ALLIED MACHINE & ENGINEERING | WOHLHAUPTER®

Holemaking Solutions for Today's Manufacturing

Drilling

Reaming

Burnishing

Threading

Specials

Tool Holders

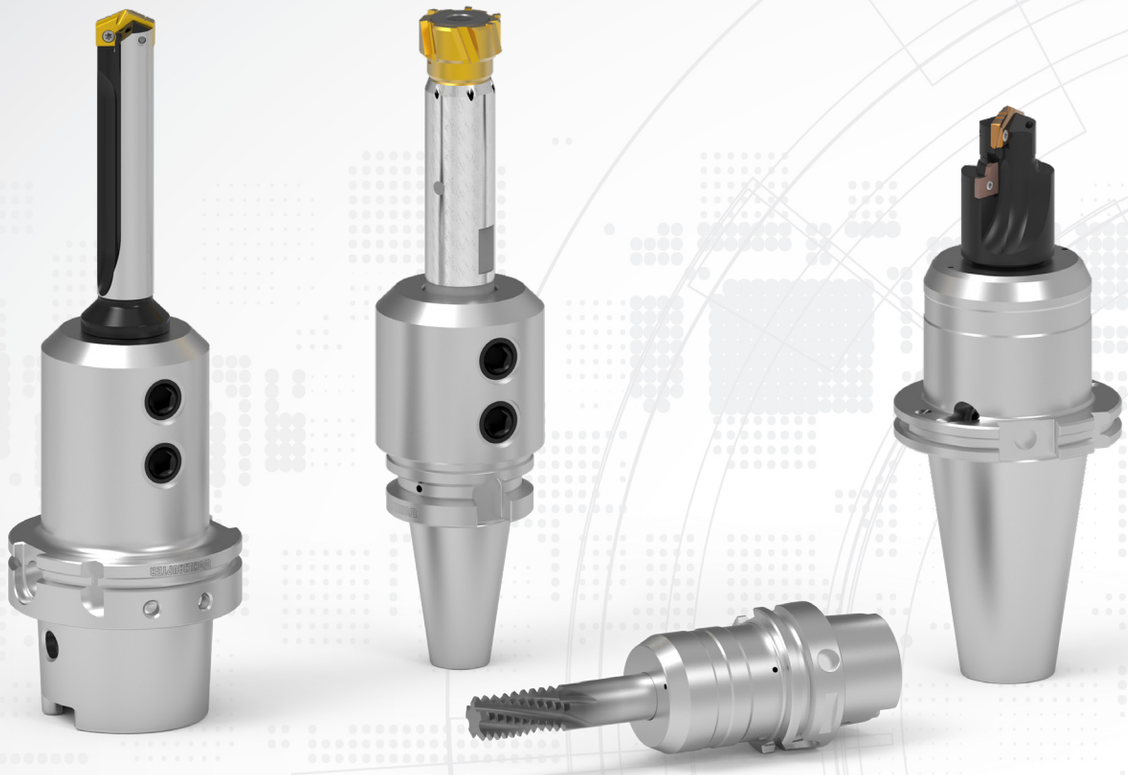
▶ PRECISION TOOL HOLDERS

HSK-A 63/-A 100, SK40/50 & MAS-BT40/50

Tool Holders

PRECISION TOOL HOLDERS

- **HSK-A 63/100, SK40/50 & MAS-BT40/50**



Versatile Tool Holder Solutions

We can now offer a complete solution from the cutting edge to the spindle.

Choosing the right Tool Holder Solution is a critical part of the overall tool selection process. This is why Allied Machine have added a range of Sidelock Holders and Hydraulic Tool Holders to ensure the best possible results in your hole production process.

It is an accessory that complements our cutting tool portfolio combining excellent quality with a competitive price.

