardened steel tool body, with mechanical operation of the quick clamping mechanism without compressed air. Tool is mounted directly on the quick clamping sleeve or by a flange, suitable for right hand rotation and left hand rotation. RPM  $n_{\max}$  9000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!



#### For tools and hoggers

PM 110 0 01

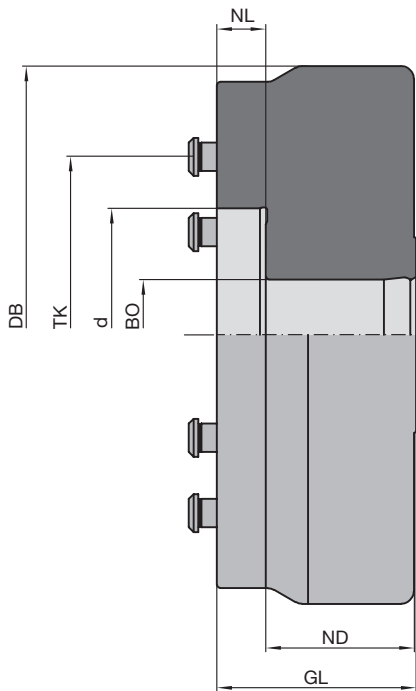
d	BO	NL	L	GL	ND	DB	TK	Clamping bolts	ID
mm	mm	mm	mm	mm	mm	mm	mm	PCS	
80	35 DKN	15,5	15,5	72	47,5	170	130	4	<b>150001 •</b>
80	40 DKN	15,5	15,5	72	47,5	170	130	4	<b>150008 •</b>

#### Spare parts:

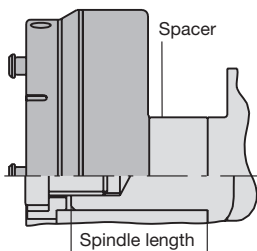
Machine	BEZ	ID	ID
		LH	RH
Homag	Securing part	<b>066460 •</b>	<b>066461 •</b>
IMA	Securing part	<b>066556 •</b>	<b>066556 •</b>
	Hexagon key		<b>117516 •</b>

Spindle securing part consists of:

Conical spring washer, clamping nut or clamping screw, spanner or hexagon spanner, brace.



Quick clamping sleeve



Quick clamping sleeve, flush mounted on spindle

#### Application:

Spacer for flush mounting when using cutter flange type 160/2, type 160/3.

#### Spacer / set for flush mounting

AT 100 0

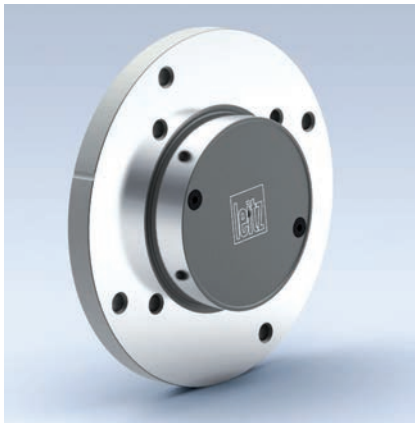
Machine	Type	ABM mm	ABM-spindle mm	ID
IMA	160/2 - 3	60x15/20x35,DKN	35 DKNx93	<b>028803 •</b>
Homag	160/2 - 3	60x10/20x35,DKN	35 DKNx70	<b>028804 •</b>



## 7. Clamping systems

### 7.2 Quick clamping elements

#### 7.2.2 Mechanical clamping



#### Spindle with safety device against twisting - keyway tool flange type 160

##### Application:

Tool flange for quick clamping sleeve type 160. Hardened steel tool body for quick clamping of tools and hoggers.

##### Machine:

Double-end tenoners, finger joint machines, edgebanding machines etc.

##### Technical information:

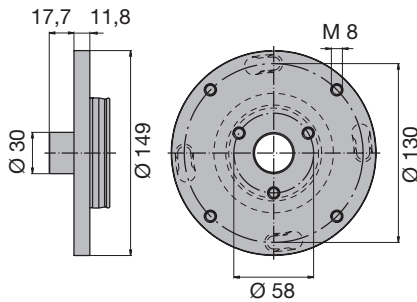
Tool mounted directly on the flange. RPM  $n_{\max}$  9000 min<sup>-1</sup>.

**Attention:** Comply with maximum admissible speed for the mounted tools!

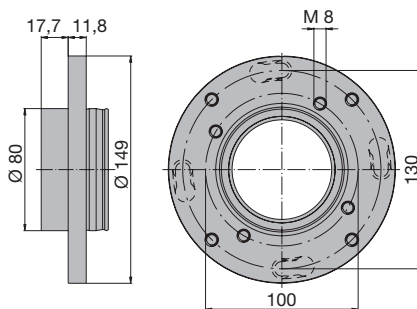
##### Tool flange

TD 882 0 01, TD 883 0 01

Tool Type	ID LH	ID RH
160/1 for cutting tools BO 30 mm/NL 17.7	<b>159059</b>	<b>159060</b>
160/2 for hoggers BO 80 mm/NL 17.7	<b>159063</b>	<b>159064</b>



Tool flange type 160/1, for tools



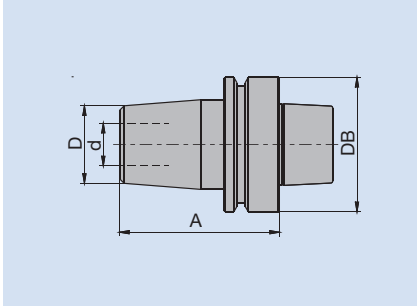
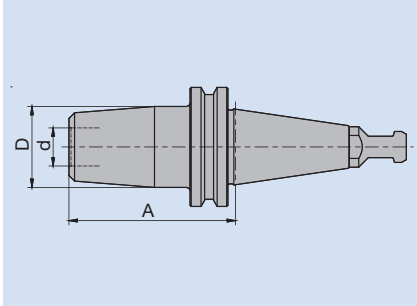
Tool flange type 160/2, for hoggers

## 7. Clamping systems

### 7.3 Clamping chucks

#### 7.3.1 Shrink-fit chucks

<b>Application</b>	Clamping of shank tools with high precision and stability.
<b>Machine</b>	Stationary routers with/without CNC control and cutter spindles for automatic tool change. Milling machines with cutter spindles for automatic tool change.

<b>Technical features</b>	 
	Shrink-fit chuck with hollow taper shank.      Shrink-fit chuck with steep taper.
D	Largest diameter of the chuck in the clamping area
d	Clamping or bore diameter
DB	Outer diameter of groove
A	Length from reference point on steep taper or HSK reference surface

Permissible shank tolerances	Tools clamped in shrink-fit chucks must have at least the following tool shank tolerances:	
	Diameter of shank	
Tools mounted in Shrink-fit chucks	< 12 mm	≥ 12 mm
	ISO h6	ISO g6

<b>Application data</b>	<b>Maximum RPM</b> The maximum RPM for shrink-fit chucks: $n_{\max} = 36000 \text{ min}^{-1}$ .
-------------------------	--

<b>Operation</b>	<p>Shrink-fit chucks have a bore smaller than the diameter of the shank to be clamped. The chuck is opened by heating the chuck in the clamping area. The HF generator, enables quick and secure expansion of the shrink-fit chucks by induction heating allowing.</p> <p>The tool can be fitted / replaced. After the chuck has cooled down the tool is ready for use.</p> <p>After short, quick heating the tool can be removed or fitted. After the chuck has cooled down the tool can be used.</p>
------------------	--



Leitz High Frequency Generator ISG3400.



### Shrink-fit chuck ThermoGrip® Tapered

#### Application:

High precision tool chuck for clamping shank tools by thermal shrinking. Has the highest stability and rigidity of all known shank tools clamping systems, suitable for HSC and HPC machining.

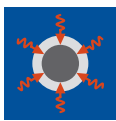
#### Technical information:

Tool chuck for high performance. Precision-balanced for speeds up to 36000 min<sup>-1</sup>. Short, slim design for improved chip flow extraction. For clamping tungsten carbide and steel shanks. Clamping eccentricity  $e \leq 0.01$  mm. Integrated length adjustment to adapt the clamping depth of the tool.

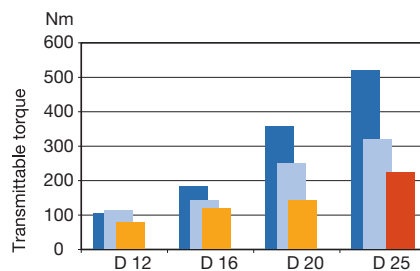
#### SK 30, DIN ISO 7388

PT 301 0

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	Length adj. mm	STO	ID
A	12	34	50	70	141,8	0,7	7	g6	670200 □
A	16	34	50	70	141,8	0,7	7	g6	670201 □
A	20	42	50	70	141,8	0,8	7	g6	670202 □
A	25	42	50	80	151,8	1,0	7	g6	670210 □
B	12	34	50	70	141,8	0,7	7	g6	670203 □
B	16	34	50	70	141,8	0,7	7	g6	670204 □
B	20	42	50	70	141,8	0,8	7	g6	670205 □
B	25	42	50	80	151,8	1,0	7	g6	670211 □



Comparison of transferable torque of traditional clamping chucks



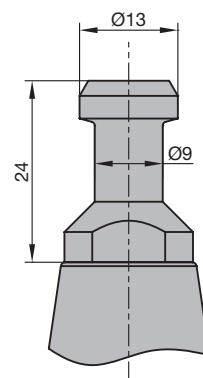
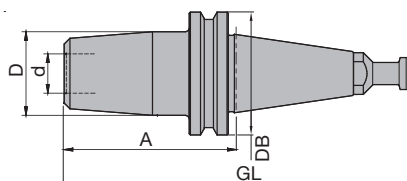
#### SK 40, DIN ISO 7388

PT 301 0

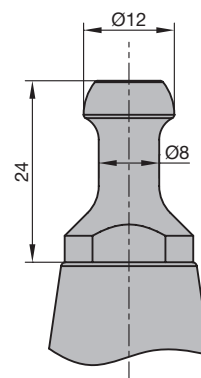
Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	Length adj. mm	STO	ID
E	12	34	63,5	70	164,4	1,1	7	g6	670206 □
E	16	34	63,5	70	164,4	1,1	7	g6	670207 □
E	20	42	63,5	70	164,4	1,2	7	g6	670208 □
E	25	42	63,5	80	174,4	1,2	7	g6	670209 □

- ThermoGrip® shrink-fit chuck
- Collet DIN ISO 10897-B25, 75 Nm Tightening torque
- Collet DIN ISO 15488-B32 (ER32), 75 Nm Tightening torque
- Hydro clamping chuck

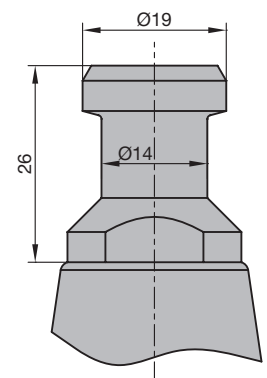
The clamping range of collet chucks and hydro clamping chucks includes shank tolerances g7 and h6. Leitz ThermoGrip® chucks are designed for a shank tolerance h6 for clamping diameters  $d < 12$  mm and a shank tolerance g6 for clamping diameters  $d \geq 12$  mm.



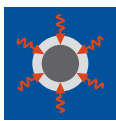
Type: A  
SK 30 pull stud as per  
DIN ISO 7388



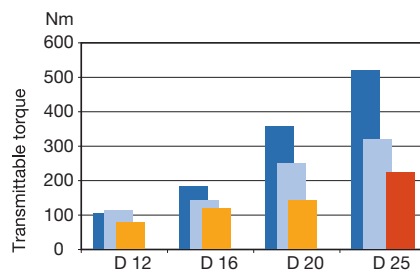
Type: B  
SK 30/ISO 30 pull stud  
for HSD spindles from  
construction year 9/92 on



Type: E  
SK 40 pull stud as per  
DIN ISO 7388

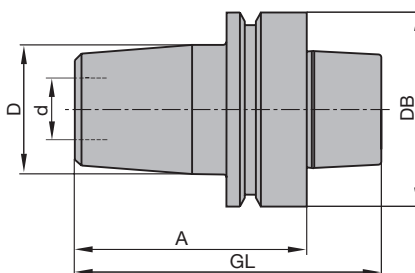


Comparison of transferable torque of traditional clamping chucks



- ThermoGrip® shrink-fit chuck
- Collet DIN ISO 10897-B25, 75 Nm Tightening torque
- Collet DIN ISO 15488-B32 (ER32), 75 Nm Tightening torque
- Hydro clamping chuck

The clamping range of collet chucks and hydro clamping chucks includes shank tolerances g7 and h6. Leitz ThermoGrip® chucks are designed for a shank tolerance h6 for clamping diameters  $d < 12$  mm and a shank tolerance g6 for clamping diameters  $d \geq 12$  mm.



### Shrink-fit chuck ThermoGrip® with hollow taper shank

#### Application:

High precision tool chuck for clamping shank tools by thermal shrinking. Has the highest stability and rigidity of all known shank tools clamping systems, suitable for HSC and HPC machining.

#### Technical information:

Tool chuck for high performance. Precision-balanced for speeds up to 36000 min<sup>-1</sup>. Short, slim design for improved chip flow extraction. For clamping tungsten carbide and steel shanks. Clamping eccentricity  $e \leq 0.01$  mm.

#### HSK-E 63, DIN 69893

PT 300 0

d mm	D mm	DB mm	A mm	GL mm	Weight kg	STO	ID without chip
8	27	63	75	107	0,9	h6	670002 ●
9,53	34	63	75	107	0,9	h6	670023 ●
10	32	63	75	107	0,9	h6	670003 ●
12	34	63	75	107	0,9	g6	670004 ●
12,7	34	63	75	107	0,9	h6	670024 ●
14	34	63	75	107	0,9	g6	670005 ●
16	34	63	75	107	0,9	g6	670006 ●
18	42	63	75	107	1,0	g6	670007 ●
20	42	63	75	107	1,0	g6	670008 ●
25	42	63	75	107	1,0	g6	670009 ●
32	53	63	90	122	1,2	g6	670016 ●

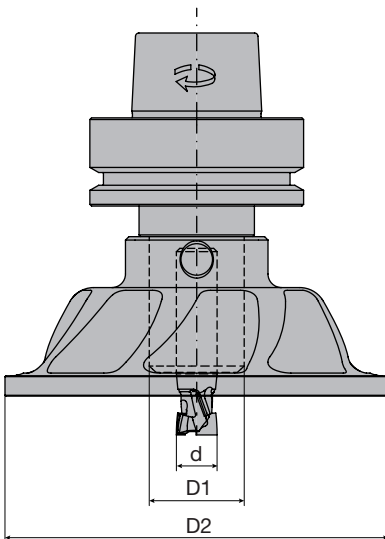
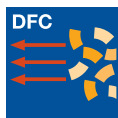
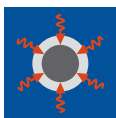
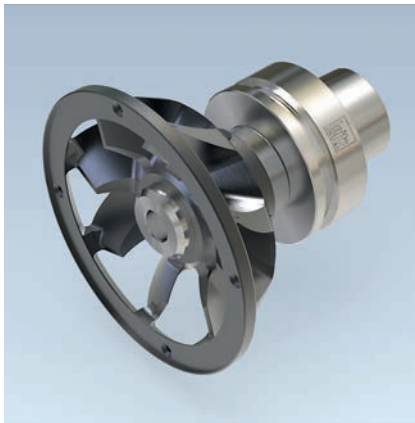
#### HSK-F 63, DIN 69893

PT 300 0

d mm	d in	D mm	DB mm	A mm	GL mm	Weight kg	STO	ID With chip	ID Without chip
6		27	63	75	100	0,8	h6	037753 □	037713 ●
8		27	63	75	100	0,8	h6	037754 □	037714 ●
9,53	3/8"	32	63	75	100	0,9	h6	670013 □	670010 ●
10		32	63	75	100	0,9	h6		037715 ●
10		32	63	120	145	1,0	h6		670017 ●
12		34	63	75	100	0,9	g6	037752 □	037712 ●
12		34	63	90	115	1,0	g6		670018 ●
12		34	63	120	145	1,1	g6		670019 ●
12,7	1/2"	34	63	75	100	0,9	h6	670014 □	670011 ●
14		34	63	75	100	0,9	g6	037756 □	037716 ●
16		34	63	75	100	0,9	g6	037719 □	037709 ●
16		34	63	95	120	1,0	g6		670020 ●
16		34	63	120	145	1,0	g6		670021 ●
18		42	63	75	100	1,0	g6	037757 □	037718 ●
19,05	3/4"	42	63	75	100	0,9	h6	670015 □	670012 ●
20		42	63	75	100	1,0	g6	037750 □	037710 ●
20		42	63	100	125	1,2	g6		670022 ●
25		42	63	75	100	0,9	g6	037751 □	037711 ●
32		53	63	90	115	1,2	g6	670001 □	670000 ●

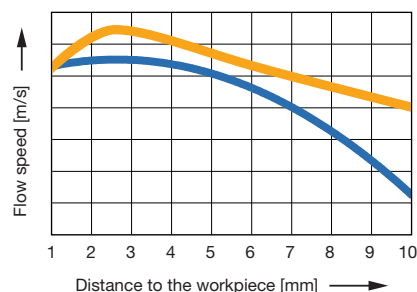
#### Note:

Chucks with chip already have a data chip (511 bytes) ID **081309** ex works. Chips with larger capacity are available on request.



Shrink-fit chuck ThermoGrip® with DFC® Turbine and router cutter

Flow speed depending on the distance to the workpiece



■ Standard turbine  
■ Leitz DFC® Turbine

### Shrink-fit chuck ThermoGrip® with DFC® Turbine

#### Application:

High-precision tool holder ThermoGrip® HSK-F 63 and DFC® Turbine to increase chip collection especially on nesting machines.

#### Technical information:

Processing of several panel thicknesses (e.g. 16, 19 and 22 mm) with only one tool setting through constant flow speed and variable distance to the panel (up to 6 mm).

#### Shrink-fit chuck ThermoGrip® for DFC® Turbine HSK-F 63

PT 300 0

d mm	d in	D1 mm	DB mm	A mm	GL mm	Weight kg	STO	ID without chip
9,53	3/8"	28	63	75	100	0,9	g6	<b>037765 ●</b>
12		28	63	75	100	0,9	g6	<b>037764 ●</b>
12,7	1/2"	28	63	75	100	0,9	g6	<b>037766 ●</b>
16		28	63	75	100	0,9	g6	<b>037767 ●</b>
19,05	3/4"	36	63	75	100	0,9	g6	<b>037768 ●</b>
20		36	63	75	100	0,9	g6	<b>037769 ●</b>
25		36	63	75	100	0,9	g6	<b>037770 ●</b>

#### DFC® Turbine for shrink-fit chuck ThermoGrip® HSK-F 63

TZ 999 0

for d mm	D1 mm	D2 mm	A mm	Weight kg	ID
9,53 / 12 / 12,7 / 16	28	113	47	0,2	<b>119908 ●</b>
19,05 / 20 / 25	36	113	47	0,2	<b>119909 □</b>

Supplied with matching screws.

