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EPB tooling systems are part of the Seco 'Machining Navigator' collection.

Here you will find the most recent spindle tooling products and application techniques to successfully equip your machine tools.

The 'Product pages' are divided into five 'product families': MONOBLOC - COMBIMASTER - GRAFLEX® - ADDITIONAL EQUIPMENT- SHRINKFIT DEVICES.

Other technical information (e.g. key codes, norms, balancing, tolerances, setting recommendations) is shown in the 'Technical Guide pages', at the beginning of the catalogue.

MONOBLOC

MONOBLOC - solid holders with HSK 'hollow shank taper' (HSK-A, HSK-E) and SA 'steep angle' (DIN 69871, BT). 'Front end' types to hold all milling, drilling, tapping and reaming tools.

Recently introduced shell mill holders Accu-Fit, have an hydraulic expandable spigot to minimize cutter run out.

Shrinkfit holders, type D collet chucks and hydraulic chucks form the HSM 'High Speed Machining' programme of products within the MONOBLOC ranges.



COMBIMASTER

A modern milling solution used as an alternative to side lock holders and 'classic' collet chucks.

The cylinder-flange interface with central thread provides slimmer, easy access tooling, by improving rigidity, precision and balance.

Combimaster holders (arbors, intermediates and adapters) are shown in this catalogue; Combimaster cutting heads are shown in the Seco Milling catalogues.

The new Graflex® Combimaster adapters allow integration of both systems. In addition Shrinkfit front ends are also now available.



GRAFLEX®

The Graflex® Modular System has a leading reputation for 'flexibility' without 'weakness'.

Customised tooling dimensions closest to the required machining operation can rapidly be built together from standard modules.

Graflex® boring heads, for diameters 0.3 to 2 155 mm, guarantee 'class' leading productivity and precision.

The rough boring heads have a coupling mechanism for a simultaneous adjustment of the insert holders.

NanoBore is the smallest fine boring head, achieving bores down to 0.3 mm at speeds up to 35.000 rpm.

Libraflex® balanceable fine boring heads are equipped with a balancing mechanism, to achieve quality bores at high speeds, up to 20.000 rpm.

The largest bores up to 2 155 mm are produced using 'Bridge bar boring heads'.



ADDITIONAL EQUIPMENT

This shows the items to be used in conjunction with the Monobloc, Combimaster and Graflex® tooling (e.g. pull studs, collets, tap adapters, Shrinkfit - collet chuck - tapping extensions, plus e.g. Tool Boy assembly supports, HSK locking units).

Note: 'Accessories' shown in the sub-tables of the Monobloc, Combimaster, Graflex®, Additional equipment and Shrinkfit devices pages, are items for handling or adapting the main products shown on the page (e.g. spanners, stop end screws, sealing nuts).

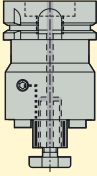
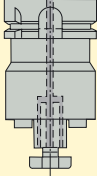
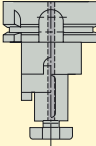

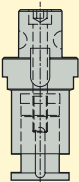
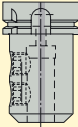
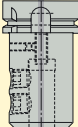
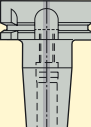


SHRINKFIT DEVICES

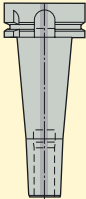
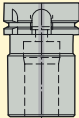
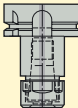
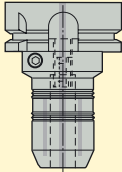
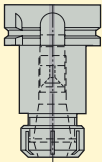
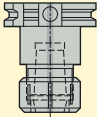
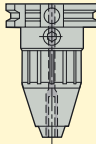
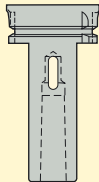
Here you can select dedicated tool shrinking equipment to meet your requirements. The EasyShrink® 20 modular devices achieve fast and reliable 'shrink grip' and 'shrink release' operations of all tool shank types (carbide - heavy metal - steel - HSS).



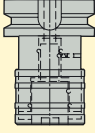
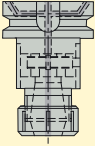
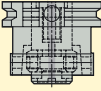
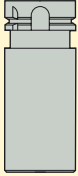
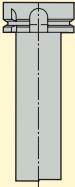
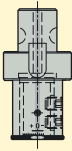
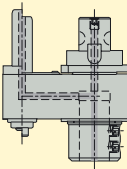
Monobloc and Graflex holders (overview page 1/3)

	Shell mill holders, Accu-Fit™	Shell mill holders (through coolant channels, classic and small face diameter)	Combi shell mill holders	Milling cutter holders, flange mounting
				
Guide pages:	page XX	page XX	page XX	page XX
Product pages:				
HSK-A	page XX	page XX	page XX	page XX
HSK-E	-	page XX	-	-
DIN 69871	page XX	page XX	page XX	page XX
JIS (BT)	page XX	page XX	page XX	page XX
Graflex	-	page XX	page XX	page XX
				
Guide pages:	page 28	page XX	page XX	page XX
Product pages:				
HSK-A	-	page XX	page XX	page XX
HSK-E	-	-	-	page XX
DIN 69871	-	page XX	page XX	page XX
JIS (BT)	-	page XX	page XX	page XX
Graflex	page XX	page XX	page XX	-