Applicable Industries

Aerospace | Agriculture | Automotive | General Machining | Oil & Gas | Renewable Energy

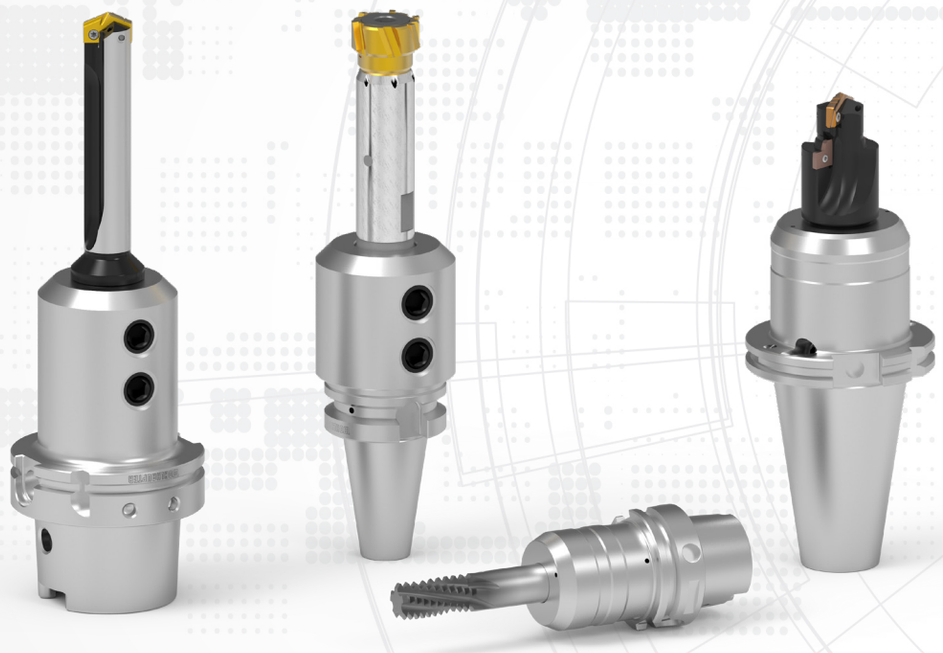
Contents

Tool Holders

The history of the steep taper is closely associated with the introduction of NC technology.
The national standards resulting from this since the end of the 60's and initial efforts towards international standardization in the mid-seventies have up to the present time led to a very high qualitative standard. The steady manufacturing improvements in taper angle tolerance over the last 30 years led to the steep taper becoming the favoured interface alternative.

As a result of the further developed metalcutting manufacturing technology in respect of cutting materials and machining methods e.g. High Speed Cutting (HSC) or/and dry machining requirements, there is a need for higher quality tool holders.

The steep taper is up to the present time one of the most widespread chucking systems, although there is a disadvantage in its weight and axial positioning accuracy. Only through the introduction of the new technology – starting with the hollow tapered shank as the international standard e.g. HSK – will the steep taper be pushed more and more into the shade through the design of new manufacturing variations with additional systems found on the market.



HSK Tool Holders

The tool holders to DIN 69893 Form A in this catalogue fit straight into the machine spindle and can also be used for manual tool change. The most important advantages of the DIN standardized interface are:

- High level of accuracy when repeating or making a tool change
- High static and dynamic rigidity
- Quick replacement times
- Safe machining at high speed

All tools are supplied with a central coolant feed facility (coolant adapter sets sold separately).

Balancing Requirements

In machining technology, tools can be divided into the following groups: Tool materials, cutters and cutting edge geometry and structural design.

The structural design is gaining increasing significance as a result of the constantly faster rotating tools. The balancing requirements of fast-rotating tools or tool systems must be seen against this background. The word 'imbalance' from balancing technology is nothing extraordinary or mysterious, but in physical terms refers to a mass m (imbalance mass, unit g), which rotating on a radius r with angular frequency w, produces a centrifugal force F.

$$\vec{U} = \vec{u} \bullet \vec{r}$$

$\vec{U}$ = **Imbalance, unit g • mm**

u = **Imbalanced mass, unit g**

$\vec{r}$ = **Distance of the center of gravity of the imbalanced mass from the center axis (tool axis), Unit mm (U and r represent a vector)**

Balance Quality

Previously, differing opinions concerning balancing requirements and balancing qualities were able to be resolved through the production of a code of practice by theoretical and practical investigations into process instabilities in the overall system caused by imbalance (spindle / chuck / tool). An AiF (Ausschuß industrieller Fertigung [committee for industrial production]) project supported by the Precision Tool Association at VDMA (Association of German Machine Builders) provided the basis for these investigations. As a result of this investigation, a standard balance quality stage Q16 is recommended.

It can be assumed from the experience gained during this project that this recommended balance quality level represents an economically appropriate and technically feasible compromise.

Imbalance Compensation

The significant result of an imbalance compensation is a completed process by which the mass distribution at a rotor (e.g. tool chuck, tool, ...) has been corrected. This can be done by adding (positive compensating mass) or removing material (negative compensating mass).