#### Standard values:

Distance turbine to the panel 2-6 mm

Cutting depth below board 0,1 - 0,5 mm

#### Examples of feed rates:

$v_f$  max. Z 2+2 = 20 m min<sup>-1</sup>

$v_f$  max. Z 3+3 = 22 m min<sup>-1</sup>

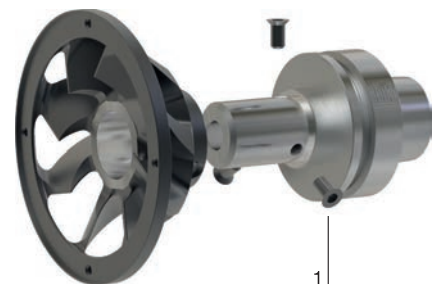
( $v_f$  max. accessible using n max.)

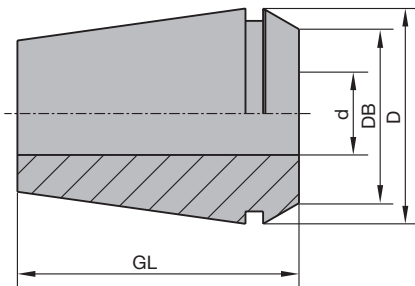
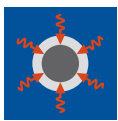
#### RPM:

n max. = 24000 min<sup>-1</sup>

#### Spare parts:

Part-no.	BEZ	ABM mm	ID
1	Countersink screw, Torx® 20	M6x12	<b>006084 ●</b>
	TorqueVario-STplus 5-14 Nm	T 15/20/25, SW 4/5/6/8	<b>009103 ●</b>





Shrink-fit collet TER, TB 120 0 01

#### Note:

Corresponding accessories for shrink-fit units are required in order to use shrink-fit collets TER - ER together with the shrink-fit units ISG 22xx / 32xx or 24xx / 34xx.

See: Brochure ThermoGrip® shrink-fit generator.

### Shrink collet ThermoGrip®, Type TER, DIN ISO 15488

#### Application:

High precision tool chuck for clamping shank tools by thermal shrinking. Has the highest stability and rigidity of all known shank tools clamping systems, suitable for HSC and HPC machining.

#### Technical information:

Replacement for conventional spring collets to increase concentricity, rigidity and speed strength. Universal design for the adaptation of shank tools in machining aggregates as well as direct clamping in spindles with integrated collet adaptor. For clamping of carbide and steel shanks. Clamping eccentricity  $e \leq 0.01$  mm.

**Attention:** In order to mount the collet nut in the shrunk tool, the tool diameter is not allowed to be larger than the collar diameter (DB) stated in the table. In individual cases the existing clamping nut must be exchanged with the version stated in the table.

#### TER - ER16, DIN ISO 15488, 8°

TB 120 0 01

BEZ	d mm	D mm	DB mm	GL mm	ID
Shrink collet	3	17	12	27	<b>679500</b> □
Shrink collet	4	17	12	27	<b>679501</b> □
Shrink collet	6	17	12	27	<b>679502</b> □
Shrink collet	8	17	12	27	<b>679503</b> □

#### Spare parts:

BEZ	ABM mm	D mm	ID
Collet chuck nut	M22x1.5	28	<b>006657</b> □

#### TER - ER20, DIN ISO 15488, 8°

TB 120 0 01

BEZ	d mm	D mm	DB mm	GL mm	ID
Shrink collet	6	21	15,5	31	<b>679504</b> □
Shrink collet	8	21	15,5	31	<b>679505</b> □
Shrink collet	10	21	15,5	31	<b>679506</b> □

#### Spare parts:

BEZ	ABM mm	D mm	ID
Collet chuck nut	M25x1,5	34	<b>006658</b> □

#### TER - ER25, DIN ISO 15488, 8°

TB 120 0 01

BEZ	d mm	D mm	DB mm	GL mm	ID
Shrink collet	3	26	20,5	35	<b>679507</b> □
Shrink collet	4	26	20,5	35	<b>679508</b> □
Shrink collet	6	26	20,5	35	<b>679509</b> □
Shrink collet	8	26	20,5	35	<b>679510</b> □
Shrink collet	10	26	20,5	35	<b>679511</b> □
Shrink collet	12	26	20,5	35	<b>679512</b> □
Shrink collet	14	26	20,5	35	<b>679513</b> □
Shrink collet	16	26	20,5	35	<b>679514</b> □

#### Spare parts:

BEZ	ABM mm	D mm	ID
Collet chuck nut	M32x1,5	42	<b>006659</b> □



**TER - ER32, DIN ISO 15488, 8°**

TB 120 0 01

BEZ	d mm	D mm	DB mm	GL mm	ID
Shrink collet	6	33	26,5	40	<b>679515</b> □
Shrink collet	8	33	26,5	40	<b>679516</b> □
Shrink collet	10	33	26,5	40	<b>679517</b> □
Shrink collet	12	33	26,5	40	<b>679518</b> □
Shrink collet	14	33	26,5	40	<b>679519</b> □
Shrink collet	16	33	26,5	40	<b>679520</b> □
Shrink collet	18	33	26,5	40	<b>679521</b> □
Shrink collet	20	33	26,5	40	<b>679522</b> □

**Spare parts:**

BEZ	ABM mm	D mm	ID
Collet chuck nut	M40x1,5	50	<b>006660</b> □

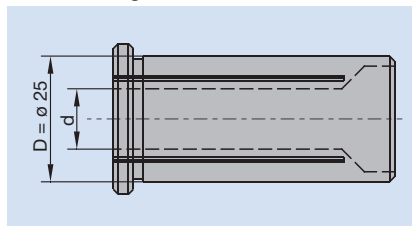
## 7. Clamping systems

### 7.3 Clamping chucks

#### 7.3.2 Hydro chucks

Application	High precision clamping of shank tools.										
Machine	Stationary routers with CNC control and spindles for automatic tool change. Milling machines with spindles for automatic tool change.										
Technical features	Hydro chucks are used to clamp shank tools in spindles with high precision. Hydro chucks have the same concentric run out tolerance as shrink-fit chucks, but shrink-fit chucks have considerably higher stability. Shrink-fit chucks are recommended for high cutting forces machining operations.										
Permissible shank tolerances	Tools clamped in hydro chucks must have the following tool shank tolerances: <table><tr><td></td><td colspan="2">Diameter of shank</td></tr><tr><td rowspan="2">Tools mounted in Hydro chucks</td><td>&lt; 12 mm</td><td>≥ 12 mm</td></tr><tr><td>ISO h6</td><td>ISO g6</td></tr></table>				Diameter of shank		Tools mounted in Hydro chucks	< 12 mm	≥ 12 mm	ISO h6	ISO g6
	Diameter of shank										
Tools mounted in Hydro chucks	< 12 mm	≥ 12 mm									
	ISO h6	ISO g6									
Application data	<b>Maximum RPM</b> Maximum RPM for hydro chucks: $n_{\text{max}} = 25000 \text{ min}^{-1}$ .										
Reducing the clamping diameter	The standard clamping diameter for Leitz hydro chucks is 25 mm. Other shank diameters are clamped using reducing sleeves. The use of reducing sleeves significantly decreases the clamping force and the concentric run out tolerance. It is recommended not to reduce the shank diameter except when absolutely necessary.										

The following shank diameters can be clamped with reducing sleeves:



D	25 mm
d	12 mm
	14 mm
	16 mm
	20 mm



### Hydro chucks for shank tools with hollow shank taper HSK-F 63

#### Application:

High precision tool chuck for hydro clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25$  mm.

#### Technical information:

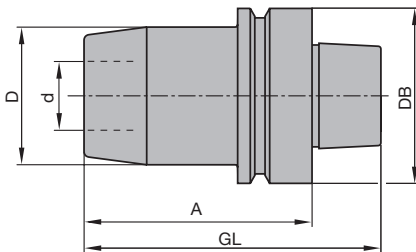
Reduction of clamping diameter by special reduction inserts. Independent of direction of rotation, suitable for right hand and left hand rotation tool. Easy handling clamping system. Tool adaptor finely balanced. Maximum admissible speed  $n_{\max} = 25000 \text{ min}^{-1}$ .

#### Clamping diameter 25 mm

PH 350 0

d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
25	50	63	85	100	1,1	039086 ●

Sales unit consisting of chuck and clamping key.



Hydro chuck HSK-F 63

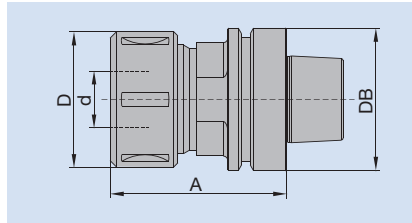
#### Spare parts:

BEZ	ABM mm	ID
Reducing sleeve	d12/25x56x12	039081 ●
Reducing sleeve	d14/25x56x14	039082 ●
Reducing sleeve	d16/25x56x16	039083 ●
Reducing sleeve	d20/25x56x20	039084 ●
Allen key	SW 5	005446 ●

**Application** Clamping system for shank tools.

**Machine** Stationary routers with/without CNC control, CNC machining centres  
Milling machines with spindles to mount shank tools,  
Router machines without automatic tool change,  
Portable routers.

**Technical features**



Collet chuck HSK-F 63.

D	Largest diameter of the chuck in the clamping area
d	Tool shank clamping diameter
DB	Diameter of chuck face
A	Length to reference point (SK) or to reference surface (HSK)

**Permissible shank tolerances** Tools clamped in collet chucks must have at least the following tool shank tolerances:

Tools mounted in Collet chuck	Diameter of shank	
	< 12 mm	≥ 12 mm
	ISO g7	ISO g7

**Collet nut clamping torque** The following torques are required for safe clamping of the tool in the collet chuck:

Collet nut thread	Spanner type	Clamping torque
M 30 x 1,5	SW 40/42	60 Nm
M 33 x 1,5	SW 40/42	60 Nm
M 40 x 1,5	SW 45/50	80 Nm
M 48 x 2	SW 58/62	100 Nm
M 50 x 1,5	SW 58/62	100 Nm

**Application data**

**Maximum RPM**

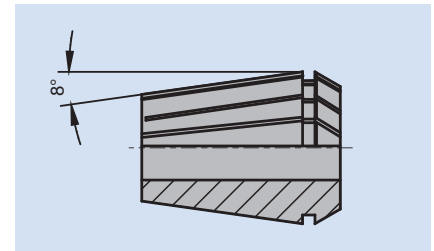
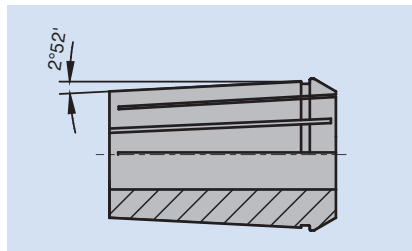
The maximum RPM for collet chucks:

$n_{\max} = 24000 \text{ min}^{-1}$  (shank diameters up to 25 mm).

HSC Collet chucks (High Speed Cutting) have a maximum RPM:  $n_{\max} = 30000 \text{ min}^{-1}$ .

**Collet chuck design**

Leitz collet chucks are available for the two designs of collet below.



Collet taper angle 2°52': DIN ISO 10897.

Collet taper angle 8°: DIN ISO 15488.

Collets with a taper angle of 2°52', taper tolerance 1:10, DIN ISO 10897 are recommended.



#### Precision collet chuck, cylindrical shank

##### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 16$  mm.

##### Technical information:

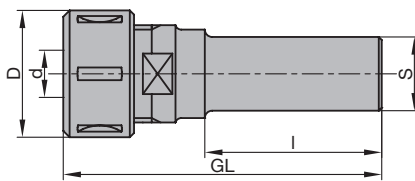
Exact concentricity through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design.

##### Model with ball bearing collet nut

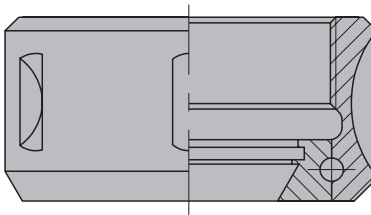
PM 350 0 03

d mm	D mm	A mm	GL mm	S mm	Weight kg	Type	ID
6 - 12,7	35		77	25x50	0,6	1	671001 ●
6 - 16	43	55	115	MK II / M30	0,8	2	037493 ●
6 - 16	43		108	25x60	0,8	2	037494 ●

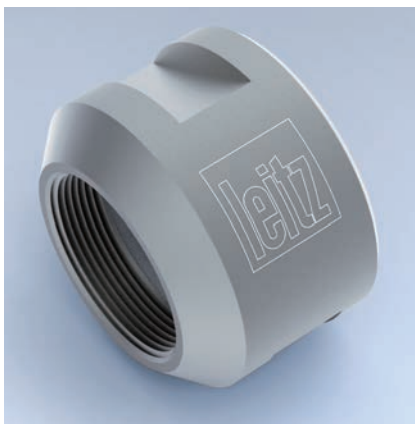
Sales unit consists of clamping chuck, collet nut and key, without collet.



Collet chuck with cylindrical shank



Ball bearing collet nut



##### Spare parts:

BEZ	ABM mm	for S mm	ID 1	ID 2
Collet (2°52')		6	679013 ●	679005 ●
Collet (2°52')		7	679015 ●	
Collet (2°52')		8	679016 ●	679032 ●
Collet (2°52')		9		679033 ●
Collet (2°52')		9,5		679034 ●
Collet (2°52')		10	679019 ●	679006 ●
Collet (2°52')		12	679020 ●	679036 ●
Collet (2°52')		13		679007 ●
Collet (2°52')		14		679037 ●
Collet (2°52')		16		679008 ●
Collet (2°52')		6,35 (1/4")	679014 ●	679009 ●
Collet (2°52')		9,53 (3/8")	679018 ●	
Collet (2°52')		12,7 (1/2")	679021 ●	679011 ●
Sickle spanner	34/36		005498 ●	
Sickle spanner	40/42			005469 ●
Collet chuck nut	M27x1.5		006653 ●	
Collet chuck nut with ball bearing	M33x1.5			005685 ●

#### Clamping nut for morse taper II shanks

##### Application:

For clamping tools or tool chucks with morse taper II shanks (MK II).

##### Technical information:

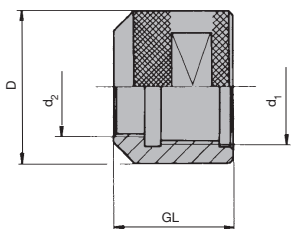
$d_1$  = W 1 1/8" suitable for Perske and Maka motor spindles.

$d_1$  = M 33 X 3 suitable for Italian routers.

##### With differential thread

TK 510 0

$d_1$ mm	$d_2$ mm	D mm	GL mm	Weight kg	ID RH
W 1 1/8"	M30x1,5	45	30	0,2	005682 ●
M33x3	M30x1,5	45	35	0,2	006624 ●



Fixing nut TK 510 0  
 $d_1$  = machine related  
 $d_2$  = tool related



### Collet chuck with steep taper for CNC aggregates

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 16 \text{ mm}$  (5/8").

#### Technical information:

Steep taper design for Flex 5+ aggregates (Homag Group) and 5-motion-Plus aggregate (Felder Format-4). Exact concentric running through hardened, ground and double slotted collets. Easy handling through automatic opening of the collet when opening the collet nut. Tool adaptor and collet nut fine balanced. Maximum tool protrusion of the chuck = 50 mm. A collet with clamping diameter 10 mm is included.

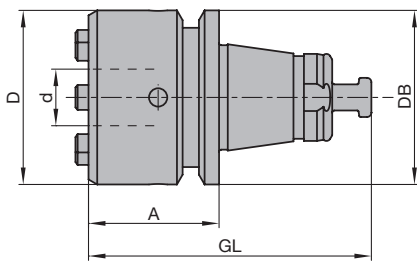
#### A = 30 mm, diameter range 3-16 mm

PM 350 0

Machine	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
Felder Format-4, Homag Group	3 - 16	40	40	30	65	0,3	<b>672002 •</b>

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037979 •</b>
Collet (8°)		8	<b>037980 •</b>
Collet (8°)		10	<b>037981 •</b>
Collet (8°)		12	<b>037982 •</b>
Collet (8°)		14	<b>037983 •</b>
Collet (8°)		16	<b>037984 •</b>
Collet (8°)		6,35 (1/4")	<b>679027 •</b>
Collet (8°)		9,53 (3/8")	<b>679028 •</b>
Collet (8°)		12,7 (1/2")	<b>679029 •</b>
Collet (8°)		15,88 (5/8")	<b>679030 •</b>
Clamping key	E25AX		<b>117519 •</b>
Collet chuck nut	ERAX25		<b>116501 □</b>



Collet chuck



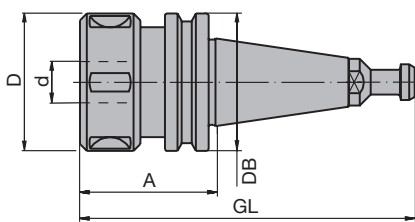
### Collet chuck with steep taper SK 30

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 20$  mm.

#### Technical information:

Steep taper design as per DIN ISO 7388, without grooves and notches. Exact concentric running through hardened, ground and double slotted collets. Vibration free cutting by short design. Easy handling through automatic opening of the collet when loosening the collet nut. Suitable for right hand and left hand rotation due to ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

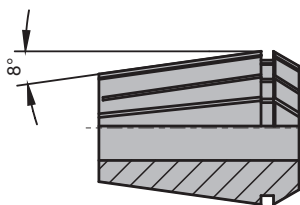


**SK 30, A = 50 / 63 mm, diameter range 6-20 mm, 8° taper angle of the collet**  
PM 350 0 04

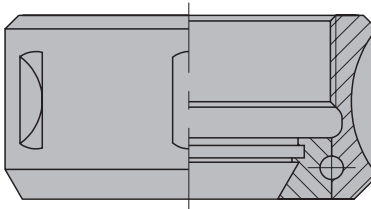
Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
B	6 - 20	50	50	50	121,8	0,6	037904 ●
B	6 - 20	50	50	63	134,8	0,7	672001 ●

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

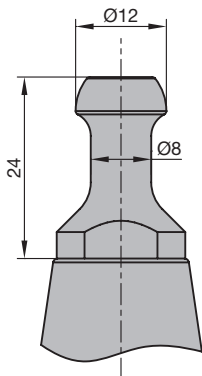
Collet chuck with steep taper



Collet angle 8°: DIN ISO 15488



Ball bearing collet nut



Type: B  
SK 30/ISO 30 pull stud for HSD spindles  
from construction year 9/92 on

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	037439 ●
Collet (8°)		8	037440 ●
Collet (8°)		10	037441 ●
Collet (8°)		12	037442 ●
Collet (8°)		13	037443 ●
Collet (8°)		14	037444 ●
Collet (8°)		16	037445 ●
Collet (8°)		18	037446 ●
Collet (8°)		20	037447 ●
Collet (8°)		6,35 (1/4")	037509 ●
Collet (8°)		9,53 (3/8")	037510 ●
Collet (8°)		12,7 (1/2")	037511 ●
Collet (8°)		15,88 (5/8")	037507 ●
Collet (8°)		19,05 (3/4")	037506 ●
Sickle spanner	45/50		005491 ●
Collet chuck nut with ball bearing	M40x1.5		005718 ●



### Collet chuck with steep taper SK 30

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{max} = 30$  mm.