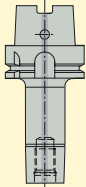
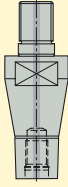

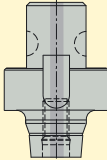
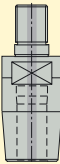

Monobloc and Graflex holders (overview page 2/3)

	Shrinkfit holders, Mould and Die type	Shrinkfit holders, cylindrical type	D type precision collet chucks (incl. Libraflex balanceable type)	Hydraulic chucks
<p>Guide pages:</p> <p>page XX</p> <p>Product pages:</p> <p>HSK-A page XX HSK-E page XX DIN 69871 page XX JIS (BT) page XX Graflex –</p>	 <p>page XX</p>	 <p>page XX</p>	 <p>page XX</p>	 <p>page XX</p>
<p>Guide pages:</p> <p>page XX</p> <p>Product pages:</p> <p>HSK-A page XX HSK-E page XX DIN 69871 page XX JIS (BT) page XX Graflex page XX</p>	<p>ER collet chucks</p>  <p>page XX</p>	<p>OZ collet chucks</p>  <p>page XX</p>	<p>Universal drill chucks and Jacobs chuck holders</p>  <p>page XX</p>	<p>Holders for Morse Taper (with tang/ with thread types)</p>  <p>page XX</p>
<p>Guide pages:</p> <p>page XX</p> <p>Product pages:</p> <p>HSK-A page XX HSK-E page XX DIN 69871 page XX JIS (BT) page XX Graflex page XX</p>	<p>page XX page XX page XX page XX –</p>	<p>– – page XX page XX page XX</p>	<p>page XX – page XX page XX page XX</p>	<p>page XX – page XX page XX page XX</p>

Monobloc and Graflex holders (overview page 3/3)

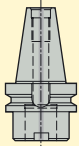
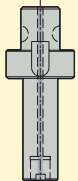
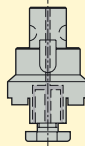

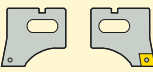
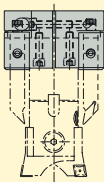
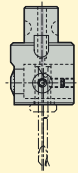
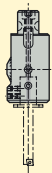
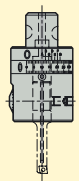

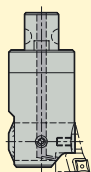
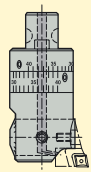
	Quick change tapping chucks (with/ without compensation)	ER tapping chucks (without compensation)	Taper adapters (SA/ HSK)	Greenstock blanks
				
Guide pages:	page XX	page XX	–	page XX
Product pages:				
HSK-A	page XX	page XX	–	page XX
HSK-E	–	–	–	page XX
DIN 69871	page XX	page XX	page XX	page XX
JIS (BT)	page XX	page XX	page XX	page XX
Graflex	page XX	page XX	–	page XX
	Test/ Control bars	Adjustable drill holders	Rotary coolant inducers	
				
Guide pages:	page XX	page 28	page 28	
Product pages:				
HSK-A	page XX	–	–	
HSK-E	page XX	–	–	
DIN 69871	page 1XX	–	–	
JIS (BT)	page XX	–	–	
Graflex	–	page XX	page XX	

Combimaster holders (overview page 1/1)


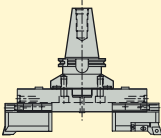

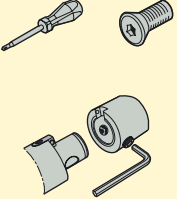
	Combimaster arbors	Combimaster intermediates, extensions and reducers	Combimaster intermediates, cylindrical, Weldon and Morse Taper	Graflex Combimaster adapters
				
Guide pages:	page XX	page XX	page XX	page XX
Product pages:				
HSK-A	page XX	-	-	-
HSK-E	page XX	-	-	-
DIN 69871	page XX	-	-	-
JIS (BT)	page XX	-	-	-
Cylindrical	-	page XX	-	-
Weldon	-	page XX	-	-
Morse taper	-	-	page XX	-
Extensions	-	-	page XX	-
Reducers	-	-	page XX	-
Graflex	-	-	-	page XX
	Combimaster Shrinkfit adapters	Combimaster heads		
				
Guide pages:	page XX	See Milling catalogues		
Product pages:	page XX	See Milling catalogues		

Note: Combimaster holders (arbors, intermediates and adapters) are also shown in the Milling 2 catalogue. Combimaster heads are shown 'all grouped' in the Milling 2 catalogue and also shown 'in each cutter family' in Milling 1 and Milling 2 catalogues.