Definition of Balance Quality

Permitted residual imbalance U

Q = Quality level (Q = G) [mm/s]
e = Center of mass displacement of the rotor from the axis of rotation [µm]
ω = Angular velocity [1/s]
n = Rotary frequency [1/min]
m = Rotor mass [kg] (Tool weight)
U = Imbalance [gmm]

$$U = \frac{Q \cdot m \cdot 1000 \cdot 60}{2 \cdot \pi \cdot n}$$

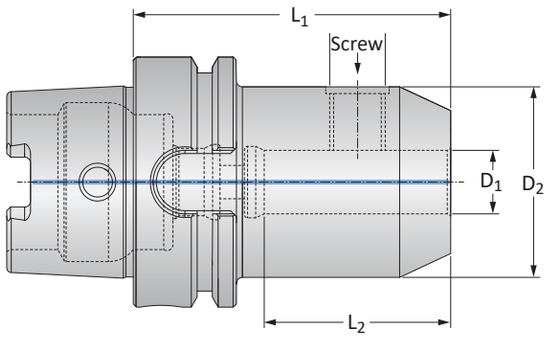
$$Q = e \cdot \omega = \text{constant [mm/s]}$$

$$Q = \frac{U \cdot \omega}{m \cdot 1000} = \frac{U}{m} \cdot \frac{2 \cdot \pi \cdot n}{60 \cdot 1000}$$

It is easy to understand that for a balanced body of mass m, the permitted residual imbalance reduces with increasing rotary frequency. Balanced bodies of small mass also produce small permitted residual imbalances.
With high rotational frequencies and small masses, DIN - ISO can often no longer be used with fine balance qualities. The permitted residual imbalance frequently amounts to numerical values, which are so small that they are no longer reproducibly measurable. With faster running or lighter rotors, a permitted residual imbalance should be defined instead of the balance quality.
Residual uncertainties can never be excluded, but in the case of tools with a modular design, the negative influences can be further minimized during the balancing of the entire system by our balancing service.
The residual uncertainty in the interchange of tools will also continue after this procedure.

HSK-A 63 & HSK-A 100 | DIN 69 893 HSK

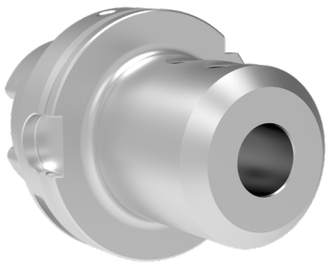
Sidelock Holders

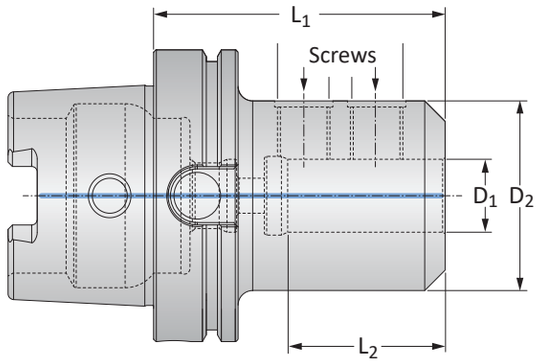


HSK-A 63

	Taper Size	D_1	L_1	D_2	L_2	kg	Part No.	Screws	
								Screw Size	*No. Screws*
	HSK-A 63	16	80	48	54.0	1.35	**448025**	M14	1
	HSK-A 63	20	80	52	54.0	2.33	**448031**	M16	1
ⓜ	**HSK-A 63**	25	110	65	84.0	1.48	**448034**	M18x2	2
	HSK-A 63	32	110	72	84.0	2.55	**448036**	M20x2	2
	HSK-A 63	40	125	80	99.0	3.32	**448038**	M20x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 20,000 rpm





HSK-A 100

	Taper Size	D_1	L_1	D_2	L_2	kg	Part No.	Screws	
								Screw Size	*No. Screws*
	HSK-A 100	20	100	52	71.0	4.52	**448054**	M16	1
	HSK-A 100	25	100	65	71.0	4.81	**448056**	M18x2	2
ⓜ	**HSK-A 100**	32	120	72	91.0	2.90	**448058**	M20x2	2
	HSK-A 100	40	120	80	91.0	3.10	**448060**	M20x2	2
	HSK-A 100	50	130	100	101.0	3.99	**448061**	M24x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 20,000 rpm