#### Technical information:

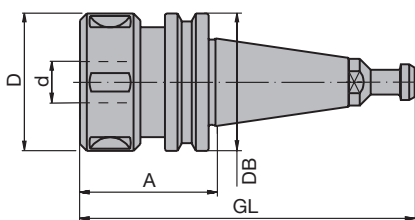
Steep taper design as per DIN ISO 7388, without grooves and notches. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

#### SK 30, A = 61 mm, 8° taper angle of collet, diameter range 6-30 mm

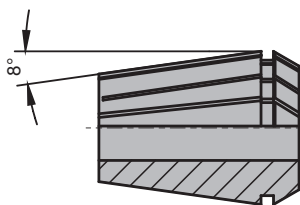
PM 350 0 16

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
B	6 - 30	63	50	61	108,8	0,9	<b>037968 ●</b>

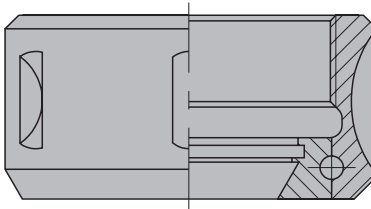
Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.



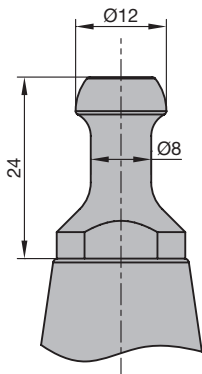
Collet chuck with steep taper



Collet angle 8°: DIN ISO 15488



Ball bearing collet nut



Type: B  
SK 30/ISO 30 pull stud for HSD spindles  
from construction year 9/92 on

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037926 ●</b>
Collet (8°)		8	<b>037927 ●</b>
Collet (8°)		10	<b>037928 ●</b>
Collet (8°)		12	<b>037929 ●</b>
Collet (8°)		14	<b>037930 ●</b>
Collet (8°)		16	<b>037931 ●</b>
Collet (8°)		20	<b>037932 ●</b>
Collet (8°)		25	<b>037933 ●</b>
Collet (8°)		30	<b>679039 ●</b>
Collet (8°)		6,35 (1/4")	<b>037934 ●</b>
Collet (8°)		9,53 (3/8")	<b>037935 ●</b>
Collet (8°)		12,7 (1/2")	<b>037936 ●</b>
Collet (8°)		15,88 (5/8")	<b>037937 ●</b>
Collet (8°)		19,05 (3/4")	<b>037938 ●</b>
Collet (8°)		25,4 (1")	<b>037939 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M50x1.5		<b>006639 ●</b>





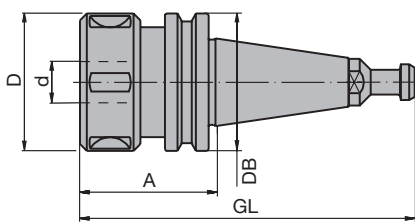
### Collet chuck with steep taper SK 30 / SK 40

#### Application:

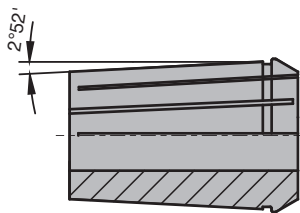
Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25.4 \text{ mm}$  (1").

#### Technical information:

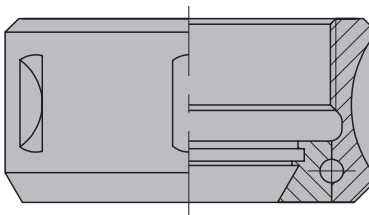
Steep taper design as per DIN ISO 7388, without grooves and notches. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.



Collet chuck with steep taper



Collet angle 2°52': DIN ISO 10897



Ball bearing collet nut

#### SK 30, A = 70 mm, diameter range 6-25.4 mm

PM 350 0 05

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
A	6 - 25,4	60	50	70	141,8	0,9	<b>037421 •</b>

#### SK 40, A = 70 mm, diameter range 6-25.4 mm

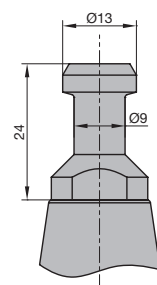
PM 350 0 05

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
E	6 - 25,4	60	63,55	70	164,6	1,5	<b>037422 •</b>

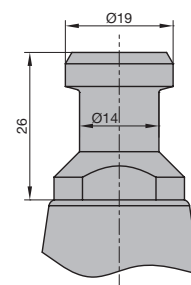
Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (2°52')		6	<b>037429 •</b>
Collet (2°52')		8	<b>037430 •</b>
Collet (2°52')		10	<b>037431 •</b>
Collet (2°52')		12	<b>037432 •</b>
Collet (2°52')		13	<b>037433 •</b>
Collet (2°52')		14	<b>037434 •</b>
Collet (2°52')		16	<b>037435 •</b>
Collet (2°52')		18	<b>037436 •</b>
Collet (2°52')		20	<b>037437 •</b>
Collet (2°52')		25	<b>037438 •</b>
Collet (2°52')		6,35 (1/4")	<b>037495 •</b>
Collet (2°52')		9,53 (3/8")	<b>037505 •</b>
Collet (2°52')		12,7 (1/2")	<b>037496 •</b>
Collet (2°52')		15,88 (5/8")	<b>037502 •</b>
Collet (2°52')		19,05 (3/4")	<b>037497 •</b>
Collet (2°52')		25,4 (1")	<b>037508 •</b>
Sickle spanner	58/62		<b>005458 •</b>
Collet chuck nut with ball bearing	M48x2		<b>005714 •</b>
Locking nut with Euchner chip	SK 40, 511 Bytes		<b>081600 •</b>
Locking nut with Balluff chip	SK 40, 511 Bytes		<b>081601 •</b>



Type: A  
SK 30 pull stud as per  
DIN ISO 7388



Type: E  
SK 40 pull stud as per  
DIN ISO 7388



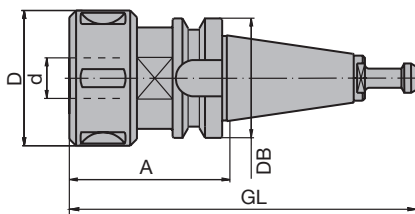
### Collet chuck with steep taper BT 30 and BT 35

#### Application:

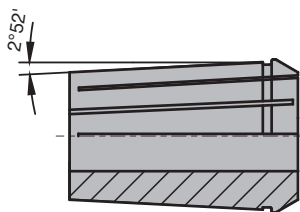
Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{max} = 25.4 \text{ mm}$  (1").

#### Technical information:

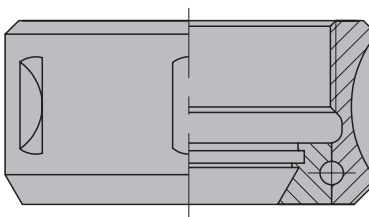
Steep taper design BT 30 or BT 35. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts. (Design for SK 30).



Collet chuck BT 35



Collet angle 2°52': DIN ISO 10897



Ball bearing collet nut

#### Steep taper BT 30 without grooves and notches

PM 350 0 07

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
F	6 - 25,4	60	46	70	141,4	0,9	<b>037962 ●</b>

#### Steep taper BT 35 with grooves and notches

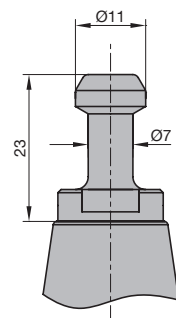
PM 350 0 07

Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
G	6 - 25,4	60	53	70	154,4	1	<b>037414 ●</b>

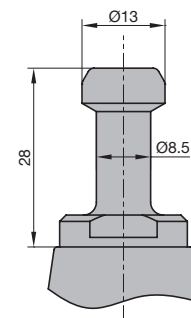
Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (2°52')		6	<b>037429 ●</b>
Collet (2°52')		8	<b>037430 ●</b>
Collet (2°52')		10	<b>037431 ●</b>
Collet (2°52')		12	<b>037432 ●</b>
Collet (2°52')		13	<b>037433 ●</b>
Collet (2°52')		14	<b>037434 ●</b>
Collet (2°52')		16	<b>037435 ●</b>
Collet (2°52')		18	<b>037436 ●</b>
Collet (2°52')		20	<b>037437 ●</b>
Collet (2°52')		25	<b>037438 ●</b>
Collet (2°52')		6,35 (1/4")	<b>037495 ●</b>
Collet (2°52')		9,53 (3/8")	<b>037505 ●</b>
Collet (2°52')		12,7 (1/2")	<b>037496 ●</b>
Collet (2°52')		15,88 (5/8")	<b>037502 ●</b>
Collet (2°52')		19,05 (3/4")	<b>037497 ●</b>
Collet (2°52')		25,4 (1")	<b>037508 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M48x2		<b>005714 ●</b>



Type: F  
BT 30 pull stud  
Anderson



Type: G  
BT 35 pull stud  
Heian, Shoda



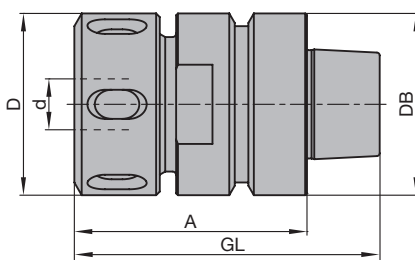
### Collet chuck with hollow taper shank HSK-F 50

#### Application:

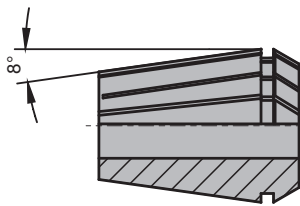
Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 20$  mm.

#### Technical information:

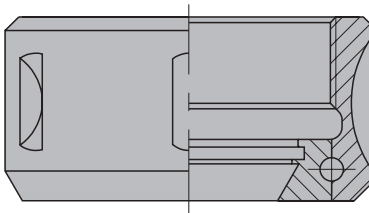
Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.



Collet chuck HSK-F 50



Collet angle 8°: DIN ISO 15488



Ball bearing collet nut

#### HSK-F 50, DIN 69893, diameter range up to 20 mm, 8° angle of the collet

PM 350 0 15

d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
6 - 20	50	50	64	84	0,9	<b>037999 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet and spanner.

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037439 ●</b>
Collet (8°)		8	<b>037440 ●</b>
Collet (8°)		10	<b>037441 ●</b>
Collet (8°)		12	<b>037442 ●</b>
Collet (8°)		13	<b>037443 ●</b>
Collet (8°)		14	<b>037444 ●</b>
Collet (8°)		16	<b>037445 ●</b>
Collet (8°)		18	<b>037446 ●</b>
Collet (8°)		20	<b>037447 ●</b>
Collet (8°)		6,35 (1/4")	<b>037509 ●</b>
Collet (8°)		9,53 (3/8")	<b>037510 ●</b>
Collet (8°)		12,7 (1/2")	<b>037511 ●</b>
Collet (8°)		15,88 (5/8")	<b>037507 ●</b>
Collet (8°)		19,05 (3/4")	<b>037506 ●</b>
Sickle spanner	45/50		<b>005491 ●</b>
Collet chuck nut with ball bearing	M40x1.5		<b>005718 ●</b>



### Collet chuck with hollow taper shank HSK-F 50

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25.4 \text{ mm}$  (1").

#### Technical information:

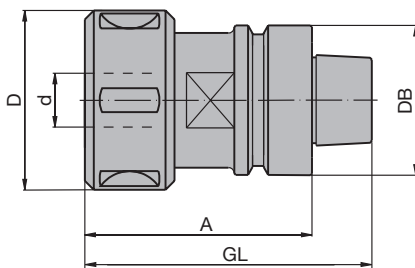
Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

#### HSK-F 50, DIN 69893, diameter range up to 25.4 mm

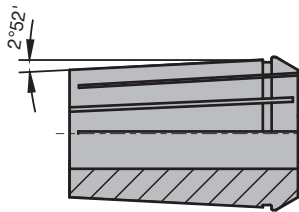
PM 350 0 06

d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
6 - 25,4	60	50	76	96	0,9	<b>037500 ●</b>

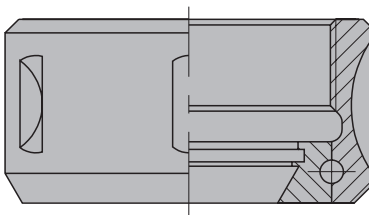
Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.



Collet chuck HSK-F 50



Collet angle 2°52': DIN ISO 10897



Ball bearing collet nut

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (2°52')		6	<b>037429 ●</b>
Collet (2°52')		8	<b>037430 ●</b>
Collet (2°52')		10	<b>037431 ●</b>
Collet (2°52')		12	<b>037432 ●</b>
Collet (2°52')		13	<b>037433 ●</b>
Collet (2°52')		14	<b>037434 ●</b>
Collet (2°52')		16	<b>037435 ●</b>
Collet (2°52')		18	<b>037436 ●</b>
Collet (2°52')		20	<b>037437 ●</b>
Collet (2°52')		25	<b>037438 ●</b>
Collet (2°52')		6,35 (1/4")	<b>037495 ●</b>
Collet (2°52')		9,53 (3/8")	<b>037505 ●</b>
Collet (2°52')		12,7 (1/2")	<b>037496 ●</b>
Collet (2°52')		15,88 (5/8")	<b>037502 ●</b>
Collet (2°52')		19,05 (3/4")	<b>037497 ●</b>
Collet (2°52')		25,4 (1")	<b>037508 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M48x2		<b>005714 ●</b>



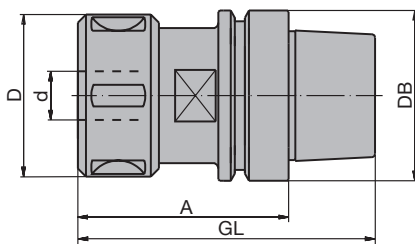
#### Collet chuck with hollow taper shank HSK-E 63

##### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 30$  mm.

##### Technical information:

Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Vibration free cutting by short design. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.



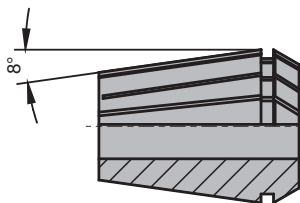
**HSK-E 63, DIN 69893, A = 76 mm, diameter range 6-30 mm, 8° taper angle of the collet**

PM 350 0 15

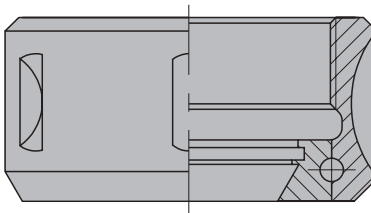
d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 30	63	63	76	108,5	1,1	<b>679040 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

Collet chuck HSK-E 63



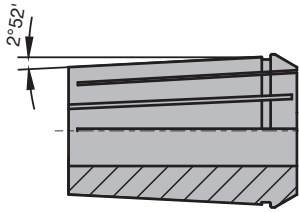
Collet angle 8°: DIN ISO 15488



Ball bearing collet nut

##### Spare parts:

BEZ	ABM	for S	ID
	mm	mm	
Collet (8°)		6	<b>037926 ●</b>
Collet (8°)		8	<b>037927 ●</b>
Collet (8°)		10	<b>037928 ●</b>
Collet (8°)		12	<b>037929 ●</b>
Collet (8°)		14	<b>037930 ●</b>
Collet (8°)		16	<b>037931 ●</b>
Collet (8°)		20	<b>037932 ●</b>
Collet (8°)		25	<b>037933 ●</b>
Collet (8°)		30	<b>679039 ●</b>
Collet (8°)		6,35 (1/4")	<b>037934 ●</b>
Collet (8°)		9,53 (3/8")	<b>037935 ●</b>
Collet (8°)		12,7 (1/2")	<b>037936 ●</b>
Collet (8°)		15,88 (5/8")	<b>037937 ●</b>
Collet (8°)		19,05 (3/4")	<b>037938 ●</b>
Collet (8°)		25,4 (1")	<b>037939 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M50x1.5		<b>006639 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>



Collet angle 2°52': DIN ISO 10897

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25.4 \text{ mm}$  (1").

#### HSK-E 63, DIN 69893, A = 78 mm, diameter range 6-25.4 mm

PM 350 0 06

d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 25,4	60	63	78	110	1,1	<b>037914 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

#### Spare parts:

BEZ	ABM	for S	ID
	mm	mm	
Collet (2°52')		6	<b>037429 ●</b>
Collet (2°52')		8	<b>037430 ●</b>
Collet (2°52')		10	<b>037431 ●</b>
Collet (2°52')		12	<b>037432 ●</b>
Collet (2°52')		13	<b>037433 ●</b>
Collet (2°52')		14	<b>037434 ●</b>
Collet (2°52')		16	<b>037435 ●</b>
Collet (2°52')		18	<b>037436 ●</b>
Collet (2°52')		20	<b>037437 ●</b>
Collet (2°52')		25	<b>037438 ●</b>
Collet (2°52')		6,35 (1/4")	<b>037495 ●</b>
Collet (2°52')		9,53 (3/8")	<b>037505 ●</b>
Collet (2°52')		12,7 (1/2")	<b>037496 ●</b>
Collet (2°52')		15,88 (5/8")	<b>037502 ●</b>
Collet (2°52')		19,05 (3/4")	<b>037497 ●</b>
Collet (2°52')		25,4 (1")	<b>037508 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M48x2		<b>005714 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>



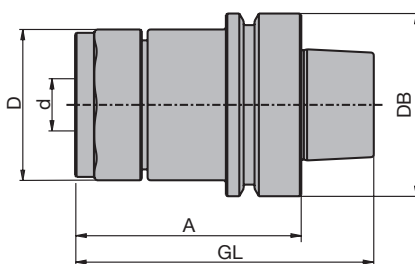
#### NiRo Collet chuck *Premium* with hollow taper shank HSK-F 63

##### Application:

Precision tool chuck especially for use in difficult climatic conditions with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25.4 \text{ mm}$  (1").

##### Technical information:

Long tool life due to the use of corrosion-resistant steel. Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts. Easy and safe clamping and releasing by clamping key with optimised spanner flats.