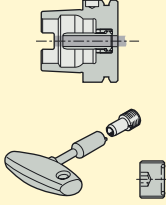
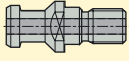
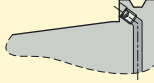



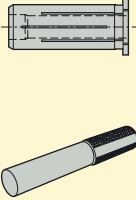




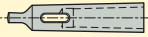
Graflex modular system (overview page 1/2)

<p>Guide pages:</p> <p>Product pages:</p>	<p>Arbors (HSK-A, HSK-E, DIN 69871, JIS BT, DIN 2080, Flange mounts, Adjustable and VDI)</p>  <p>page XX</p> <p>page XX</p>	<p>Intermediates (Extensions, Reducers, Enlargers, Cyl. extensions)</p>  <p>page XX</p> <p>page XX</p>	<p>Tool holders (for details, see Monobloc and Graflex holders overview pages)</p>  <p>page XX</p> <p>page XX</p>	<p>Rough boring heads (type A750..)</p>  <p>page XX</p> <p>page XX</p>
<p>Guide pages:</p> <p>Product pages:</p>	<p>Insert holders for rough boring heads</p>  <p>page XX</p> <p>page XX</p>	<p>Chamfering rings (incl. tools)</p>  <p>page XX</p> <p>page XX</p>	<p>Nanobore™ fine boring head, axial type (A76001, tools and kits)</p>  <p>page XX</p> <p>page XX</p>	<p>Fine boring heads, axial types (A72002 and A78000)</p>  <p>page XX</p> <p>page XX</p>
<p>Guide pages:</p> <p>Product pages:</p>	<p>Libraflex balanceable fine boring head, axial type (A79000 and Kits)</p>  <p>page XX</p> <p>page XX</p>	<p>Boring tools for axial type fine boring heads (for A72002, A78000 and A79000 heads)</p>  <p>page XX</p> <p>page XX</p>	<p>Fine boring heads, radial type (type A780..)</p>  <p>page XX</p> <p>page XX</p>	<p>Libraflex balanceable fine boring heads, radial type (type A790..)</p>  <p>page XX</p> <p>page XX</p>

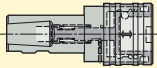
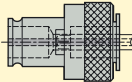
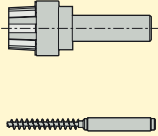
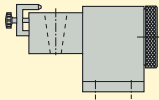
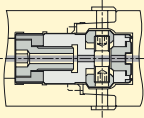
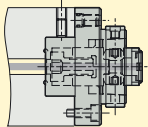
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Tooling systems



Quality

The philosophy behind Seco EPB products is based on total quality and is applied to each tool holder within this catalogue. Controls are carried out at all stages of the manufacturing process in accordance with ISO 9001.

- Material characteristics - 'classic' SA and HSK tool holders = case hardened steels, surface hardness 58 ± 2 HRC - Accu-Fit, Shrinkfit and hydraulic holders = through hardened steels chosen for their superior performances, hardness 56 ± 2 HRC.
- Taper precision - SA tapers according to ISO 1947, tolerance class AT3 - HSK according to ISO 12164.
- Geometrical tolerances - direct run-out measured on the holder and/or run-out measured on a test gauge are in the catalogue. Run-out controls are made by simulating a spindle fitting.
- Overall finish - deburred, black oxide or special surface treatment and laser marking.
- Traceability - individual product marking relates to the quality information that is available.
- Fine balancing or pre-balancing information is listed in this catalogue for each holder. Residual unbalance controls are made by simulating a spindle fitting.



The ISO 1940 NORM:

ISO 1940 has established G as the unit of measurement for the balance quality of rotating parts.

$$G = \frac{e}{1000} \times \omega \Rightarrow G = \frac{U}{1000 \times M} \times \frac{2 \pi n}{60}$$

G = balance quality in mm/s

e = specific unbalance in g.mm/kg or μm

ω = speed in rad/s

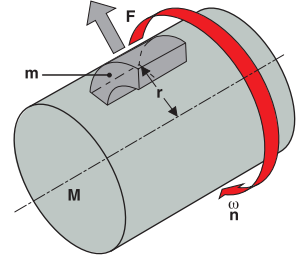
U = residual unbalance, ($U = e \times M$) in g.mm

M = mass of toolholder in kg

n = rpm

m = unbalance mass in g

r = distance between the unbalance mass and rotational axis in mm



G is the tangential speed of the centre of gravity in reference to the rotational axis.

G is depending on n , M , U . It is not possible to define G without referring to the rotational speed.

Residual unbalance U:

$$U = m \times r$$

U [g.mm] is the product of the unbalance mass m [g] and its distance to the rotational axis r [mm].

Value and direction of the residual unbalance U are measured using a balancing machine.

Residual unbalance U causes a centrifugal force F to act on the rotating parts. This force will have, for example, a negative effect on the useful life of the spindle bearings.

$$F = 10^{-6} \times U \times \omega^2$$

Balancing is the process which improves the distribution of the mass of a solid piece, in order to reduce the unbalance effects U and F to an acceptable level.

Balancing can be achieved by different methods: by adding weights (e.g. when balancing car wheels), removing material (EPB holders), or utilising settable compensations (e.g. EPB Libraflex).

Specific unbalance e:

$$e = U/M \Leftrightarrow U = e \times M$$

e is also called unbalance eccentricity: e [g.mm]/[kg] \Leftrightarrow [g.mm]/1000 [g] \Leftrightarrow [mm]/1000 \Leftrightarrow [μm] is the distance to which the centre of gravity is offset in regard to the holder's rotational axis.

Balancing reduces e , in other words, brings back the centre of gravity as near as possible to the axis of rotation.

EPB uses the specific unbalance e to define the holder's balancing quality:

– e can be generalised for all holders, while G has to be expressed against a specific n .

– e can easily be calculated from U , given by a balancing machine, divided by the mass M of the holder.