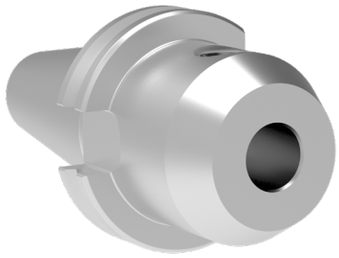
Connection Accessories

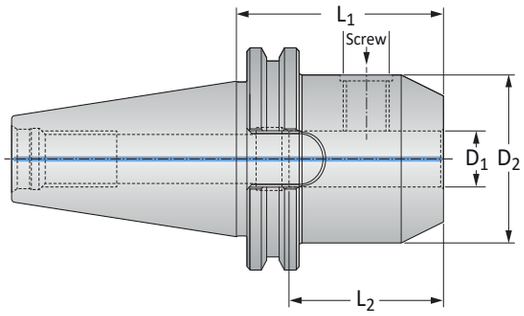
Clamping Screws		Screw Tighteninig torque size		
Screw Size	*Part No*	*Torque Size*	*Tightening Torque (Nm)*	*Part No*
M14	**115684**	6	36	**115578**
M16	**115685**	8	60	**115579**
M18x2	**115686**	10	60	**115580**
M20x2	**115687**	10	80	**115580**
M24x2	**215293**	12		**215638**

ⓜ = Metric (mm)

SK40 & SK50 | DIN 69 871-A/AD / B

Sidelock Holders

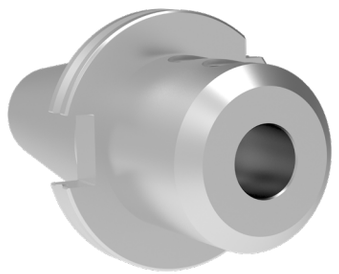


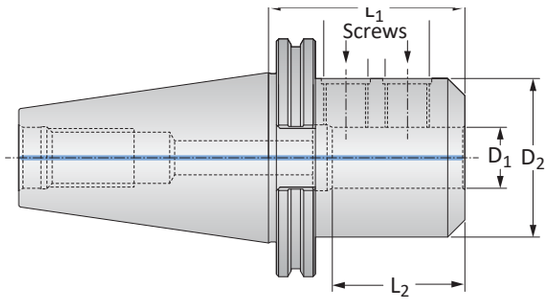


SK40

	Taper Size	D_1	L_1	D_2	L_2	kg	Part No.	Screws	
								Screw Size	*No. Screws*
	SK40	16	63	48	54.0	1.63	**413016**	M14	1
	SK40	20	63	52	54.0	1.38	**413022**	M16	1
ⓜ	**SK40**	25	100	65	84.0	2.44	**413025**	M18x2	2
	SK40	32	100	72	84.0	2.62	**413027**	M20x2	2
	SK40	40	115	80	99.0	3.44	**413029**	M20x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 15,000 rpm





SK50

	Taper Size	D_1	L_1	D_2	L_2	kg	Part No.	Screws	
								Screw Size	*No. Screws*
	SK50	20	63	52	43.9	3.33	**413052**	M16	1
ⓜ	**SK50**	25	80	65	60.9	4.03	**413055**	M18x2	2
	SK50	32	100	72	80.9	4.80	**413058**	M20x2	2
	SK50	40	120	80	100.9	5.76	**413060**	M20x2	2
	SK50	50	120	100	100.9	6.99	**413062**	M24x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 15,000 rpm

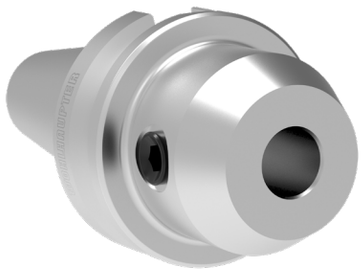
Connection Accessories

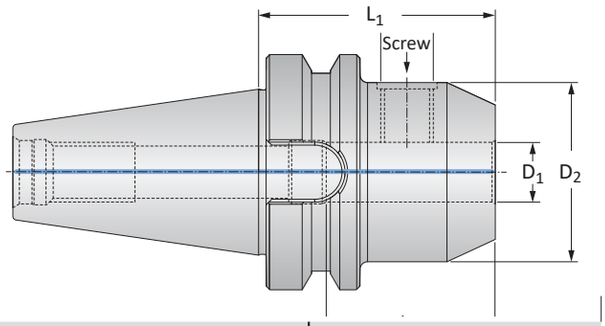
Clamping Screws		Screw Tighteninig torque size		
Screw Size	*Part No*	*Torque Size*	*Tightening Torque (Nm)*	*Part No*
M14	**115684**	6	36	**115578**
M16	**115685**	8	60	**115579**
M18x2	**115686**	10	60	**115580**
M20x2	**115687**	10	80	**115580**
M24x2	**215293**	12		**215638**