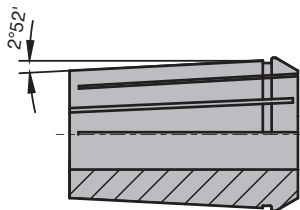


NiRo collet chuck Premium HSK-F 63

**HSK-F 63, DIN 69893, A = 78, diameter range 6-25.4 mm**  
PM 350 0 17

d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 25,4	52	63	78	103	1,1	<b>679043 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or clamping key.



Collet angle 2°52': ISO 10897, Form B



Special key especially for NiRo collet chuck Premium



Torque wrench with insert for precise clamping

##### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (2°52')		6	<b>037429 ●</b>
Collet (2°52')		8	<b>037430 ●</b>
Collet (2°52')		10	<b>037431 ●</b>
Collet (2°52')		12	<b>037432 ●</b>
Collet (2°52')		13	<b>037433 ●</b>
Collet (2°52')		14	<b>037434 ●</b>
Collet (2°52')		16	<b>037435 ●</b>
Collet (2°52')		18	<b>037436 ●</b>
Collet (2°52')		20	<b>037437 ●</b>
Collet (2°52')		25	<b>037438 ●</b>
Collet (2°52')		6,35 (1/4")	<b>037495 ●</b>
Collet (2°52')		9,53 (3/8")	<b>037505 ●</b>
Collet (2°52')		12,7 (1/2")	<b>037496 ●</b>
Collet (2°52')		15,88 (5/8")	<b>037502 ●</b>
Collet (2°52')		19,05 (3/4")	<b>037497 ●</b>
Collet (2°52')		25,4 (1")	<b>037508 ●</b>
Clamping key			<b>117540 ●</b>
Torque wrench	9x12, 20-100 Nm		<b>117541 ●</b>
Insert for torque wrench	9x12		<b>117542 ●</b>
Collet chuck nut NiRo with ball bearing	TR44x1,5		<b>006663 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>





### Collet chuck with hollow taper shank HSK-F 63

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 30$  mm.

#### Technical information:

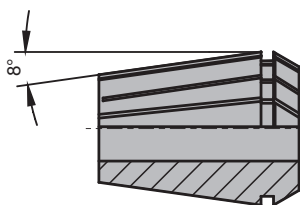
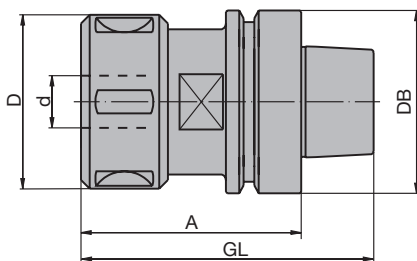
Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

#### HSK-F 63, DIN 69893, A = 76 mm, diameter range 6-30 mm, short design, 8° taper angle of the collet

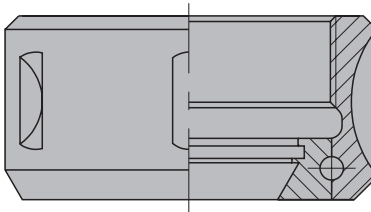
PM 350 0 15

d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 30	63	63	76	101,5	1	<b>037970 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.



Collet angle 8°: DIN ISO 15488



Ball bearing collet nut

#### Spare parts:

BEZ	ABM	for S	ID
	mm	mm	
Collet (8°)		6	<b>037926 ●</b>
Collet (8°)		8	<b>037927 ●</b>
Collet (8°)		10	<b>037928 ●</b>
Collet (8°)		12	<b>037929 ●</b>
Collet (8°)		14	<b>037930 ●</b>
Collet (8°)		16	<b>037931 ●</b>
Collet (8°)		20	<b>037932 ●</b>
Collet (8°)		25	<b>037933 ●</b>
Collet (8°)		30	<b>679039 ●</b>
Collet (8°)		6,35 (1/4")	<b>037934 ●</b>
Collet (8°)		9,53 (3/8")	<b>037935 ●</b>
Collet (8°)		12,7 (1/2")	<b>037936 ●</b>
Collet (8°)		15,88 (5/8")	<b>037937 ●</b>
Collet (8°)		19,05 (3/4")	<b>037938 ●</b>
Collet (8°)		25,4 (1")	<b>037939 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M50x1.5		<b>006639 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>



### Collet chuck with hollow taper shank HSK-F 63

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 25.4 \text{ mm}$  (1").

#### Technical information:

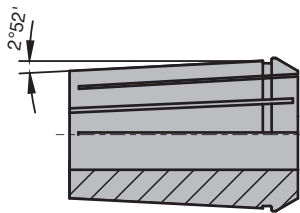
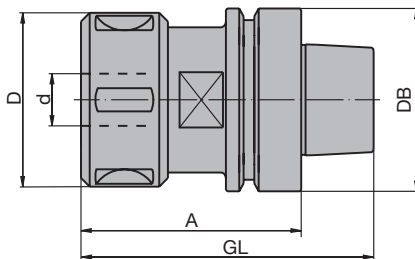
Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

#### HSK-F 63, DIN 69893, A = 78 / 105 mm clamping area 6-25,4 mm

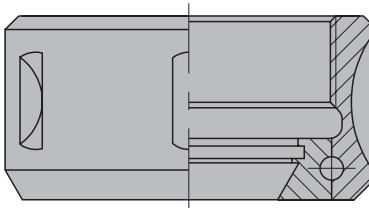
PM 350 0 06

d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 25,4	60	63	78	103	1,1	<b>037412 ●</b>
6 - 25,4	60	63	105	130	1,5	<b>037924 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.



Collet angle 2°52': DIN ISO 10897



Ball bearing collet nut

#### Spare parts:

BEZ	ABM	for S	ID
	mm	mm	
Collet (2°52')		6	<b>037429 ●</b>
Collet (2°52')		8	<b>037430 ●</b>
Collet (2°52')		10	<b>037431 ●</b>
Collet (2°52')		12	<b>037432 ●</b>
Collet (2°52')		13	<b>037433 ●</b>
Collet (2°52')		14	<b>037434 ●</b>
Collet (2°52')		16	<b>037435 ●</b>
Collet (2°52')		18	<b>037436 ●</b>
Collet (2°52')		20	<b>037437 ●</b>
Collet (2°52')		25	<b>037438 ●</b>
Collet (2°52')		6,35 (1/4")	<b>037495 ●</b>
Collet (2°52')		9,53 (3/8")	<b>037505 ●</b>
Collet (2°52')		12,7 (1/2")	<b>037496 ●</b>
Collet (2°52')		15,88 (5/8")	<b>037502 ●</b>
Collet (2°52')		19,05 (3/4")	<b>037497 ●</b>
Collet (2°52')		25,4 (1")	<b>037508 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M48x2		<b>005714 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>



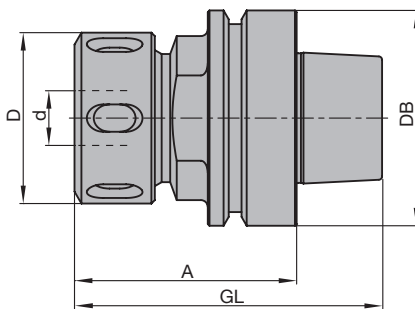
#### Collet chuck with hollow taper shank HSK-F 63, HSC machining

##### Application:

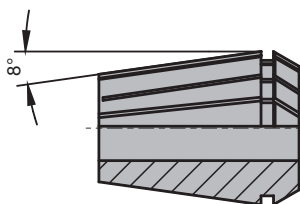
Precision tool chuck with collet for clamping shank tools with cylindrical shank. For speeds up to  $n_{\max} = 30000 \text{ min}^{-1}$ .

##### Technical information:

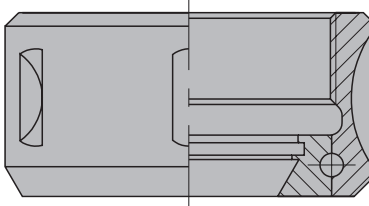
Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Vibration free cutting by short design. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.



Collet chuck HSK-F 63



Collet angle 8°: DIN ISO 15488



Ball bearing collet nut

**HSK-F 63, DIN 69893, A = 65 mm diameter range up to 20 mm,  $n_{\max} = 30000 \text{ min}^{-1}$**

PM 350 0 15

d	D	DB	A	GL	Weight	ID
mm	mm	mm	mm	mm	kg	
6 - 20	50	63	65	90	0,85	<b>679041 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

##### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037439 ●</b>
Collet (8°)		8	<b>037440 ●</b>
Collet (8°)		10	<b>037441 ●</b>
Collet (8°)		12	<b>037442 ●</b>
Collet (8°)		13	<b>037443 ●</b>
Collet (8°)		14	<b>037444 ●</b>
Collet (8°)		16	<b>037445 ●</b>
Collet (8°)		18	<b>037446 ●</b>
Collet (8°)		20	<b>037447 ●</b>
Collet (8°)		6,35 (1/4")	<b>037509 ●</b>
Collet (8°)		9,53 (3/8")	<b>037510 ●</b>
Collet (8°)		12,7 (1/2")	<b>037511 ●</b>
Collet (8°)		15,88 (5/8")	<b>037507 ●</b>
Collet (8°)		19,05 (3/4")	<b>037506 ●</b>
Sickle spanner	45/50		<b>005491 ●</b>
Collet chuck nut with ball bearing	M40x1.5		<b>005718 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>

##### Table for max. tool projection:

shank diameter d	max. projection
20	2,2 x d
12-16	3,0 x d
6-10	3,0 x d



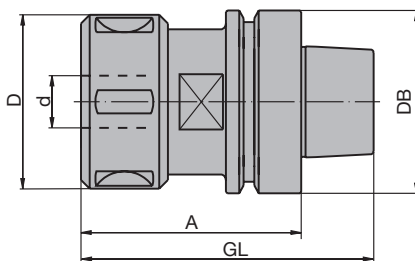
### Collet chuck with hollow taper shank HSK-F 80

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{max} = 30$  mm.

#### Technical information:

Hollow taper shank as per DIN 69893. Exact concentric running through hardened, ground and double slotted collets. Easy handling as loosening the ball bearing collet nut automatically opens the collet. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device VN 799 0 see section Knives and Spare Parts.

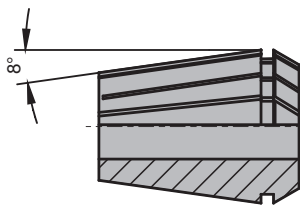


**HSK-F 80, DIN 69893, A = 78 mm, diameter range 6-30 mm, short design, 8° taper angle of the collet**

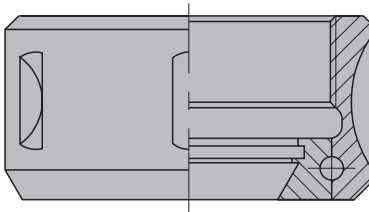
PM 350 0 15

d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
6 - 30	63	80	78	110	1,6	<b>679044 ●</b>

Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.



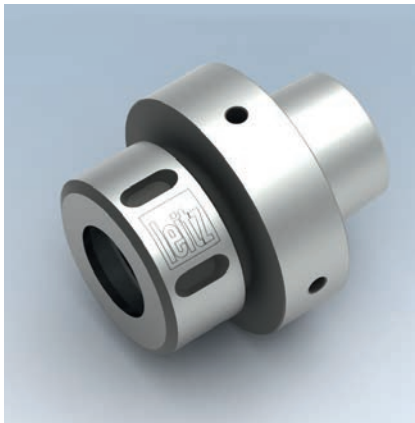
Collet angle 8°: DIN ISO 15488



Ball bearing collet nut

#### Spare parts:

BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037926 ●</b>
Collet (8°)		8	<b>037927 ●</b>
Collet (8°)		10	<b>037928 ●</b>
Collet (8°)		12	<b>037929 ●</b>
Collet (8°)		14	<b>037930 ●</b>
Collet (8°)		16	<b>037931 ●</b>
Collet (8°)		20	<b>037932 ●</b>
Collet (8°)		25	<b>037933 ●</b>
Collet (8°)		30	<b>679039 ●</b>
Collet (8°)		6,35 (1/4")	<b>037934 ●</b>
Collet (8°)		9,53 (3/8")	<b>037935 ●</b>
Collet (8°)		12,7 (1/2")	<b>037936 ●</b>
Collet (8°)		15,88 (5/8")	<b>037937 ●</b>
Collet (8°)		19,05 (3/4")	<b>037938 ●</b>
Collet (8°)		25,4 (1")	<b>037939 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M50x1.5		<b>006639 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluf	2047 Bytes		<b>081330 □</b>



### Collet chuck with hollow taper shank HSK 85 WS

#### Application:

Precision tool chuck with collet for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 30$  mm.

#### Technical information:

Exact concentric running through hardened, ground and double slotted collets. Easy handling by automatic collet opening when loosening the collet nut. Suitable for right hand and left hand rotation because of ball bearing collet nut. Ball bearing collet nut for increased clamping forces and improved concentricity compared to monobloc design. Tool chuck and collet nut fine balanced. Suitable mounting device ID **079010**.

#### HSK 85 WS, A = 61 mm, diameter range 6-30 mm, 8° taper angle of the collet

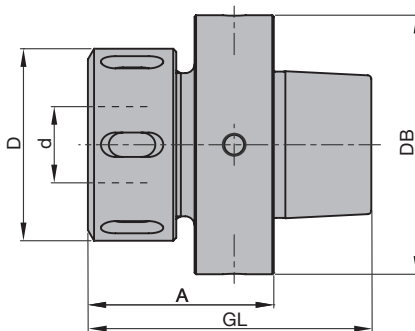
PM 350 0 15

Machine	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
Weinig	6 - 30	63	85	61	93	1,2	<b>679038</b>

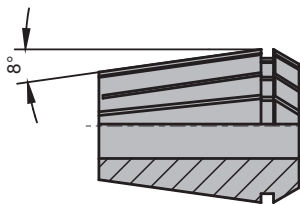
Sales unit consisting of clamping chuck with ball bearing collet nut, without collet or spanner.

#### Spare parts:

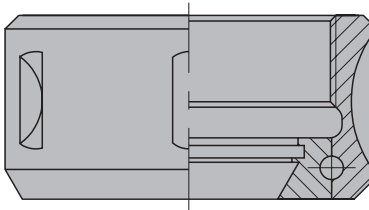
BEZ	ABM mm	for S mm	ID
Collet (8°)		6	<b>037926 ●</b>
Collet (8°)		8	<b>037927 ●</b>
Collet (8°)		10	<b>037928 ●</b>
Collet (8°)		12	<b>037929 ●</b>
Collet (8°)		14	<b>037930 ●</b>
Collet (8°)		16	<b>037931 ●</b>
Collet (8°)		20	<b>037932 ●</b>
Collet (8°)		25	<b>037933 ●</b>
Collet (8°)		30	<b>679039 ●</b>
Collet (8°)		6,35 (1/4")	<b>037934 ●</b>
Collet (8°)		9,53 (3/8")	<b>037935 ●</b>
Collet (8°)		12,7 (1/2")	<b>037936 ●</b>
Collet (8°)		15,88 (5/8")	<b>037937 ●</b>
Collet (8°)		19,05 (3/4")	<b>037938 ●</b>
Collet (8°)		25,4 (1")	<b>037939 ●</b>
Sickle spanner	58/62		<b>005458 ●</b>
Collet chuck nut with ball bearing	M50x1.5		<b>006639 ●</b>



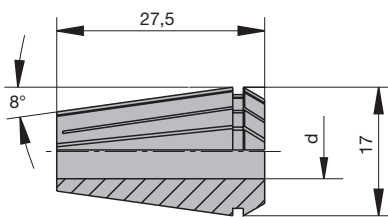
Collet chuck HSK 85 WS



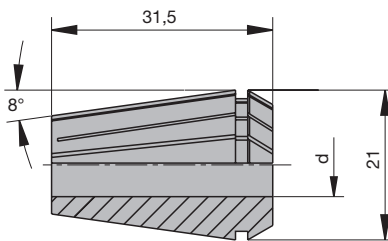
Collet angle 8°: DIN ISO 15488



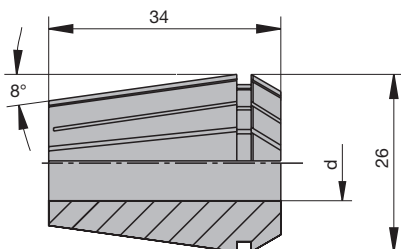
Ball bearing collet nut



ER 16 collet diameter range 6-10 mm



ER 20 collet diameter range 6-13 mm



ER 25 collet diameter range 6-16 mm

### Collets, type ER, DIN ISO 15488

#### Application:

For collet chucks and multi spindle units and trimming units with 8° taper angle (type ER, DIN ISO 15488).

#### Technical information:

Double slotted design for maximum clamping forces and concentricity.