The balancing quality of each holder is shown in the Product pages: 1 = Fine-balanced, 2 = Pre-balanced.

1 = Fine balancing quality:

All EPB holders suitable for HSM applications are balanced to $e = 3 \text{ g.mm/kg}$ maximum for holders with mass $M \geq 1 \text{ kg}$ or $U = 3 \text{ g.mm}$ maximum for holders $< 1 \text{ kg}$.

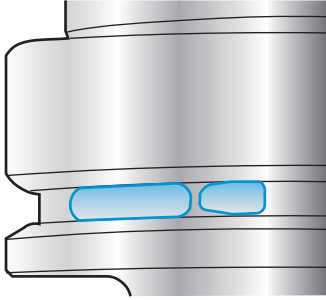
2 = Pre-balancing quality:

The majority of EPB holders are pre-balanced to $e = 30 \text{ g.mm/kg}$ maximum for holders with mass $M \geq 1 \text{ kg}$ or $U = 30 \text{ g.mm}$ maximum for holders $< 1 \text{ kg}$.

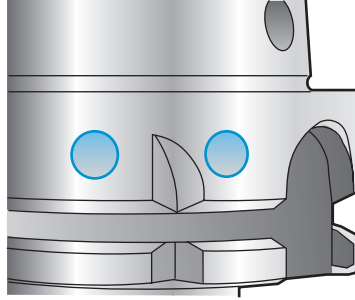
Most of the pre-balanced holders can be fine-balanced on request, please enquire.

e.g.

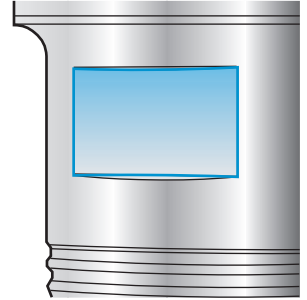
Balancing
1
1



1 = Fine balancing, individual operation

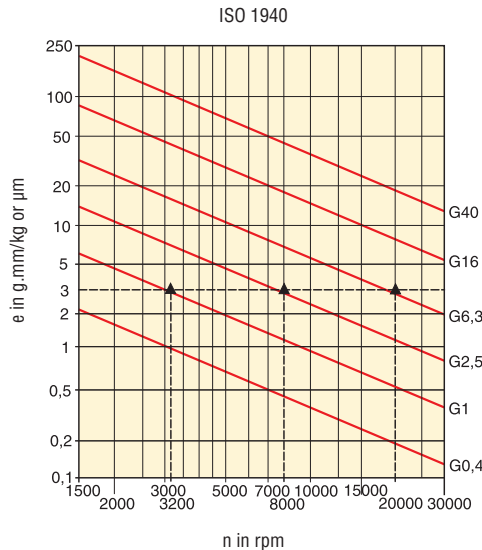


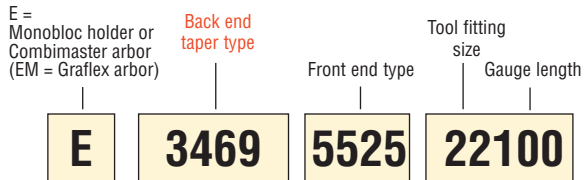
2 = Pre-balancing, standard operation



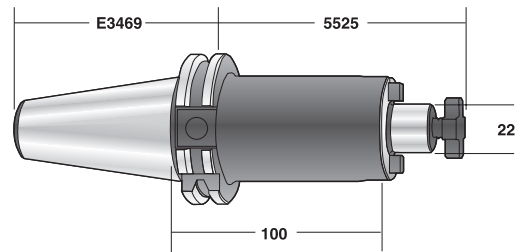
E.g.: Fine balancing a 2 kg holder to $e = 3 \text{ g.mm/kg}$ max means that the permitted residual unbalance U can be 6 g.mm max.
 Fine balancing a holder weighing 0,7 kg, means that U can be 3 g.mm max.

The relation between G and n in regard to e is shown on the chart taken from the norm ISO 1940.





Code separation spaces are only there to facilitate easy reading of the part numbers. They do not form part of the ordering code.



Back end taper types

HSK-A, ISO 12164-1 Form A

EPB's holders HSK-A have a radial hole through the taper for manual clamping, compatible with HSK-C.

		Availability		
		Monobloc	Combimaster	Graflex
9301...	HSK-A32	■		■
9302...	HSK-A40	■	■	■
9303...	HSK-A50		■	■
9304...	HSK-A63	■	■	■
9305...	HSK-A80		■	■
9306...	HSK-A100	■	■	■

HSK-E, DIN 69893 Form E

		Availability		
		Monobloc	Combimaster	Graflex
9340...	HSK-E25	■		■
9341...	HSK-E32	■	■	■
9342...	HSK-E40	■	■	■
9343...	HSK-E50	■	■	

Other HSK sizes and Forms (B,C,D,F) on request

DIN 69871, including DIN/ CAT Metric Compatible

		Availability		
		Monobloc	Combimaster	Graflex
4464...	DIN taper size 30, Form AD or A.			■
4469...	DIN taper size 40, Form AD or A.	■		
4466...	DIN taper size 40, Form AD or A with CAT compatible front end flange neck.			■
3469...	DIN taper size 40, Form ADB.	■		■
3476...	DIN taper size 40, Form ADB with CAT compatible front end flange neck.	■	■	
4470...	DIN taper size 45, Form AD or A.			■
4471...	DIN taper size 50, Form AD or A.	■		
4468...	DIN taper size 50, Form AD or A with CAT compatible front end flange neck.			■
3471...	DIN taper size 50, Form ADB.	■		■
3478...	DIN taper size 50, Form ADB with CAT compatible front end flange neck.		■	

Note: Form A = no 'through' coolant . Form AD = coolant through the centre. Form ADB = coolant through the centre and the flange (with two removable sealing plugs in the flange).