ⓜ = Metric (mm)

MAS-BT40 & MAS-BT50

Sidelock Holders

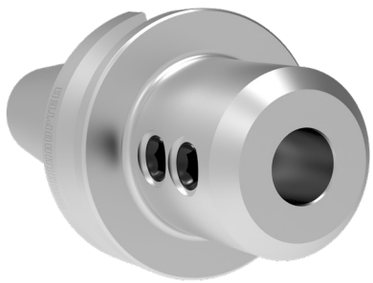


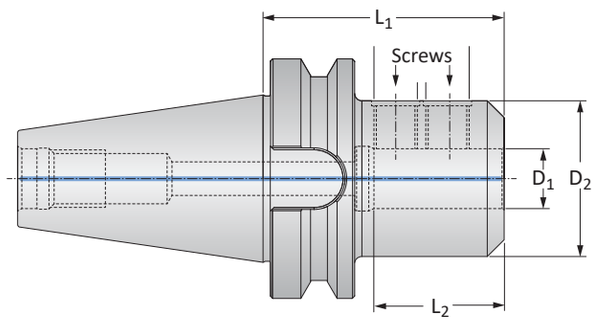


MAS-BT40

	Taper Size	D_1	L_1	D_2	L_2	kg	Part No.	Screws: Screw Size	Screws: No. Screws
	MAS-BT40	16	63	48	36.0	1.43	**409024**	M14	1
	MAS-BT40	20	63	52	36.0	1.45	**409030**	M16	1
ⓜ	**MAS-BT40**	25	90	65	63.0	2.30	**409033**	M18x2	2
	MAS-BT40	32	100	72	73.0	2.77	**409035**	M20x2	2
	MAS-BT40	40	105	80	78.0	3.20	**409037**	M20x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 15,000 rpm





MAS-BT50

	Taper Size	D_1	L_3	D_2	L_5	kg	Part No.	*Screws*: *Screw Size*	*Screws*: *No. Screws*
	MAS-BT50	20	80	52	42.0	4.28	**409060**	M16	1
	MAS-BT50	25	100	65	62.0	5.04	**409063**	M18x2	2
ⓜ	**MAS-BT50**	32	105	72	67.0	5.36	**409065**	M20x2	2
	MAS-BT50	40	115	80	77.0	5.90	**409067**	M20x2	2
	MAS-BT50	50	125	100	87.0	7.54	**409069**	M24x2	2

Clamping screws included. Spare screws available to order.
Balance quality: G 6.3 at 15,000 rpm

Connection Accessories

Sidelock Clamping Screws		Screw Tighteninig torque size		
Screw Size	*Part No*	*Torque Size*	*Tightening Torque (Nm)*	*Part No*
M14	**115684**	6	36	**115578**
M16	**115685**	8	60	**115579**
M18x2	**115686**	10	60	**115580**
M20x2	**115687**	10	80	**115580**
M24x2	**215293**	12		**215638**

ⓜ = Metric (mm)

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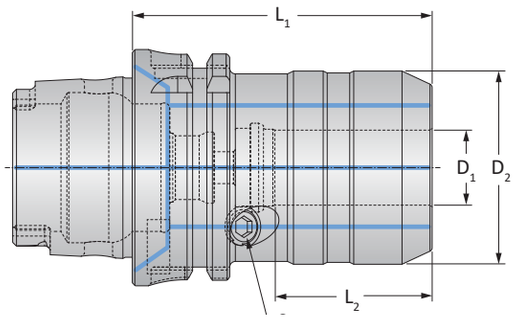
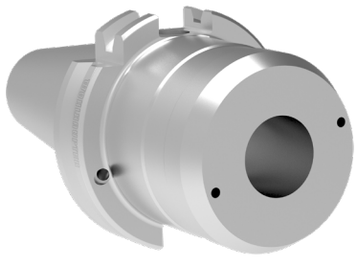
Hydraulic Holders