#### Diameter range 6-10 mm, ER 16, Type 426E, DIN ISO 15488

PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (8°)	6	5,5 - 6	17	27,5	037972 ●
Collet (8°)	8	7,5 - 8	17	27,5	037973 ●
Collet (8°)	10	9,5 - 10	17	27,5	037974 ●
Collet (8°)	6,35 (1/4")	5,85 - 6,35	17	27,5	679022 ●
Collet (8°)	9,53 (3/8")	9,03 - 9,53	17	27,5	679023 ●

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	30/32		6 - 10		005516 ●
Collet chuck nut with ball bearing	M22x1.5	32	6 - 10	RH	006645 ●

#### Diameter range 6-13 mm, ER 20, Type 428E, DIN ISO 15488

PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (8°)	6	5,5 - 6	21	31,5	037975 ●
Collet (8°)	8	7,5 - 8	21	31,5	037976 ●
Collet (8°)	10	9,5 - 10	21	31,5	037977 ●
Collet (8°)	12	11,5 - 12	21	31,5	037978 ●
Collet (8°)	6,35 (1/4")	5,85 - 6,35	21	31,5	679024 ●
Collet (8°)	9,53 (3/8")	9,03 - 9,53	21	31,5	679025 ●
Collet (8°)	12,7 (1/2")	12,2 - 12,7	21	31,5	679026 ●

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	34/36		6 - 12,7		005498 ●
Collet chuck nut with ball bearing	M25x1.5	35	6 - 13	RH	006647 ●

#### Diameter range 6-16 mm, ER 25, Type 430E, DIN ISO 15488

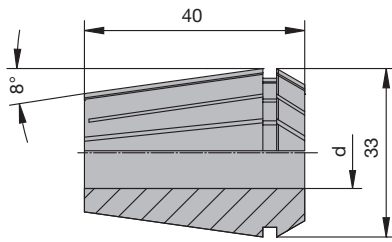
PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (8°)	6	5,5 - 6	26	34	037979 ●
Collet (8°)	8	7,5 - 8	26	34	037980 ●
Collet (8°)	10	9,5 - 10	26	34	037981 ●
Collet (8°)	12	11,5 - 12	26	34	037982 ●
Collet (8°)	14	13,5 - 14	26	34	037983 ●
Collet (8°)	16	15,5 - 16	26	34	037984 ●
Collet (8°)	6,35 (1/4")	5,85 - 6,35	26	34	679027 ●
Collet (8°)	9,53 (3/8")	9,03 - 9,53	26	34	679028 ●
Collet (8°)	12,7 (1/2")	12,2 - 12,7	26	34	679029 ●
Collet (8°)	15,88 (5/8")	15,38 - 15,88	26	34	679030 ●

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	40/42		6 - 16		005518 ●
Collet chuck nut with ball bearing	M32x1.5	42	6 - 16	RH	006649 ●





ER 32 collet diameter range 6-20 mm

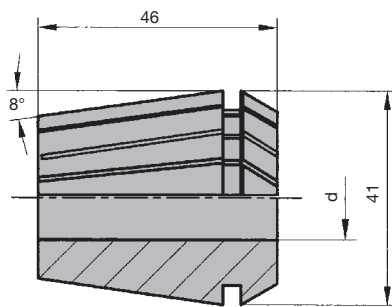
#### Diameter range 6-20 mm, ER 32, Type 470E, DIN ISO 15488

PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (8°)	6	5,5 - 6	33	40	037439 ●
Collet (8°)	8	7,5 - 8	33	40	037440 ●
Collet (8°)	10	9,5 - 10	33	40	037441 ●
Collet (8°)	12	11,5 - 12	33	40	037442 ●
Collet (8°)	13	12,5 - 13	33	40	037443 ●
Collet (8°)	14	13,5 - 14	33	40	037444 ●
Collet (8°)	16	15,5 - 16	33	40	037445 ●
Collet (8°)	18	17,5 - 18	33	40	037446 ●
Collet (8°)	20	19,5 - 20	33	40	037447 ●
Collet (8°)	6,35 (1/4")	5,85 - 6,35	33	40	037509 ●
Collet (8°)	9,53 (3/8")	9,03 - 9,53	33	40	037510 ●
Collet (8°)	12,7 (1/2")	12,2 - 12,7	33	40	037511 ●
Collet (8°)	15,88 (5/8")	15,38 - 15,88	33	40	037507 ●
Collet (8°)	19,05 (3/4")	18,55 - 19,05	33	40	037506 ●

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	45/50				005491 ●
Collet chuck nut with ball bearing	M40x1.5	50	6 - 20	RH	005718 ●



ER 40 collet diameter range 6-30 mm

#### Diameter range 6-30 mm, ER 40, Type 472E, DIN ISO 15488

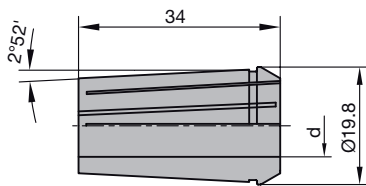
PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (8°)	6	5,5 - 6	41	46	037926 ●
Collet (8°)	8	7,5 - 8	41	46	037927 ●
Collet (8°)	10	9,5 - 10	41	46	037928 ●
Collet (8°)	12	11,5 - 12	41	46	037929 ●
Collet (8°)	14	13,5 - 14	41	46	037930 ●
Collet (8°)	16	15,5 - 16	41	46	037931 ●
Collet (8°)	20	19,5 - 20	41	46	037932 ●
Collet (8°)	25	24,5 - 25	41	46	037933 ●
Collet (8°)	30	29,5 - 30	41	46	679039 ●
Collet (8°)	6,35 (1/4")	5,85 - 6,35	41	46	037934 ●
Collet (8°)	9,53 (3/8")	9,03 - 9,53	41	46	037935 ●
Collet (8°)	12,7 (1/2")	12,2 - 12,7	41	46	037936 ●
Collet (8°)	15,88 (5/8")	15,38 - 15,88	41	46	037937 ●
Collet (8°)	19,05 (3/4")	18,55 - 19,05	41	46	037938 ●
Collet (8°)	25,4 (1")	24,9 - 25,4	41	46	037939 ●

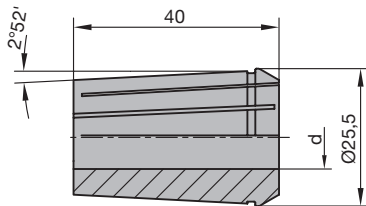
#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	58/62		6 - 30		005458 ●
Collet chuck nut with ball bearing	M50x1.5	63	6 - 30	RH	006639 ●





Collet type 407E diameter range  
6-12.7 mm



Collet type 415E diameter range  
6-16 mm

### Collets, DIN ISO 10897, taper ratio 1:10

#### Application:

For collet chucks as well as for multi spindle units and trimming units with 2°52' taper angle (taper ratio 1:10).

#### Technical information:

Double slotted design for maximum clamping forces and concentricity.

#### Diameter range 6-12.7 mm, Type 407E, DIN ISO 10897

PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (2°52')	6	6	19,8	34	<b>679013 ●</b>
Collet (2°52')	7	7	19,8	34	<b>679015 ●</b>
Collet (2°52')	8	8	19,8	34	<b>679016 ●</b>
Collet (2°52')	10	10	19,8	34	<b>679019 ●</b>
Collet (2°52')	12	12	19,8	34	<b>679020 ●</b>
Collet (2°52')	6,35 (1/4")	6,35	19,8	34	<b>679014 ●</b>
Collet (2°52')	9,53 (3/8")	9,53	19,8	34	<b>679018 ●</b>
Collet (2°52')	12,7 (1/2")	12,7	19,8	34	<b>679021 ●</b>

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	34/36		6 - 12,7		<b>005498 ●</b>
Collet chuck nut	M27x1.5	35		RH	<b>006653 ●</b>

#### Diameter range 6-16 mm, Type 415E, DIN ISO 10897

PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (2°52')	6	6	25,5	40	<b>679005 ●</b>
Collet (2°52')	8	8	25,5	40	<b>679032 ●</b>
Collet (2°52')	9	9	25,5	40	<b>679033 ●</b>
Collet (2°52')	9,5	9,5	25,5	40	<b>679034 ●</b>
Collet (2°52')	10	10	25,5	40	<b>679006 ●</b>
Collet (2°52')	12	12	25,5	40	<b>679036 ●</b>
Collet (2°52')	13	13	25,5	40	<b>679007 ●</b>
Collet (2°52')	14	14	25,5	40	<b>679037 ●</b>
Collet (2°52')	16	16	25,5	40	<b>679008 ●</b>
Collet (2°52')	6,35 (1/4")	6,35	25,5	40	<b>679009 ●</b>
Collet (2°52')	12,7 (1/2")	12,7	25,5	40	<b>679011 ●</b>

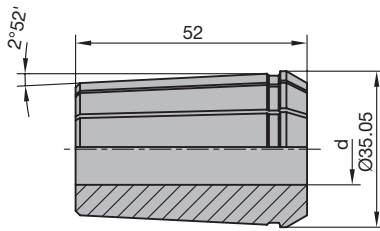
#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	40/42		6 - 16		<b>005469 ●</b>
Collet chuck nut with ball bearing	M33x1.5	43		RH	<b>005685 ●</b>

## 7. Clamping systems

### 7.3 Clamping chucks

#### 7.3.3 Collet chucks



Collet type 462E diameter range 6-25.4 mm

#### Diameter range 6-25.4 mm, Type 462E, DIN ISO 10897

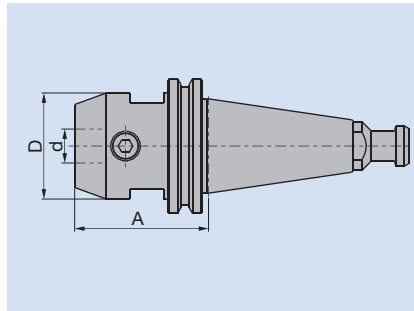
PM 150 0

BEZ	for S mm	d mm	D mm	GL mm	ID
Collet (2°52')	6	6	35,05	52	<b>037429 ●</b>
Collet (2°52')	8	8	35,05	52	<b>037430 ●</b>
Collet (2°52')	10	10	35,05	52	<b>037431 ●</b>
Collet (2°52')	12	12	35,05	52	<b>037432 ●</b>
Collet (2°52')	13	13	35,05	52	<b>037433 ●</b>
Collet (2°52')	14	14	35,05	52	<b>037434 ●</b>
Collet (2°52')	16	16	35,05	52	<b>037435 ●</b>
Collet (2°52')	18	18	35,05	52	<b>037436 ●</b>
Collet (2°52')	20	20	35,05	52	<b>037437 ●</b>
Collet (2°52')	25	25	35,05	52	<b>037438 ●</b>
Collet (2°52')	6,35 (1/4")	6,35	35,05	52	<b>037495 ●</b>
Collet (2°52')	9,53 (3/8")	9,53	35,05	52	<b>037505 ●</b>
Collet (2°52')	12,7 (1/2")	12,7	35,05	52	<b>037496 ●</b>
Collet (2°52')	15,88 (5/8")	15,88	35,05	52	<b>037502 ●</b>
Collet (2°52')	19,05 (3/4")	19,05	35,05	52	<b>037497 ●</b>
Collet (2°52')	25,4 (1")	25,4	35,05	52	<b>037508 ●</b>

#### Spare parts:

BEZ	ABM mm	D mm	Diameter range mm	DRI	ID
Sickle spanner	58/62		6 - 30		<b>005458 ●</b>
Collet chuck nut with ball bearing	M48x2	60		RH	<b>005714 ●</b>

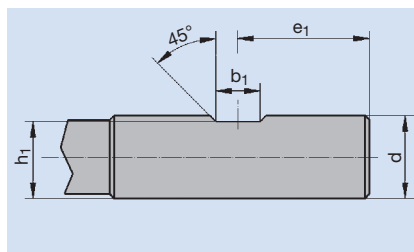
<b>Application</b>	High-stability shank tool clamping.
<b>Machine</b>	Stationary routers with CNC control and spindles for automatic tool change. Milling machines with spindles for automatic tool change.
<b>Technical features</b>	Weldon chucks are used to clamp shank tools rigidly. Weldon chucks have a similar rigidity to shrink-fit chucks, but the run out tolerance of shrink-fit chucks is significantly higher. Shrink-fit chucks are recommend for machining operations demanding high quality.



D	Largest diameter of the chuck in the clamping area
d	Clamping or bore diameter
A	Length from the reference point on the steep taper or the HSK reference surface

<b>Permissible shank tolerances</b>	Tools clamped in weldon chucks must have at least the following tool shank tolerances:	
	Diameter of shank	
Tools mounted in Weldon chucks	16 mm	20 mm
	ISO g7	ISO g7

<b>Clamping flat</b>	The shanks of tools clamped in Weldon chucks must have a driving flat to DIN 1835.  The following drawing details the dimensions of the clamping flat:
----------------------	--



d	e <sub>1</sub>	b <sub>1</sub>	h <sub>1</sub>
16	24	10	14.2
20	25	11	18.2

<b>Application data</b>	<b>Maximum RPM</b> Maximum RPM for Weldon chucks: $n_{\max} = 24000 \text{ min}^{-1}$ .
<b>Order information</b>	Weldon chucks with adaptors SK 30 / SK 40 as well as HSK-E / HSK-F supplied on request.



#### Clamping chuck with steep taper for CNC aggregates

##### Application:

Precision tool chuck for clamping shank tools with cylindrical shank and shank diameters up to  $d_{\max} = 16$  mm.

##### Technical information:

Steep taper design for Flex 5+ aggregates (Homag Group) and 5-motion-Plus aggregate (Felder Format-4). High stability for medium difficult cutting operations. Easy tool change through opening of the radial clamping screw. Tool adaptor fine balanced. Maximum tool protrusion (length projecting of the chuck) 60 mm.

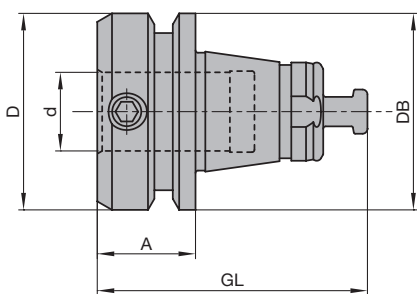
##### A = 20 mm, clamping diameter 16 mm

PM 320 0 53

Machine	d mm	D mm	DB mm	A mm	GL mm	Weight kg	ID
Felder Format-4, Homag Group	16	40	40	20	55	0,3	<b>037722</b> □

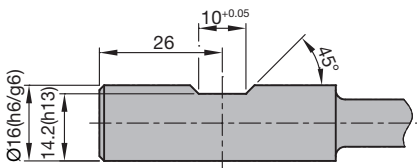
##### Spare parts:

BEZ	ABM mm	ID
Clamping screw	M8x10	<b>007800</b> □
Allen key	SW 4	<b>005434</b> ●



Weldon clamping chuck

Required shank design:



<b>Application</b>	Clamping drills.
<b>Machine</b>	Stationary routers with CNC control and spindles for automatic tool change. Milling machines with spindles for automatic tool change. Routers without automatic tool change. Drilling machines.
<b>Technical features</b>	<p>1. Conventional drill adaptors</p> <p>Drill adaptors are used to mount dowel drills, through hole drills or hinge boring bits in drilling machines.</p> <p>Below an overview of the available adaptors:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p><b>A</b></p> <p>Nottmeyer (old machine design)</p> </div> <div style="width: 50%;"> <p><b>E</b></p> <p>Bilek Type K and N Knoevenagel</p> </div> <div style="width: 50%;"> <p><b>B</b></p> <p>Ayen, Brandt Knoevenagel Mayer Reichenbacher Torwegge Zubiola</p> </div> <div style="width: 50%;"> <p><b>F</b></p> <p>Alberti, Balestrini, Bilek Busellato, Dubus, Goma Grotefeld, Ompec, Reimall SCM, Schleicher, Tanzani Viciani, Vitap (before year 4/91) Weingärtner</p> </div> <div style="width: 50%;"> <p><b>C</b></p> <p>Lehbrink Nottmeyer (new machine design)</p> </div> <div style="width: 50%;"> <p><b>G</b></p> <p>Morbidelli</p> </div> <div style="width: 50%;"> <p><b>D</b></p> <p>Alberti, Balestrini, Biesse Böttcher &amp; Gessner Busellato, Goma, Grotefeld Hüllhorst, Holz-Her, Koch Morbidelli, Reimall, Torwegge Vitap (after year 4/91) Weeke</p> </div> <div style="width: 50%;"> <p><b>H</b></p> <p>Scheer</p> </div> </div>

The drill is clamped in the adaptor by a screw. The shank has to have a driving flat.

## 7. Clamping systems

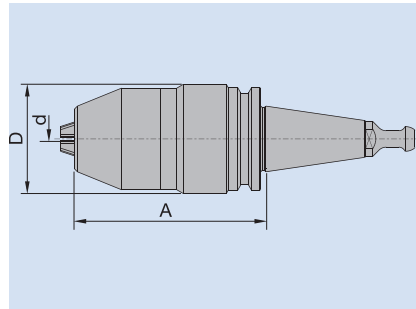
### 7.3 Clamping chucks

#### 7.3.5 Drill adaptors

##### 2. Drill chuck for CNC machining centres

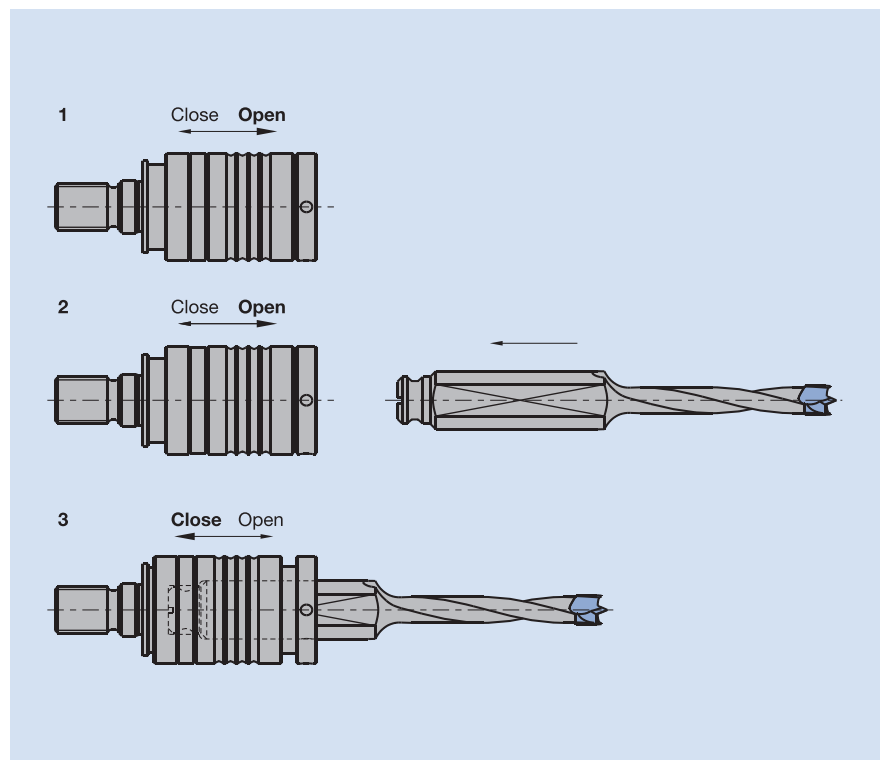
Drill chucks are an easy way to carry drills in machines with magazines. The drill chuck is a 3 wedge chuck with an interface to suit the tool spindle.

D	Largest external diameter of the chuck
d	Clamping diameter
A	Length from the reference point (steep taper) or reference surface (HSK)



##### 3. Quick change adaptor

Adaptor system for dowel drills, through hole drills and hinge boring bits for different drilling machines. The quick change adaptor is a quick and easy way to change drills in the machine without using tools.

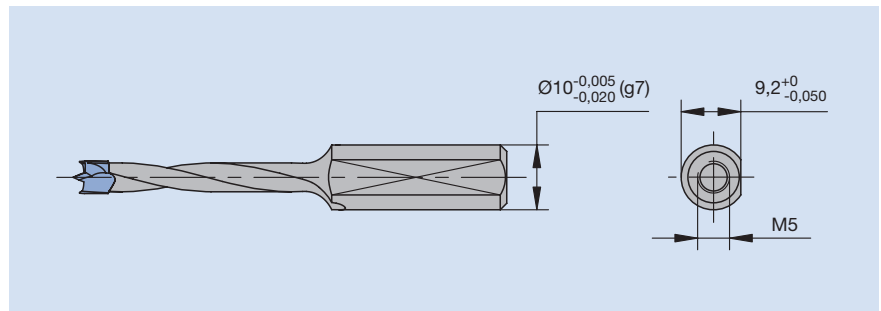


##### Changing a drill.

For a perfect fit of the shank a special length adjustment screw (ID **009157**) is required. This screw allows exact length adjustment of the mounted drills.