BT JIS B 6339

	Availability		
	Monobloc	Combimaster	Graflex
4040... BT taper size 30, Form AD or A.	■		■
4041... BT taper size 40, Form AD or A.	■		
3414... BT taper size 40, Form ADB.	■	■	■
5766... BT taper size 50, Form AD or A.	■		■
3416... BT taper size 50, Form ADB.	■	■	■

Note: Form A = no through coolant. Form AD = coolant through the centre. Form ADB = coolant through the centre and the flange (with two removable sealing plugs in the flange).

DIN 2080

	Availability		
	Monobloc	Combimaster	Graflex
0040... DIN 2080 taper size 40.			■
0050... DIN 2080 taper size 50.			■

ANSI CAT Imperial*

	Availability*		
	Monobloc	Combimaster	Graflex
2502... ANSI CAT taper size 40, Form ADB.	■	■	■
2503... ANSI CAT taper size 45, Form ADB.			■
2504... ANSI CAT taper size 50, Form ADB.	■	■	■

*ANSI CAT Imperial arbors and holders are shown in a separate catalogue, please enquire.

Note: Form ADB = coolant through the centre and the flange (with two removable sealing plugs in the flange).

Front end tool holding types

5545	Shell mill holders, Accu-Fit™
5525/5524	Shell mill holders with through coolant channels (5524 = small face).
5521/552	Shell mill holders, classic (552 = small face).
553	Combi shell mill holders.
569	Milling cutter holders, flange mounting.
5656	Disc mill holders.
584	Side lock holders, Weldon.
5842	Side lock holders, Weldon short.
5843	Side lock holders, Whistle Notch.
5803	Shrinkfit holders, DIN type.
5801	Shrinkfit holders, Mould and Die type.
5800	Shrinkfit holders, cylindrical type.
5872	D type precision collet chucks.
Q5872	D type precision collet chucks, Libraflex balanceable.
5834	Hydraulic chucks.
5875	ER collet chucks.
5450	ER collet chucks, with cylindrical shank.
5873	OZ collet chucks.
5085	Universal drill chucks.
506	Jacobs chuck holders.
536	Holders for Morse Taper with tang.
533	Holders for Morse Taper with thread.
5283	Quick change tapping chucks with axial compensation.
5260	Quick change tapping chucks for synchronised tapping.
5865	ER tapping chucks for synchronised tapping.
543	Taper adapters SA.
5095	Taper adapters HSK.
5023	Greenstock blanks.
586	Test/Control bars.
6100/6101	Adjustable drill holders.
B5M	Rotary coolant inducers.
5820/5821/5822	Combimaster holders.

Note: DIN 69882 defines the overall dimensions of some HSK-A holder sizes for types 5525, 5521, 553, 584, 5843, 5803, 5834 and 5875. EPB holders that conform to DIN 69882 are marked in the Product pages with an asterisk.

Delivery contents

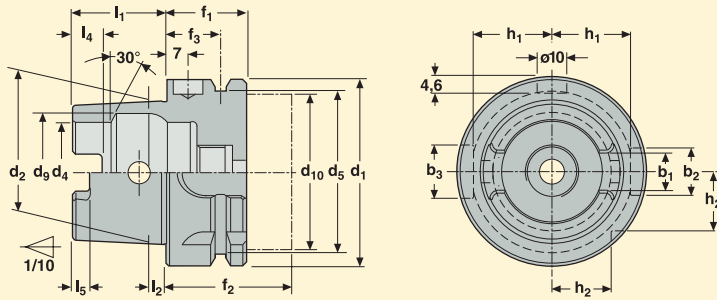
Each item is delivered with all components included, also shown in the Product pages as 'Spare parts' (e.g. Weldon locking screw). 'Accessories' (e.g. ER sealing nut) and 'Additional equipment' (e.g. ER collet) are not included in the delivery content, please order separately.

Identification microchips

Identification microchips can be fitted to the holders, please enquire.

HSK-A norm, dimensions

ISO 12164-1 Form A/ DIN 69893 Form A compatible



HSK	Part No. prefix	Dimensions in mm																	
		d ₁	d ₂	d ₁₀ max	d ₄	d ₅	d ₉	f ₁	f ₂	f ₃	l ₁	l ₂	l ₄	l ₅	b ₁	b ₂	b ₃	h ₁	h ₂
HSK-A32	E9301...	32	24	26	17	26,5	21	20	35	16	16	3,2	5	3	7,05	7	9	13	9,5
HSK-A40	E9302...	40	30	34	21	34,8	25,5	20	35	16	20	4	6	3,5	8,05	9	11	17	12
HSK-A50	E9303...	50	38	42	26	43	32	26	42	18	25	5	7,5	4,5	10,54	12	14	21	15,5
HSK-A63	E9304...	63	48	53	34	55	40	26	42	18	32	6,3	10	6	12,54	16	18	26,5	20
HSK-A80	E9305...	80	60	67	42	70	50	26	42	18	40	8	12	8	16,04	18	20	34	25
HSK-A100	E9306...	100	75	88*	53	92	63	29	45	20	50	10	15	10	20,02	20	22	44	31,5

EPB's holders HSK-A have a radial hole through the taper for manual clamping, compatible with HSK-C.