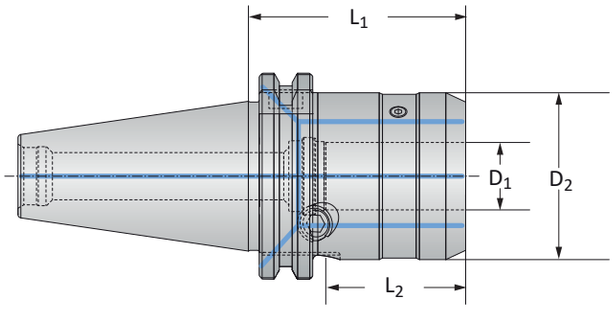


HSK-A 63 & HSK-A 100 | DIN 69 893 HSK

	Taper Size	D_1	X_1	D_2	L_1	kg	Reducer size mm*	Part No.
m	HSK-A 63	20	80	50	54.0	1.40	16	412011
m	HSK-A 100	20	90	50	61.0	2.95	16	412013
		32	110	72	81.0	4.2	16, 18, 20, 25	412014

Reducers available on page 11
Pullstuds available on page 12
Clamping and Adjustment screws included. Spare screws available to order.Balance quality: G 2.5 at 25,000 rpm

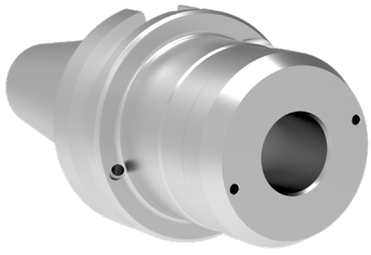


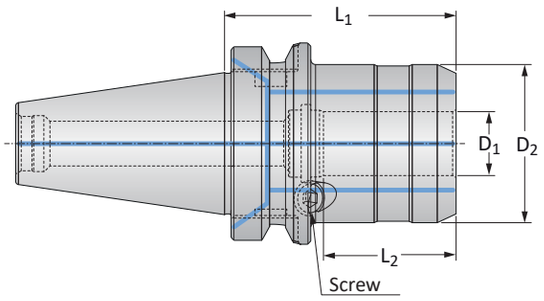


SK40 & SK50 | DIN 69 871-A/AD / B

	Taper Size	D_1	X_1	D_2	L_1	kg	Reducer size mm*	Part No.
m	SK40	20	64.5	50	45.4	1.20	16	412016
m	SK50	20	64.5	50	45.4	4.26	16	412018
		32	81	72	61.9	3.03	16, 18, 20, 25	412019

Reducers available on page 11
Pullstuds available on page 12
Clamping and Adjustment screws included. Spare screws available to order.





MAS-BT40 & MAS-BT50

	Taper Size	D_2	L_3	D_1	L_5	kg	Reducer size mm*	Part No.
m	MAS-BT40	20	72.5	50	42	1.61	16	412004
m	MAS-BT50	20	83	50	42	4.30	16	412006
		32	90	72	55	4.84	16, 18, 20, 25	412007

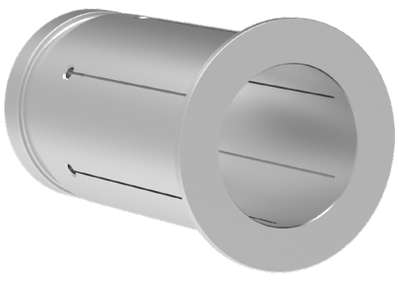
Reducers available on page 11
Pullstuds available on page 12
Clamping and Adjustment screws included. Spare screws available to order.

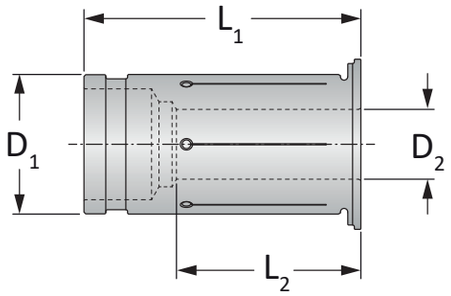
Hydraulic Clamping Accessories

Hydraulic Clamping Screw		Screw Tighteninig torque size		
Screw Size	*Part No*	*Torque Size*	*Tightening Torque (Nm)*	*Part No*
Ø20 = M10x1.5P	**515686**	5		
Ø32 = M10x1.5P	**515687**	5		

Hydraulic Length Adjustment Accessories

Length Adjustment Screw		Screw Tighteninig torque size		
Screw Size	*Part No*	*Torque Size*	*Tightening Torque (Nm)*	*Part No*
M16 x 16	**515685**	8		