#### Required shank tolerance

Clamping drills safely requires the following shank and driving flat tolerance:



#### Application Data

##### Maximum allowable RPM

Maximum allowable RPM for drill adaptors (adaptor in spindle):

$$n_{\max} = 9000 \text{ min}^{-1}.$$

Conventional drill adaptors and quick change adaptors can be used up to

$$n_{\max} = 12000 \text{ min}^{-1}.$$





### Drill adaptor, conventional clamping

#### Application:

Clamping chuck for drill bits with 10 mm shank diameter and driving flat for drilling spindles with threaded adaptor.

#### Technical information:

Stable and secure clamping of drills by 2 clamping screws. Smallest spindle pitch in the drilling unit: 21 mm. For narrower pitches, 8 mm shank chucks and drills must be used.

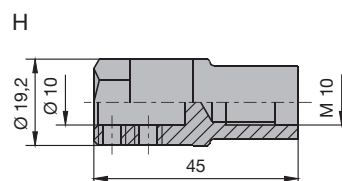
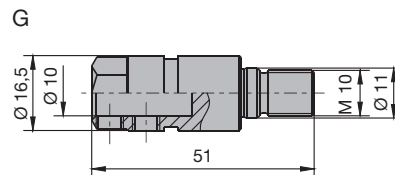
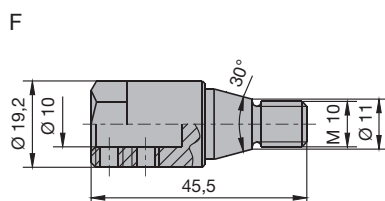
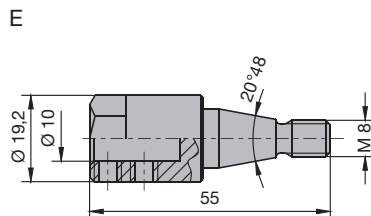
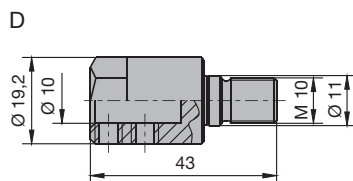
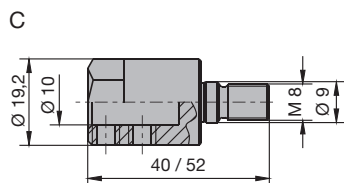
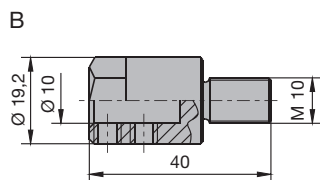
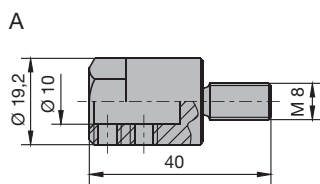
#### Clamping chuck for drills with 10 mm shank and driving flat

PM 320 0 28, PM 320 0 29, PM 320 0 30, PM 320 0 32, PM 320 0 34, PM 320 0 40, PM 320 0 42, PM 320 0 46, PM 320 0 50

Machine	GL mm	Pic.	ID LH	ID RH
Nottmeyer (old machine type)	40	A	033088 •	033089 •
Ayen, Brandt, Holzma, Homag, Knoevenagel, Mayer, Reichenbacher, Torwegge, Zubiola	40	B	033092 •	033093 •
Lehbrink, Nottmeyer (new machine type)	40	C	033080 •	033081 •
Lehbrink, Nottmeyer (new machine type)	52	C	033082 •	033083 •
Alberti, Balestrini, Biesse, Böttcher & Gessner, Busellato, Goma, Grotefeld, Holz-Her, Homag, Hüllhorst, Koch, Morbideilli, Reimall, Torwegge, Vitap (from YOM 4/91 on), Weeke	43	D	033086 •	033087 •
Bilek, Knoevenagel	55	E	033084 •	033085 •
Alberti, Balestrini, Bilek, Busellato, Dubus, Goma, Grotefeld, Ompec, Reimall, Schleicher, SCM, Tanzani, Viciani, Vitap (up to YOM 4/91), Weingärtner	45,5	F	033090 •	033091 •
Morbideilli	51	G	033094 •	033095 •
Scheer	45	H	033096 •	033097 •

#### Spare parts:

BEZ	ABM mm	ID
Allen key	SW 3	005433 •
Allen screw	M6x5	005836 •





## Drill adaptor, quick clamping design

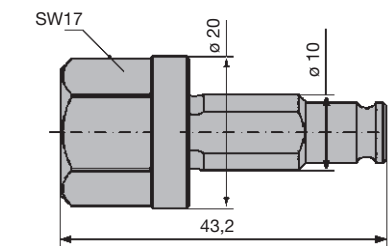
### Application:

Quick clamping chuck for drills with 10 mm shank and driving flat for drilling spindles with threaded adaptor.

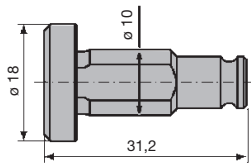
### Technical information:

The drill is held in the chuck by the length adjusting screw (ID 009157). Ideal if the hole diameter must be changed quickly. Quick clamping chucks not in use should be covered using the optional dust cover.

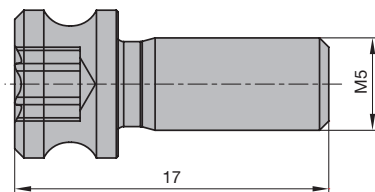
**Note:** The drill shanks require an appropriate shank and driving flat dimensional tolerance to ensure trouble free operation. Drills from the Leitz range guarantees functional reliability. Speed up to 12000 min<sup>-1</sup> (quick change drill adaptor without drill must be covered with the dust cover ID 115521 for speeds exceeding 9000 min<sup>-1</sup> to prevent unbalance).



Mounting device ID 115522



Dust cover ID 115521



Length adjustment screw ID 009157

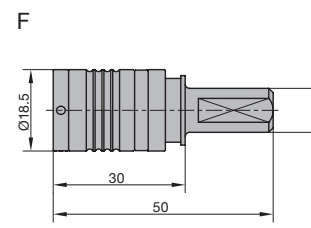
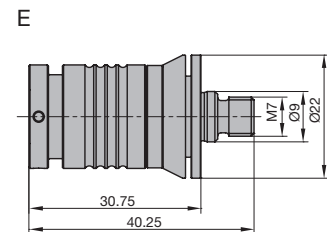
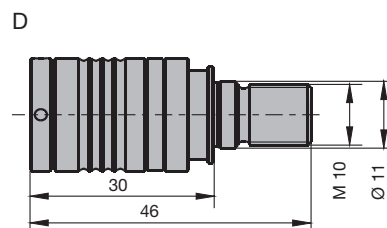
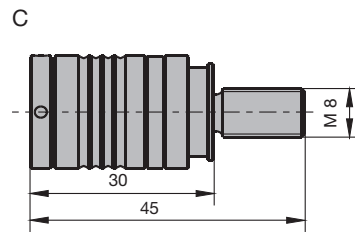
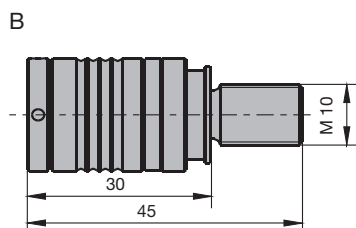
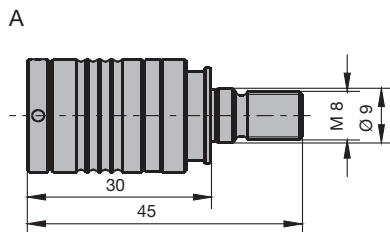
### Clamping chuck for drills with 10 mm shank and driving flat

PM 320 0, PM 320 0 55, PM 320 0 56, PM 320 0 57, PM 320 0 58, PM 320 0 59

Machine	BEM	GL mm	Pic.	ID LH	ID RH
Lehbrink, Nottmeyer (new machine type)		45	A	033102 •	033103 •
Ayen, Brandt, Holzma, Homag, Knoevenagel, Mayer, Reichenbacher, Torwegge, Zubiola		45	B	033104 •	033105 •
Nottmeyer (old machine type)		45	C	033098 •	033099 •
Alberti, Biesse, Böttcher & Gessner, Busellato, Goma, Grotefeld, Holz-Her, Homag, Hüllhorst, Koch, Morbidelli, Reimall, Torwegge, Vitap (from YOM 4/91 on), Weeke		46	D	033100 •	033101 •
Homag, Weeke	from year of construction 2/04 on	40,25	E	033109 •	033110 •
Universal	Shank D-10 mm	50	F	033106 •	033106 •

### Spare parts:

BEZ	ABM mm	ID
Dust cover	d8/10/D18/L31.2	115521 •
Mounting device	d8/10/D20/L43.2/SW17	115522 •
Length adjustment screw Torx® 20	M5x17	009157 •





#### Drill adaptor

##### Application:

For mounting dowel drills, through hole drills and hinge boring bits on point-to-point drilling machines, through feed drilling machines and stationary drilling machines.

##### Technical information:

Wear resistant material, ground surface. High concentricity for clean holes and long drill life time.

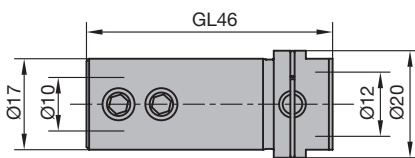
##### For Weeke through-feed machines

PM 320 0

Machine	d mm	D mm	GL mm	ID
Homag, Weeke	10	20	46	<b>033107 ●</b>

##### Spare parts:

BEZ	ABM mm	ID
Allen key	SW 3	<b>005433 ●</b>
Allen screw	M6x4	<b>005837 ●</b>



Drill adaptor for Weeke



#### Drill adaptor

##### Application:

For mounting dowel drills, through hole drills and hinge boring bits on point-to-point drilling machines, through feed drilling machines and stationary drilling machines.

##### Technical information:

Wear resistant material, ground surface. High concentricity for clean holes and long drill life time.

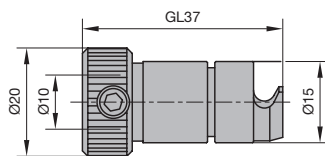
##### For Biesse boring units

PM 320 0

Machine	d mm	D mm	GL mm	ID
Biesse	10	20	37	<b>033108 ●</b>

##### Spare parts:

BEZ	ABM mm	ID
Allen key	SW 3	<b>005433 ●</b>
Allen screw	M6x5	<b>005836 ●</b>



Drill adaptor for Biesse



### Quick change drill adaptor, spare parts for previous system

#### Tool adaptor for drills with 10 mm shanks

PM 320 0 02

d	D	GL	ID	ID
mm	mm	mm	LH	RH
10	20	29	033270 ●	033271 ●

#### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 3	005433 ●
Allen screw	M6x5	005836 ●

#### Tool adaptor for drills with 8 mm shanks

PM 320 0 01

d	D	GL	ID	ID
mm	mm	mm	LH	RH
8	15,5	29	033170 ●	033171 ●

#### Spare parts:

BEZ	ABM	ID
	mm	
Allen key	SW 3	005433 ●
Allen screw	M6x5	005836 ●



### Drill chuck for CNC spindle

#### Application:

Clamping chuck for drills for CNC routers and machining centres.

#### Technical information:

Precision design with high concentricity < 0.02 mm. Special clamping mechanism with improved holding forces to prevent the tool shank from slipping. Stepless adjustable clamping range: 1-13 mm (SK 30, ISO 30, SK 40), 1-16 mm (HSK-E/-F 63). Fine balanced design. Clamping wedges hardened for improved wear resistance. Suitable for right hand and left hand rotation. Only to be used for drills.

#### Stepless adjustable clamping range

PM 330 0

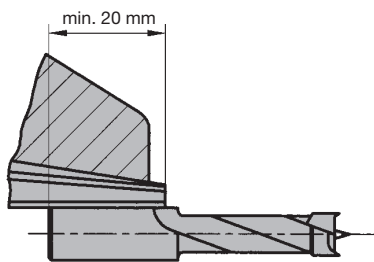
Type	d mm	D mm	DB mm	A mm	GL mm	Weight kg	S mm	ID
A	1 - 13	50	50	103	174,8	1,30	SK 30	037758 □
B	1 - 13	50	50	103	174,8	1,30	SK 30	037759 □
E	1 - 13	50	63,55	87,5		1,50	SK 40	037761 ●
	1 - 16	50	63	98	129,6	1,80	HSK-E 63	037763 ●
	1 - 16	50	63	98	123	1,70	HSK-F 63	037762 ●

#### Spare parts:

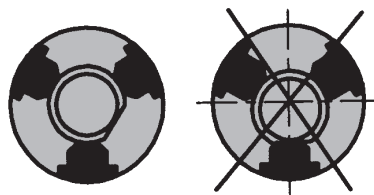
BEZ	for S mm	ABM mm	L mm	ID
Allen key	SK	SW 6	100	005447 ●
Allen key	HSK	SW 4	100	005503 ●

#### Conditions to be observed during clamping:

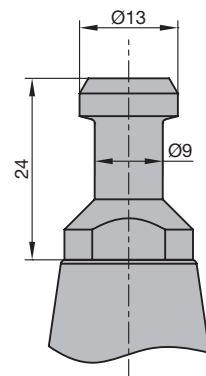
- Minimum clamping length  
 $l_{\min} = 20 \text{ mm}$
- Maximum clamping length  
 $l_{\max} = 29 \text{ mm}$



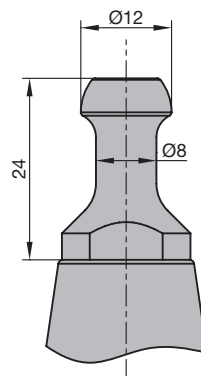
- Do not clamp tapered shanks
- If possible use cylindrical shanks without clamping flat, grooves or other recesses



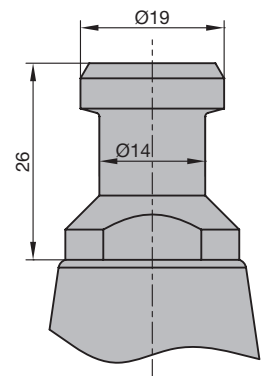
- If drills with driving flat are used, the clamping flat is not allowed to touch the clamping wedges. See illustration



Type: A  
SK 30 pull stud as per  
DIN ISO 7388



Type: B  
SK 30/ISO 30 pull  
stud for HSD spindles  
from construction  
year 9/92 on



Type: E  
SK 40 pull stud as per  
DIN ISO 7388





#### Hydro clamping arbor HSK-F 63 / HSK-E 63

##### Application:

For precise and play-free mounting of tools with bore, such as sawblades, tools, toolsets and cutterheads.

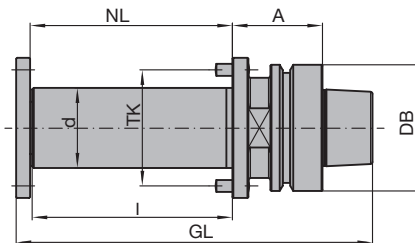
##### Machine:

Machines with HSK-F 63 or HSK-E 63 adaptor, e.g. moulders, window producing machines, CNC-machining centres etc.

##### Technical information:

Hollow taper shank design as per DIN 69863. Play-free and precise adaption of bore tools through hydro clamping arbors. Axial clamping actuation of the closed hydro system. Safety against twisting of the tools through pins and screws.

**Note:** Please observe the admitted maximum weight and diameters as well as the maximum tool RPM of the machine producer!



Hydro clamping arbor HSK-F 63

##### HSK-F / E 63, A = 45 / 90 mm

PH 160 0 04, PH 160 0 05

d	l	NL	A	GL	DB	TK	Weight	S	ID
mm	mm	mm	mm	mm	mm	mm	kg	mm	
40	100	101	45	178	63	58	2,18	HSK-F 63	<b>663811</b>
40	140	141	45	218	63	58	2,67	HSK-F 63	<b>663812</b>
40	190	191	45	268	63	58	3,05	HSK-F 63	<b>663813 ●</b>
40	190	191	90	313	63	58	4,41	HSK-F 63	<b>663814</b>
40	190	191	45	275	63	58	3,2	HSK-E 63	<b>663815</b>
40	190	191	90	320	63	58	4,5	HSK-E 63	<b>663816</b>

#### Hydro clamping arbor HSK-F 63 mod.

##### Application:

Hydro clamping arbor for precise and play-free mounting of tools with bore such as circular sawblades, tools, toolsets and cutterheads for high concentricity.

##### Machine:

Machines with HSK-F 63 interface, e.g. laminate and parquet flooring lines, edgbanding machines, double-end tenoners, profile cutting machines etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressurising piston mechanism. User friendly axial positioned hydro clamping screw. Play-free and precise mounting of tools with bores on hydro clamping arbors. Suitable for RH and LH. RPM  $n_{max}$  12000<sup>-1</sup>.

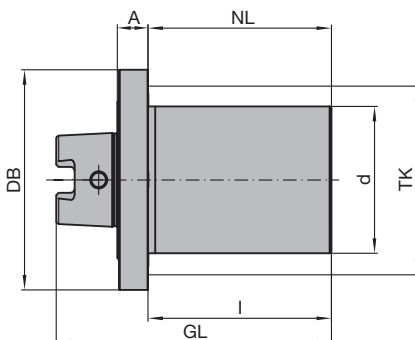
**Note:** Check the allowed maximum RPM of the tool mounted on the arbor!

##### HSK-F 63 mod. for tools with bore 60 mm, A = 12.5 mm

PH 160 0 02

Machine	d	l	NL	GL	DB	TK	Weight	ID
	mm	mm	mm	mm	mm	mm	kg	
Homag	60	75	75	112,5	63	75	2,25	<b>663804</b>

Suitable spacers, see section Knives and Spare Parts.

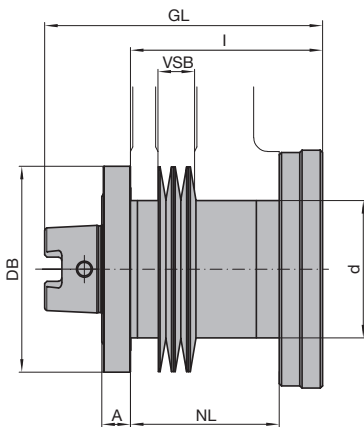


Hydro clamping arbor HSK-F 63 mod.  
PH 160 0 02

## 7. Clamping systems

### 7.4 Clamping arbors

#### 7.4.1 Hydro clamping arbors



Hydro clamping arbor HSK-F 63 mod.  
with stepless fine adjustment  
PH 160 0 03

#### Hydro clamping arbor HSK-F 63 mod. with stepless fine adjustment

##### Application:

Hydro clamping arbor for precise and play-free mounting of tools with bore such as circular sawblades, toolsets and sets of cutterheads for high concentricity. Fine thread design of the hydro clamping arbor allows stepless fine adjustment of multi part tooling sets.

##### Machine:

Machines with HSK-F 63 adaptor, e.g. laminate and parquet flooring lines, edgebanding machines, double-end tenoners, profile cutting machines etc.