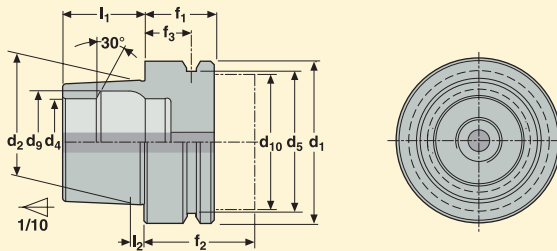
*Note: HSK-A100 has d10 max 88 mm according to ISO 12164. Was max 85 mm when previously produced according to DIN 69893.

The norm dimensions are applied to all the holders shown in the Product pages.

For HSK-A sealing plugs, coolant tubes and tube spanners, see Additional equipment.

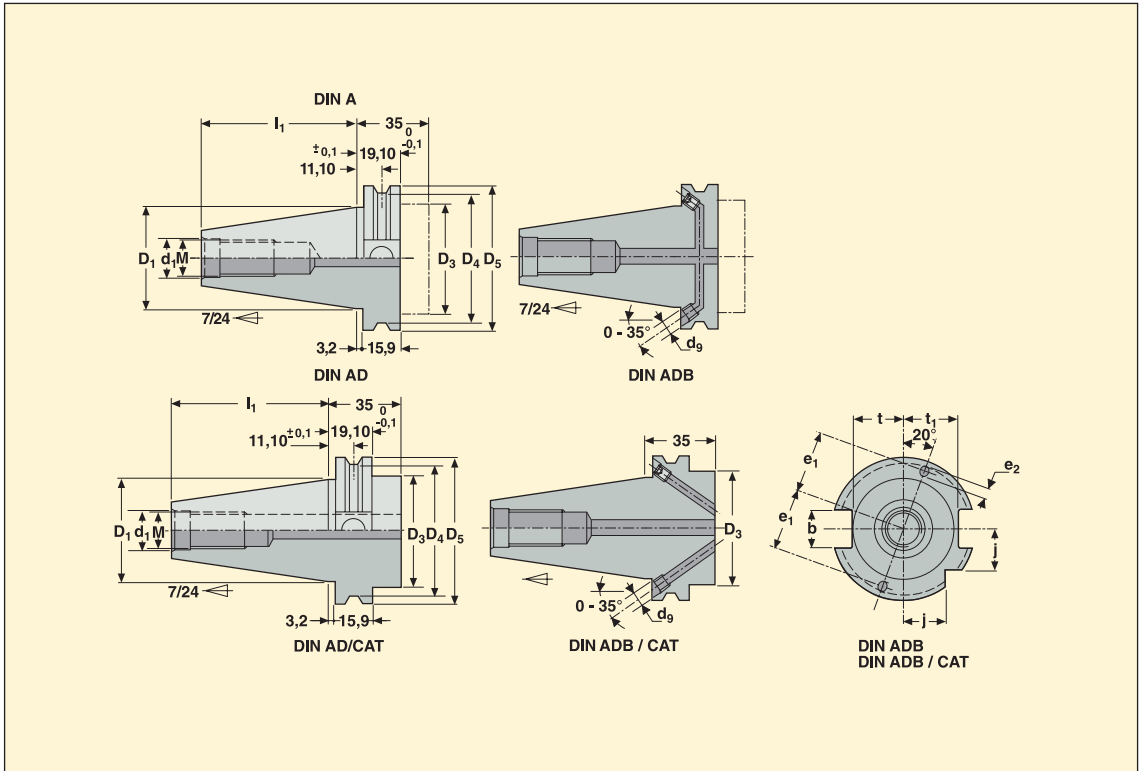
HSK-E norm, dimensions

DIN 69893 Form E



HSK	Part No. prefix	Dimensions in mm										
		d ₁	d ₂	d ₄	d ₅	d ₉	d ₁₀ max	f ₁	f ₂	f ₃	l ₁	l ₂
HSK-E25	E9340...	25	19	14	22	16,4	20	10	20	4,5	13	2,5
HSK-E32	E9341...	32	24	17	26,5	21	26	20	35	16	16	3,2
HSK-E40	E9342...	40	30	21	34,8	25,5	34	20	35	16	20	4
HSK-E50	E9343...	50	38	26	43	32	42	26	42	18	25	5

The norm dimensions are applied to all the holders shown in the Product pages.