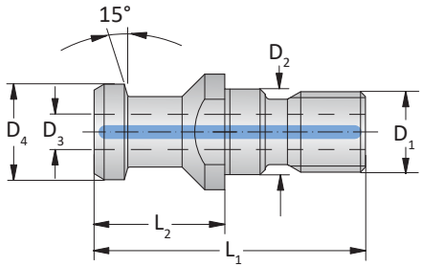


Reducer Sleeves

Reducer Size	Part No.
Hydraulic Ø20 to Ø16	**452119**
Hydraulic Ø32 to Ø16	**452125**
Hydraulic Ø32 to Ø18	**452136**
Hydraulic Ø32 to Ø20	**452127**
Hydraulic Ø32 to Ø25	**452128**

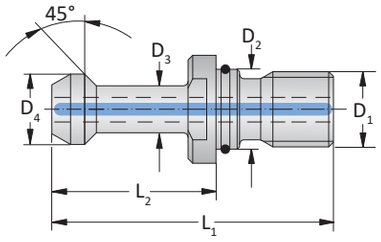
Accessories | Pullstuds

SK 40/50 & BT40/50



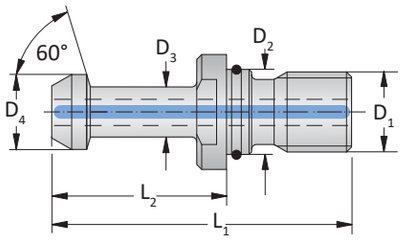
SK / DIN 69 872

	Taper Size	D_1	D_2	D_3	D_4	L_1	L_2	Part No.
m	**40**	M16	17	7.0	19	54	26	**KW15004**
	50	M 24	25	11.5	28	74	34	**KW14483**



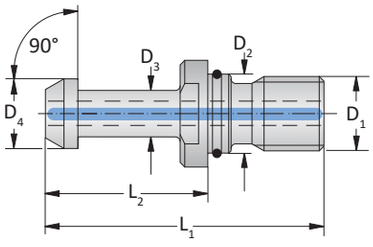
MAS-BT / JIS B 6339

	Taper Size	D_1	D_2	D_3	D_4	L_1	L_2	Part No.
m	**40**	M 16	17	10	15	60	35	**KW24299**
	50	M 24	25	17	23	85	45	**KW24300**



MAS-BT / JIS B 6339

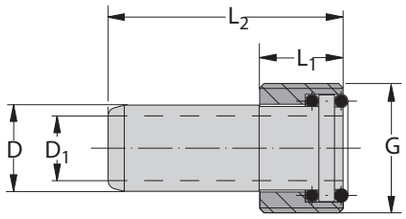
	Taper Size	D_1	D_2	D_3	D_4	L_1	L_2	Part No.
m	**40**	M 16	17	10	15	60	35	**KW24301**
	50	M 24	25	17	23	85	45	**KW24302**



MAS-BT / JIS B 6339

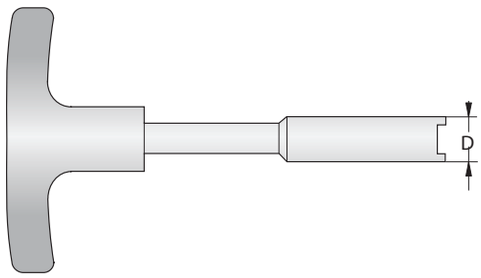
	Taper Size	D_1	D_2	D_3	D_4	L_1	L_2	Part No.
m	**40**	M 16	17	10	15	60	35	**KW24303**
	50	M 24	25	17	23	85	45	**KW24304**

Accessories | HSK Coolant Adapter Sets and Service Keys



Coolant Adapter Sets

Taper Size	G	D	D_1	L_1	L_2	Part No.
HSK-A 63	M 18 x 1.0	12	8.0	11.5	36.2	**262005**
HSK-A 100	M 24 x 1.5	16	12.0	15.5	43.6	**262007**



Service Keys

Taper Size	D	Part No.
HSK-A 63	16.5	**215727**
HSK-A 100	22.0	**215728**

Accessories | Mounting Fixture

Mounting Fixtures

Description	Taper Size	Part No.
Basic Body	-	098060
Adapter	SK40	098061
Adapter	SK50	098062
Adapter	HSK-A 63	098066
Adapter	HSK-A 100	098067

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