##### Technical information:

Closed hydro clamping system with maintenance free pressurising piston mechanism. User friendly axial positioned hydro clamping screw. Play-free and precise mounting of tools with bores on hydro clamping arbors. Suitable for RH and LH. RPM  $n_{\max}$  12000<sup>-1</sup>.

**Note:** Check the allowed maximum RPM of the tool mounted on the arbor!

##### HSK-F 63 mod. for tools with bore 60 mm, A = 12.5 mm

PH 160 0 03

Machine	d mm	l mm	NL mm	VSB	GL mm	DB mm	TK mm	Weight kg	ID
Homag	60	75	42 - 52	10	116,5	63	75	2,8	<b>663803 •</b>



## 7. Clamping systems

### 7.4 Clamping arbors 7.4.1 Hydro clamping arbors



#### Hydro clamping arbor HSK 85 WS

##### Application:

For precise, play-free mounting of tools with bore, such as sawblades, cutting tools, sets of cutting tools and cutterheads.

##### Machine:

Machines with HSK 85 WS adaptor e.g. moulders (Weinig Powermat), window production machines etc.

##### Technical information:

Play-free and precise mounting of tools with bore by hydro arbors. Radial clamping by closed hydro system. Easy and safe handling with optionally lifting rings.

**Note:** Observe the information of the machine producer for the permitted maximum weight and diameter as well as the maximum tool RPM!

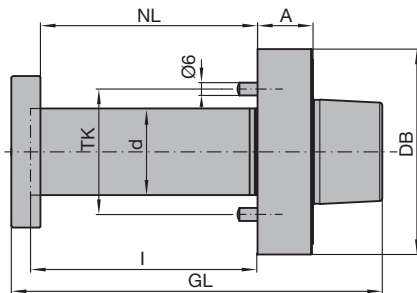


##### HSK 85 WS, A = 26 mm

PH 160 0 01

Machine	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
Weinig	40	105,5	100	171,5	85	58	2,9	663800 ●
Weinig	40	175,5	170	265,5	85	58	3,8	663802 ●

Suitable spacers, see section Knives and Spare Parts.

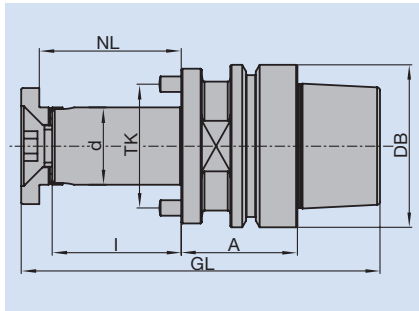


Hydro clamping arbor HSK 85 WS -  
PH 160 0 01

# 7. Clamping systems

## 7.4 Clamping arbors

### 7.4.2 Cutter arbors

<b>Application</b>	For mounting single cutters or cuttersets with bore.										
<b>Machine</b>	Stationary routers with CNC control and spindles for automatic tool change, Through-feed machines and milling machines with spindles for automatic tool change.										
<b>Technical features</b>	<p>Cutter arbors are used to mount tools, cutterheads, cutters and sawblades on CNC machining centres or trough-feed machines with spindles for automatic tool change. The arbor clamping length can be altered to suit the application and tool.</p>  <table> <tr> <td>d</td><td>Diameter of the arbor</td></tr> <tr> <td>I</td><td>Clamping length</td></tr> <tr> <td>DB</td><td>Outer diameter groove</td></tr> <tr> <td>A</td><td>Length from reference point (steep taper) or reference surface (HSK)</td></tr> <tr> <td>DTK</td><td>Pitch diameter, screw or pin bore</td></tr> </table>	d	Diameter of the arbor	I	Clamping length	DB	Outer diameter groove	A	Length from reference point (steep taper) or reference surface (HSK)	DTK	Pitch diameter, screw or pin bore
d	Diameter of the arbor										
I	Clamping length										
DB	Outer diameter groove										
A	Length from reference point (steep taper) or reference surface (HSK)										
DTK	Pitch diameter, screw or pin bore										
<b>Permissible bore tolerances</b>	<p>Tools mounted on arbors must have at least the following bore tolerance:</p> <table> <tr> <th></th><th><b>Bore tolerance</b></th></tr> <tr> <td>Tools mounted on arbors</td><td>ISO H7</td></tr> </table>		<b>Bore tolerance</b>	Tools mounted on arbors	ISO H7						
	<b>Bore tolerance</b>										
Tools mounted on arbors	ISO H7										
<b>Information</b>	Please observe the data of the machine producer for the allowed maximal weight and diameter as well as the maximal tool RPM!										



### Cutter arbor with cylindrical shank

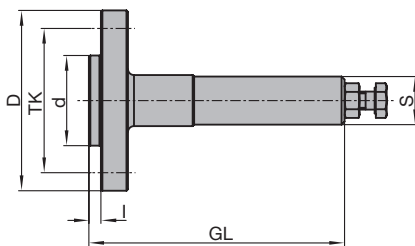
#### Application:

Arbor for single tools with bore or tool sets with bore.

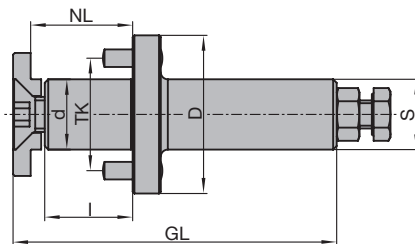
#### Technical information:

Cylindrical shank design. Short design for grooving cutter and sawblades up to widths NB = 10 mm. Long design for one part or multi part tools/tool sets. Safety device against tool twisting by screw or pin. Cutter arbors are fine balanced. If conical spring washers with safety device against twisting are used, slots are required in the cutter arbor.

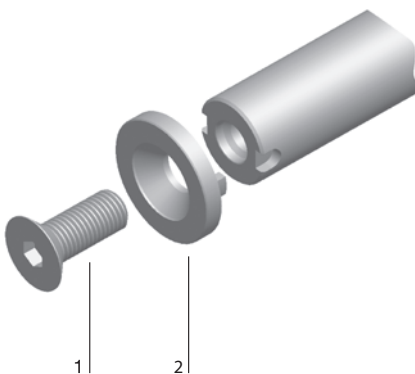
**Note:** Maximum admissible speed  $n_{max}$  depends on the mounted tools. Please comply with the specifications regarding the maximum admissible weight and diameters detailed by the machine manufacturer.



Arbor, short design



Arbor, long design



- 1 Clamping screw
- 2 Conical spring washer for safety against twisting

#### Short version

TI 501 0 04

d	l	D	GL	TK	S	ID
mm	mm	mm	mm	mm	mm	
30	4	60	85	48	16x50	041429 ●
30	4	59	102	48	20x50	041368 ●
30	4	59	102	48	25x60	041367 ●
30	4	59	127	48	25x60	042980 ●

With four countersunk screws M6X16. Maximum diameter for circular saw blades = 250 mm.

#### Long design

TI 501 0 03

d	l	NL	D	GL	TK	S	ID
mm	mm	mm	mm	mm	mm	mm	
20	25	29	50	92	32	20x50	042982 □
20	40	44	50	107	32	20x50	042983 □
20	55	59	50	122	32	20x50	042984 ●
20	40	44	50	116	32	25x60	041124 ●
20	55	59	50	131	32	25x60	041125 ●
20	70	74	50	146	32	25x60	041126 ●
30	25	30	59	95	48	20x50	042985 □
30	40	45	59	110	48	20x50	042986 ●
30	25	30	59	105	48	25x60	041127 □
30	40	45	59	120	48	25x60	041128 ●

Sales unit consisting of arbor, clamping screw and conical spring washer (flat design), without spacers.

#### Spare parts:

BEZ	ABM	for d	ID
	mm	mm	
Washer with safety device against twisting, M10	20/35x13x10,5	20	006768 ●
Washer with safety device against twisting, M16	30/45x15x16,5	30	006769 ●

Suitable spacers, see section Knives and Spare Parts.



### Cutter arbor with steep taper SK 30 / SK 40

#### Application:

Arbor for single tools with bore or tool sets with bore.

#### Technical information:

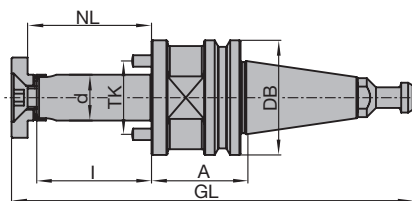
Steep taper design as per DIN ISO 7388, without grooves and notches. Short design, suitable for low vibration cutting. Safety device against tool twisting by screw or pin. Arbors are fine balanced. If conical spring washers with safety device against twisting are used, slots are required in the arbor. For suitable mounting device VN 799 0, see section Knives and Spare Parts.

**Note:** Please comply with the specifications regarding the maximum admissible weight and diameters detailed by the machine manufacturer!

#### SK 30, A = 42 mm

TI 501 0 01

Type	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
A	20	70	74	194,8	50	32	1	<b>041137</b> □
A	30	80	85	205,8	50	48	1,3	<b>042814</b> □
B	20	70	74	194,8	50	32	1	<b>041370</b> □
B	30	80	85	205,8	50	48	1,3	<b>041373</b> □
C	20	70	74	194,8	50	32	1	<b>042832</b> □
C	30	80	85	205,8	50	48	1,3	<b>042836</b> □



Arbor SK 30/SK 40

#### SK 40, A = 42 mm

TI 501 0 01

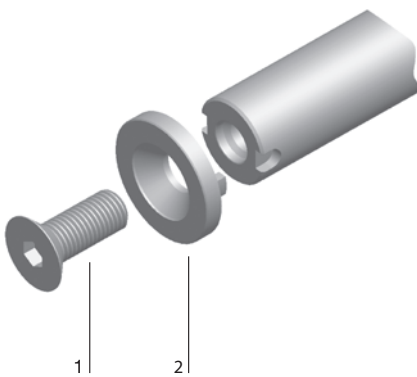
Type	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
E	30	80	85	228,5	63,55	48	1,8	<b>042815</b> □

Sales unit consists of arbor with pull stud, clamping screw and conical spring washer (flat design), without spacers.

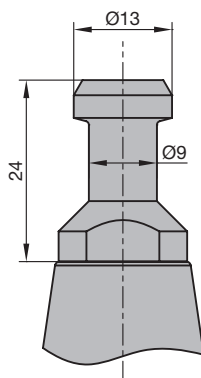
#### Spare parts:

BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting, M10	20/35x13x10,5	20	<b>006768</b> ●
Washer with safety device against twisting, M16	30/45x15x16,5	30	<b>006769</b> ●
Locking nut with Balluff chip	SK 40, 511 Bytes		<b>081601</b> ●

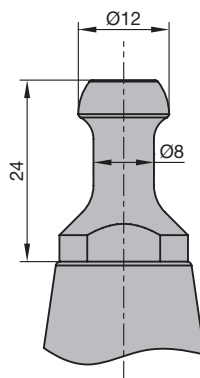
Suitable spacers, see section Knives and Spare Parts.



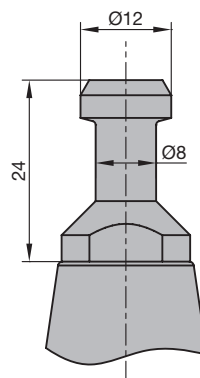
- 1 Clamping screw
- 2 Conical spring washer for safety against twisting



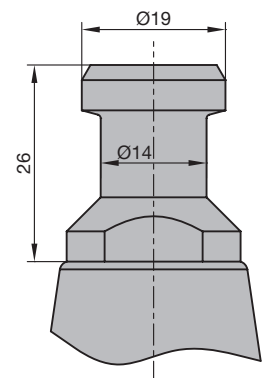
Type: A  
SK 30 pull stud as per DIN ISO 7388



Type: B  
SK 30/ISO 30 pull stud for HSD spindles from construction year 9/92 on



Type: C  
SK 30/ISO 30 pull stud Biesse until construction year 9/92



Type: E  
SK 40 pull stud as per DIN ISO 7388



### Cutter arbor with steep taper SK 30 / SK 40

#### Application:

Arbor for single tools with bore or tool sets with bore.

#### Technical information:

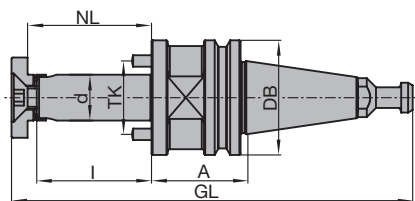
Steep taper design as per DIN ISO 7388, without grooves and notches. Outside dimension A = 63 mm for longer tool length in the machine. Safety device against tool twisting by screw or pin. Arbors are fine balanced. If conical spring washers with safety device against twisting are used, slots are required in the arbor. For suitable mounting device VN 799 0, see section Knives and Spare Parts.

**Note:** Please comply with the specifications regarding the maximum admissible weight and diameters detailed by the machine manufacturer!

#### SK 30, A = 63 mm

TI 501 0 01

Type	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
A	20	70	74	215,8	50	32	1,3	<b>042818</b> □
A	30	80	85	226,8	50	48	1,6	<b>042822</b> □



Arbor SK 30/SK 40

#### SK 40, A = 63 mm

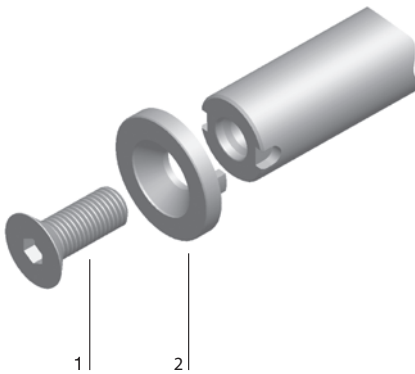
TI 501 0 01

Type	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
E	30	80	85	249,5	63,55	48	2,2	<b>042829</b> □

Sales unit consists of arbor with pull stud, clamping screw and conical spring washer (flat design), without spacers.

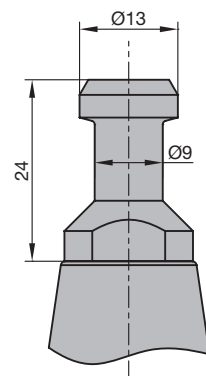
#### Spare parts:

BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting, M10	20/35x13x10,5	20	<b>006768</b> ●
Washer with safety device against twisting, M16	30/45x15x16,5	30	<b>006769</b> ●
Locking nut with Balluff chip	SK 40, 511 Bytes		<b>081601</b> ●

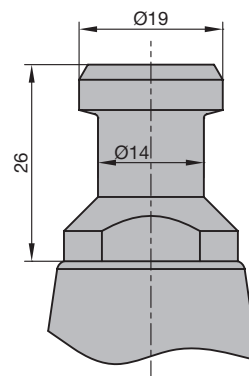


- 1 Clamping screw
- 2 Conical spring washer for safety against twisting

Suitable spacers, see section Knives and Spare Parts.



Type: A  
SK 30 pull stud as per  
DIN ISO 7388



Type: E  
SK 40 pull stud as  
per DIN ISO 7388



### Cutting arbor with hollow taper shank HSK-E 63

**Application:**

Arbor for single tools with bore or tool sets with bore.

**Technical information:**

Hollow taper shank design as per DIN 69893. Safety device against tool twisting by screw or pin. Arbors are fine balanced. Spring washers with safety against twisting. For suitable mounting device VN 799 0, see section Knives and Spare Parts.

**Note:** Please comply with the specifications regarding the maximum admissible weight and diameters detailed by the machine manufacturer.

**HSK-E 63, DIN 69893, A = 45 mm**

TI 501 0 07

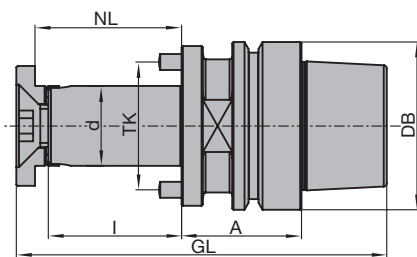
d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
20	70	75	159	63	32	1,2	<b>039801 ●</b>
30	80	85	169	63	48	1,6	<b>039805 ●</b>
30	140	145	229	63	48	1,9	<b>663071 ●</b>
35	192	197	281	63	52	2,6	<b>039806 ●</b>

Sales unit consisting of arbor, clamping screw and conical spring washer (flat design) with safety device against twisting, without spacers.

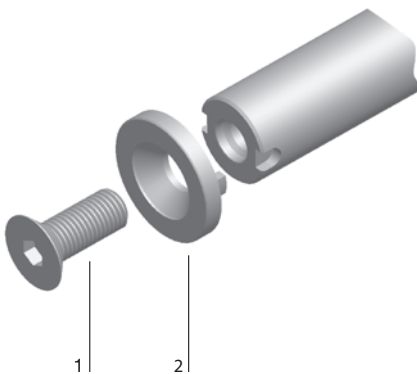
**Spare parts:**

BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting, M10	20/35x13x10,5	20	<b>006768 ●</b>
Washer with safety device against twisting, M16	30/45x15x16,5	30	<b>006769 ●</b>
Washer with safety device against twisting, M16	35/50x15x16,5	35	<b>006770 ●</b>
Chip-Balluff	511 Bytes		<b>081309 ●</b>
Chip-Balluff	2047 Bytes		<b>081330 □</b>

Suitable spacers, see section Knives and Spare Parts.



Arbor HSK-E 63



- 1 Clamping screw  
2 Conical spring washer for safety against twisting



## Cutting arbor with hollow taper shank HSK-F 63

**Application:**

Arbor for single tools with bore or tool sets with bore.

**Technical information:**

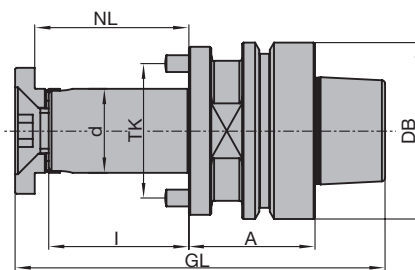
Hollow taper shank design as per DIN 69893. Safety device against tool twisting by screw or pin. Arbors are fine balanced. Spring washers with safety against twisting. For suitable mounting device VN 799 0, see section Knives and Spare Parts.

**Note:** Preferably use the short model for low vibration cutting. Please comply with the specifications regarding the maximum admissible weight and diameters detailed by the machine manufacturer.