Taper	Through coolant form	Part No. prefix	Dimensions in mm													
			D ₁	D ₃	D ₄	D ₅	$l_1^{0,2/0}$	M	d_1^{H7}	d_9	e_1	e_2^{max}	t	t_1	b	j
DIN30	A/D	E4464...	31,75	45 max	44,30	50,00	47,80	M12	13	-	-	-	16,4	19,0	16,1	15,0
DIN40	A/AD	E4469...	44,45	50 max	56,25	63,55	68,40	M16	17	-	-	-	22,8	25,0	16,1	18,5
DIN40 AD/CAT40	A/AD	E4466...	44,45	44,45	56,25	63,55	68,40	M16	17	-	-	-	22,8	25,0	16,1	18,5
DIN40 ADB	A/AD/B	E3469...	44,45	50 max	56,25	63,55	68,40	M16	17	4	27	5	22,8	25,0	16,1	18,5
DIN40ADB/CAT40	A/AD/B	E3476...	44,45	44,45	56,25	63,55	68,40	M16	17	4	27	5	22,8	25,0	16,1	18,5
DIN45	A/AD	E4470...	57,15	63 max	75,00	82,55	82,70	M20	21	-	-	-	29,1	31,3	19,3	24,0
DIN50	A/AD	E4471...	69,85	80 max	91,25	97,50	101,75	M24	25	-	-	-	35,5	37,7	25,7	30,0
DIN50 AD/CAT50	A/AD	E4468...	69,85	44,45	91,25	97,50	101,75	M24	25	-	-	-	35,5	37,7	25,7	30,0
DIN50 ADB	A/AD/B	E3471...	69,85	80 max	91,25	97,50	101,75	M24	25	6	42	7	35,5	37,7	25,7	30,0
DIN50ADB/CAT50	A/AD/B	E3478...	69,85	69,85	91,25	97,50	101,75	M24	25	6	42	7	35,5	37,7	25,7	30,0

The norm dimensions are applied to all the holders shown in the Product pages.

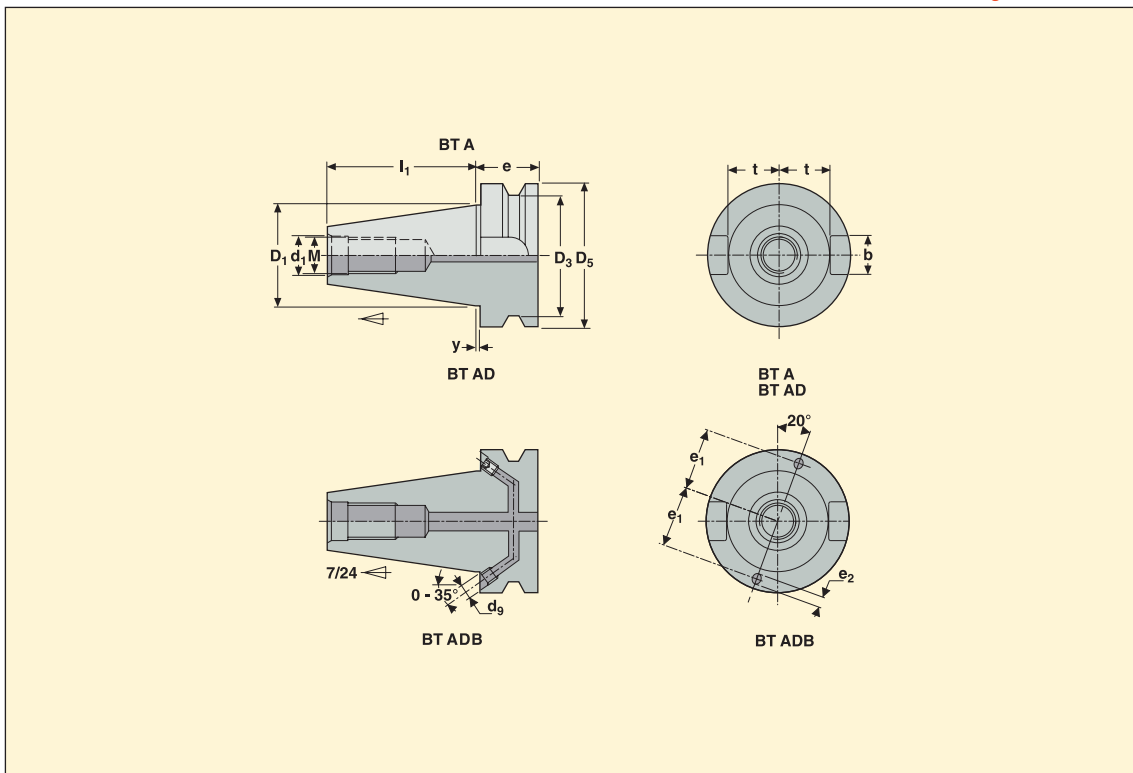
ADB type holders have two removable sealing plugs in the flange, in order to realise all through coolant types A, AD, or B. For spare plugs and pull studs, see catalogue chapter Additional equipment.

DIN/ CAT indicate these holders of the DIN 69871 range feature the controlled diameter D3 of the CAT norm (CATERPILLAR ANSI B5 50 compatible only. Full ANSI-CAT conformity restricted by timing notch inclusion and metric pull-stud thread).

Note: Holders conforming to ANSI CAT (with imperial pull-stud threads) are shown in a separate catalogue, please enquire.