**HSK-F 63, DIN 69893, A = 45 mm**

TI 501 0 07

d	l	NL	GL	DB	TK	Weight	ID
mm	mm	mm	mm	mm	mm	kg	
20	70	75	152	63	32	1,2	042987 ●
30	80	85	162	63	48	1,6	042988 ●
30	140	145	222	63	48	1,9	041426 ●
35	192	197	274	63	52	2,6	041425 ●



Arbor HSK-F 63

**HSK-F 63, DIN 69893, A = 80 mm**

TI 501 0 07

d	l	NL	GL	DB	TK	Weight	ID
mm	mm	mm	mm	mm	mm	kg	
20	70	75	187	63	32	1,7	042847 ●
30	80	85	197	63	48	2,1	042951 ●
30	120	125	237	63	48	2,4	041427 ●

**HSK-F 63, DIN 69893, A = 90 mm**

TI 501 0 07

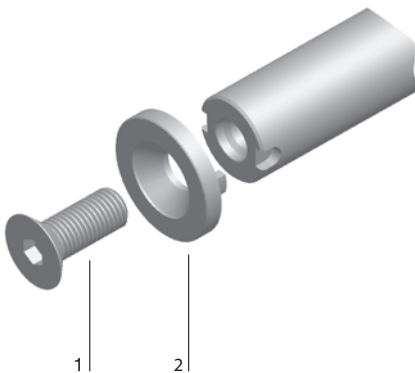
d	l	NL	GL	DB	TK	Weight	ID
mm	mm	mm	mm	mm	mm	kg	
35	170	175	297	63	52	3,2	041428 ●

Sales unit consisting of arbor, clamping screw and conical spring washer (flat design) with safety device against twisting, without spacers.

**Spare parts:**

BEZ	ABM	for d	ID
	mm	mm	
Washer with safety device against twisting, M10	20/35x13x10,5	20	006768 ●
Washer with safety device against twisting, M16	30/45x15x16,5	30	006769 ●
Washer with safety device against twisting, M16	35/50x15x16,5	35	006770 ●
Chip-Balluff	511 Bytes		081309 ●
Chip-Balluff	2047 Bytes		081330 □

Suitable spacers, see section Knives and Spare Parts.



- 1 Clamping screw  
2 Conical spring washer for safety against twisting



### Cutting arbor with hollow taper shank HSK-F 63 mod.

#### Application:

Arbors for single tools with bore or tool sets with bore. For precise clamping in the machine spindle and quick tool change, mainly on Homag through feed machines with HSK-F 63 mod. motor spindle.

#### Machine:

Double-end tenoner, flooring machines, edgebanding machines etc.

#### Technical information:

Fine balanced arbors with hollow shank taper modified design as per DIN 69893 HSK-F 63. Precise tool clamping for high concentricity. Clamping screws and end ring are part of the arbor.

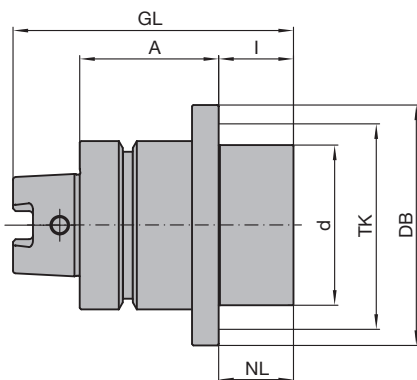
#### HSK-F 63 mod., A = 12.5 mm and 52 mm

TB 300 0

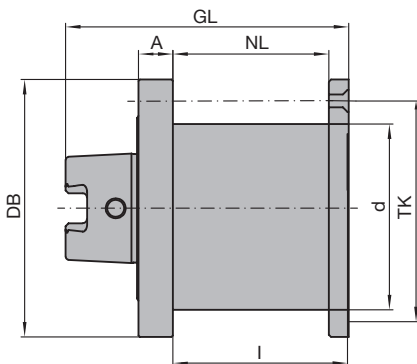
Machine	d	l	NL	A	GL	DB	TK	Weight	ID
	mm	mm	mm	mm	mm	mm	mm	kg	
Homag	60	28	28	52	105	63	75	2,1	<b>663052 ●</b>
Homag	60	59,5	54,5	12,5	99	63	75	2,2	<b>663053 ●</b>

#### Spare parts:

BEZ	ABM	ID
	mm	
Cylindrical screw with ISK	M6x30	<b>005928 ●</b>
Cylindrical screw with ISK	M6x65	<b>005935 ●</b>
Allen key	SW 5	<b>005452 ●</b>



Arbors HSK-F 63 mod. (ID **663052**) with flange



Arbor HSK-F 63 mod. (ID **663053**) with end ring and clamping screws





#### Cutting arbor with hollow shank taper HSK 85 WS

##### Application:

For mounting saws, cutting tools, sets of cutting tools and cutterheads.

##### Machine:

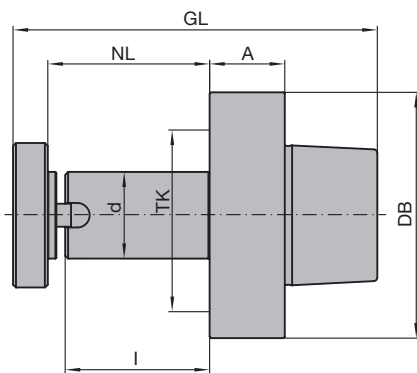
Machines with HSK 85 WS adaptor e.g. moulders (Weinig Powermat), window production machines etc.

##### Technical information:

Easy and safe handling with optional lifting rings.

#### HSK 85 WS, A = 26 mm, for Weinig Solid Profile P/H (Powermat) without safety device against twisting

TI 501 0 14



Cutting arbor HSK 85 WS with clamping spacer and safety device against twisting

Machine	d mm	l mm	NL mm	GL mm	DB mm	TK mm	Weight kg	ID
Weinig	30	50	55	125	85	48	1,7	663101 ●
Weinig	30	80	85	155	85	48	1,9	663102 ●
Weinig	30	105	110	180	85	48	2,0	663103 ●
Weinig	40	80	85	155	85		2,3	663075 ●
Weinig	40	100	105	175	85		2,5	663083 □
Weinig	40	130	135	205	85		2,8	663077 ●
Weinig	40	145	150	220	85		3,0	663084 □
Weinig	40	165	170	240	85		3,3	663078 ●
Weinig	40	205	210	280	85		3,6	663085 □
Weinig	40	235	240	310	85		4,2	663079 ●
Weinig	50	80	85	155	85		2,9	663076 ●
Weinig	50	100	105	175	85		3,2	663086 □
Weinig	50	130	135	205	85		3,7	663080 ●
Weinig	50	145	150	220	85		3,9	663087 □
Weinig	50	165	170	240	85		4,7	663081 ●
Weinig	50	205	210	280	85		4,8	663088 □
Weinig	50	235	240	310	85		5,3	663082 ●

##### Spare parts:

BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting	50/20	30	008376 ●
Washer with safety device against twisting	60/20	40	008368 ●
Washer with safety device against twisting	70/20	50	008369 ●
Cylindrical screw with ISK	M8x20	40/50	114048 ●



#### Cutting arbor with hollow shank taper HSK 85 WS

##### Application:

For mounting saws, cutting tools, sets of cutting tools and cutterheads.

##### Machine:

Machines with HSK 85 WS adaptor e.g. moulders (Weinig Powermat), window production machines etc.

##### Technical information:

Easy and safe handling with optional lifting rings.

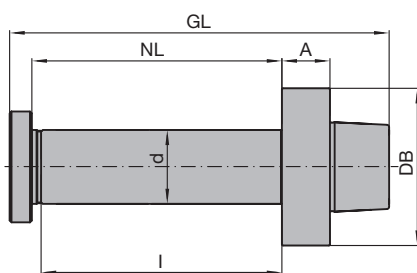
**HSK 85 WS, A = 26 mm, for Weinig Solid Profile P/H (Powermat)  
with two safety device grooves against twisting in the HSK**

TI 501 0 14, TI 501 0 16

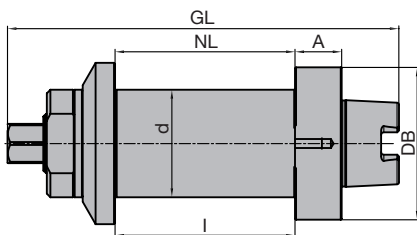
Machine	d mm	l mm	NL mm	GL mm	DB mm	Weight kg	ID
Weinig	40	165	170	240	85	3,2	<b>663104</b> □
Weinig	40	235	240	310	85	3,9	<b>663105</b> □
Weinig	60	100,5	100,5	218,5	85	4,2	<b>663051</b> ●

##### Spare parts:

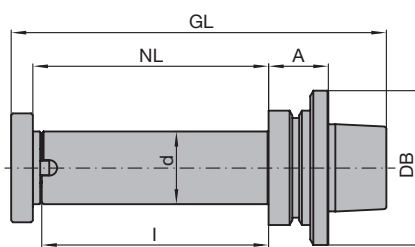
BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting	60/20	40	<b>008370</b> ●
Washer with safety device against twisting	90/18	60	<b>008379</b> ●
Cylindrical screw with ISK	M8x20	40/60	<b>114048</b> ●



Cutting arbor HSK 85 WS with clamping spacer and safety device against twisting in HSK.



ID 663051



Cutting arbor HSK 85 - TI 501 0 14

### Cutting arbor with hollow shank taper HSK 85

#### Application:

For mounting saws, cutting tools, sets of cutting tools and cutterheads.

#### Machine:

Machines with HSK 85 WS adaptor e.g. moulders, window production machines etc.

#### Technical information:

Easy and safe handling with optional lifting rings.

#### HSK 85, A = 33 mm and A = 26 mm, for SCM

TI 501 0 14

Machine	d mm	l mm	NL mm	GL mm	DB mm	Weight kg	ID
SCM	40	125	130	207	85	2,6	<b>663061 •</b>
SCM	50	325	320	413	85	7,3	<b>663055 •</b>

#### Spare parts:

BEZ	ABM mm	for d mm	ID
Washer with safety device against twisting	60/20		<b>008368 •</b>
Washer with safety device against twisting	70/20	50	<b>008375 •</b>
Cylindrical screw with ISK	M8x20	40	<b>114048 •</b>
Cylindrical screw with ISK	M8x35	50	<b>006524 •</b>

### Blanking arbor HSK 85 WS

#### Application:

Dust cover for spindles when not in use.

#### Machine:

Machines with HSK 85 WS adaptor e.g. moulders (Weinig Powermat), window production machines etc.

#### Blanking arbor for Weinig Solid Profile P/H (Powermat)

TI 501 0 14

Machine	ID
Weinig	<b>663044 •</b>

# 7. Clamping systems

## 7.4 Clamping arbors

### 7.4.2 Cutter arbors



### Lifting ring, HSK 85 WS

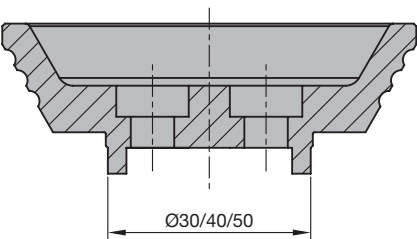
#### Application:

Lifting rings can be mounted on arbors for easy and safe tool handling.

#### Lifting ring for HSK 85 WS arbors

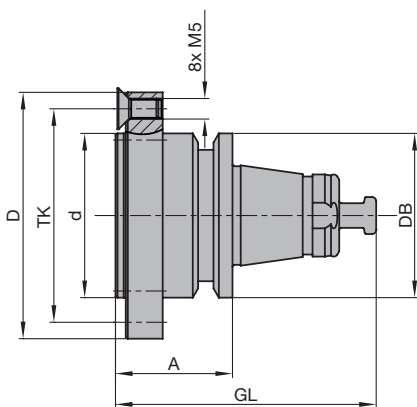
TK 540 0

Machine	BEZ	ABM mm	TK mm	ID
Weinig	Spindle lifting rings	for d=30 with safety device against twisting	18	<b>008378 •</b>
Weinig	Spindle lifting rings	for d=40 with safety device against twisting	25	<b>008365 •</b>
Weinig	Spindle lifting rings	for d=50 with safety device against twisting	32	<b>008366 •</b>



ID 008378/ 008365 / 008366





Saw blade adaptor

### Tool adaptor for circular sawblades for CNC aggregates

#### Application:

Tool adaptor with flange for the adaption of circular sawblades.

#### Technical information:

Steep taper design for Flex 5+ aggregate (Homag Group) and 5-motion-Plus aggregate (Felder Format-4). The circular sawblade is fixed through 8 countersink screws M5 on the flange. Maximum sawblade diameter 220 mm (limitation through the aggregate). The maximum cutting width of sawblade is limited to 6 mm. Tool adaptor is fine balanced.

#### Sawblade adaptor

TI 501 0

Machine	d mm	l mm	NL mm	A mm	GL mm	DB mm	TK mm	Weight kg	ID
Felder Format-4, Homag Group	40	2,5	2,5 - 4	23,5	62,5	40	52	0,4	<b>663074 •</b>

#### Spare parts:

BEZ	ABM mm	ID
Countersink screw, Torx® 20	M5x12	<b>006247 •</b>
Torx® key	Torx® 20	<b>117511 •</b>



#### Tool adaptor for circular sawblades

##### Application:

Tool adaptor with flange for the adaption of circular sawblades.

##### Technical information:

Optionally mounting the sawblade by means of counterscrews or with the enclosed counterflange. Mounting with counterflange is preferred for increased stability and concentricity in case of precision cuts. Application without counterflange is preferred for producing mitre and rafter cuts. Maximum diameter of sawblade 350 mm (450 mm with counter flange).

##### HSK-F 63, DIN 69893

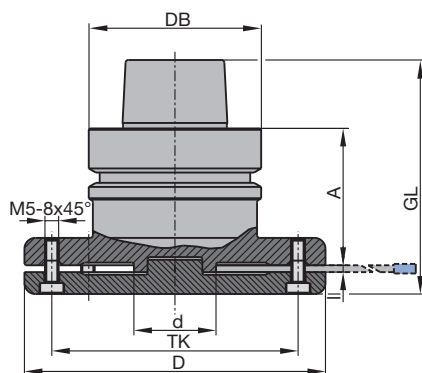
TI 501 0 07

Machine	d mm	l mm	NL mm	A mm	GL mm	DB mm	TK mm	Weight kg	ID
Homag	30	2,5	2,5 - 3,5	40	75,5	63	90	2,0	<b>663094 ●</b>
	30	2,5	2,5 - 3,5	50	85,5	63	90	2,2	<b>663093 ●</b>
SCM	30	2,5	2,5 - 3,5	60	95,5	63	90	2,5	<b>663109 ●</b>

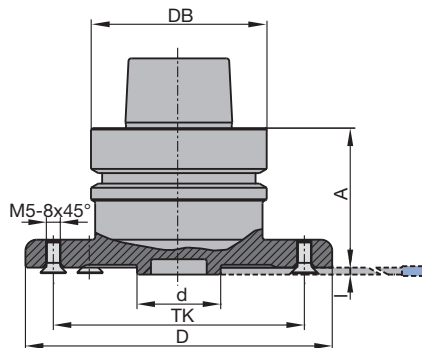
Sales unit consisting of HSK-flange with counterscrews as well as counterflange with cylindrical screws.

##### Spare parts:

BEZ	ABM mm	ID
Cylindrical screw with ISK	M5x12	<b>006414 ●</b>
Countersink screw, Torx® 20	M5x8.5	<b>007808 ●</b>
Allen key	SW 4, L 71	<b>005468 ●</b>
Torx® key	Torx® 20	<b>117511 ●</b>



Clamping variant with counter flange



Clamping variant with concentrically mounted sawblade



#### Flange for circular sawblades

##### Application:

To mount circular sawblades on arbors.

##### Technical information:

Sawblade flange is mounted on arbor with diameter  $d = 30$  mm by clamping screws and pins. The length and the dimension A are flexible and defined by spacers. Maximum sawblade diameter 350 mm.

##### Flange adaptor

TR 810 0

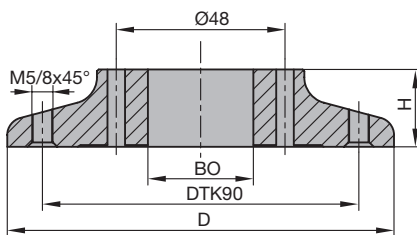
Machine	D	H	BO	NL	TK	Weight	ID
	mm	mm	mm	mm	mm	kg	
Universal	110	22	30	2 - 3,5	90	0,9	<b>066752 •</b>

##### Spare parts:

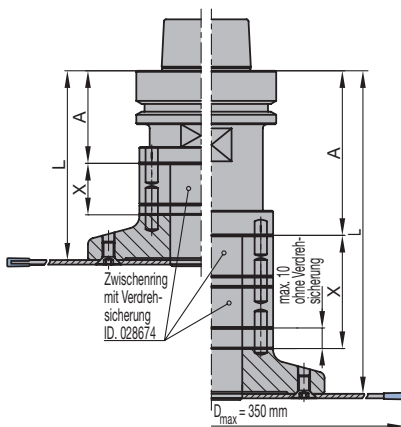
BEZ	ABM	ID
	mm	
Countersink screw, Torx® 20	M5x12	<b>006247 •</b>
Torx® key	Torx® 20	<b>117511 •</b>
Spacer with cylindrical pins	60x20x30	<b>028674 •</b>

Suitable spacers, see section Knives and Spare Parts.

Clamping length L depending on spacer thickness X and the dimension A of the arbor used:

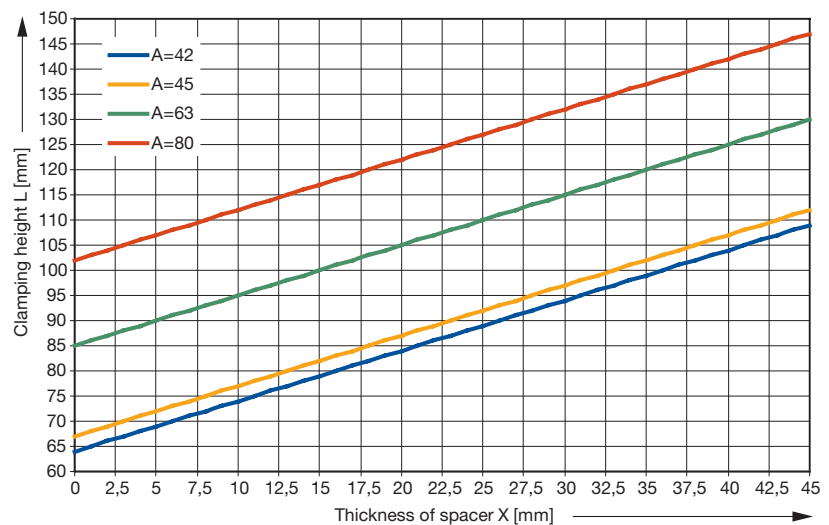


Flange TR 810 0



##### Note:

Variable clamping length through the combination of spacers without pins and spacers with pins for the safety device against twisting ID **028674**. Maximal thickness of the spacers without safety device against twisting = 10 mm.







Spindle without  
twist protection



Spindle with  
anti-twist keyway



Spindle with  
anti-twist hexagon



Hydro clamping  
system - open



Hydro clamping  
system - closed



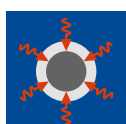
Hydro-Duo  
(bi-directional) clamping



Hydro clamping arbors



Hydro clamping



Shrink-fit clamping



Quick

Quick clamping system