BT JIS-A/AD/B/ADB norm, dimensions

JIS B 6339/ BT with coolant through A/AD/B/ADB



Taper	Through coolant form	Part No. prefix	Dimensions in mm												
			D1	D3	D5*	l1	M	d9	e1	e2 max	e	e1	t	b	y
BT30	A/D	E4040...	31,75	38	46	48,4	M12	-	-	-	22	12,5	16,3	16,1	2
BT40	A/AD	E4041...	44,45	53	63	65,4	M16	-	-	-	27	17,0	22,5	16,1	2
BT40 ADB	A/AD/B	E3414...	44,45	53	63	65,4	M16	4	27	5	27	17,0	22,5	16,1	2
BT50	A/AD	E5766...	69,85	85	100	101,8	M24	-	-	-	38	25,0	35,4	25,7	3
BT50 ADB	A/AD/B	E3416...	69,85	85	100	101,8	M24	6	42	7	38	25,0	35,4	25,7	3

The norm dimensions are applied to all the holders shown in the Product pages.

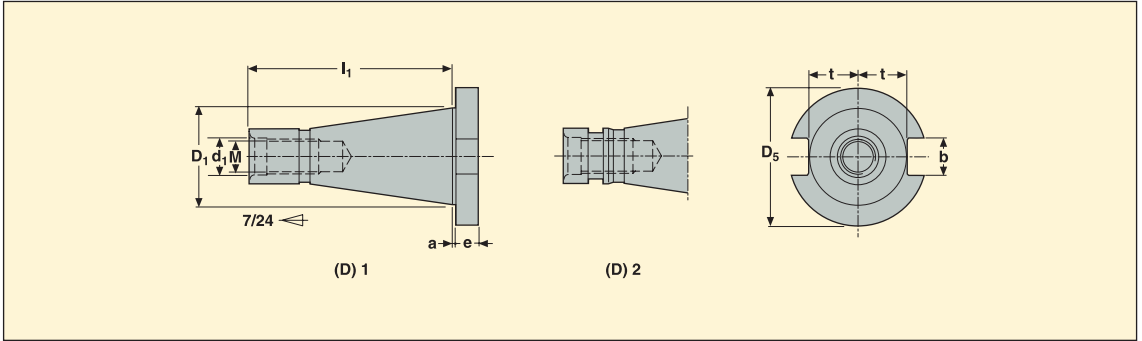
The B through coolant design of ADB holders is made according to DIN 69871 Form B.

ADB type holders have two removable sealing plugs in the flange, in order to realise all through coolant types A, AD or B. For spare plugs and pull studs, see catalogue chapter Additional equipment.

* EPB BT holders with a front end diameter in excess of diameter D5, are produced with the following clearance diameters: BT30 = Ø45 mm max x 3 mm; BT40 = Ø62 mm max x 8 mm; BT50 = Ø98 mm max x 12 mm. This is compatible with the BT JIS norm which permits free dimensions in front of the taper.

DIN 2080 norm, dimensions

DIN 2080/ NF-E-60-024/ ISO 297



Taper	Part No. prefix	Design (D)	Dimensions in mm								
			D ₁	D ₅	l ₁	M	e	d ₁	t	b	a
DIN(2080) 40	E0040...	2	44,45	63,0	93,4	M16	10	17	22,5	16,1	1,6
DIN(2080) 50	E0050...	1	69,85	97,5	126,8	M24	12	26	35,3	25,7	3,2

The norm dimensions are applied to all the holders shown in the Product pages.

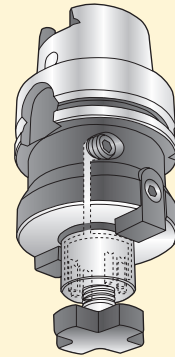
Note: For pull studs to convert DIN 69871 and BT holders to DIN 2080 holders, see Additional equipment.

Shell mill holders, Accu-Fit™, available in Monobloc

Accu-Fit™, Type 5545

Increase tool life and minimize run-out with Seco-EPB's new Accu-Fit™ – the hydraulic shell mill holder that provides the best connection between milling cutter and machine tool. Take precision manufacturing to an all-new level.

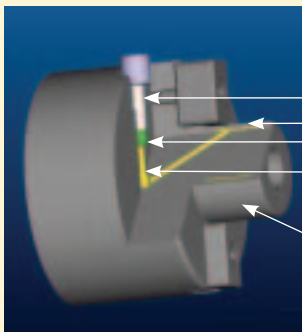
Fine balanced to 3 g.mm/kg, Accu-Fit™ is the best choice for high-speed applications and difficult materials. As the mechanism is self-centering, balance of the assembled cutter and holder is maintained during operation.



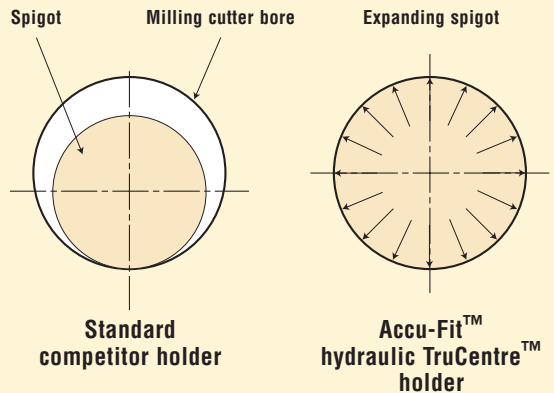
Accu-Fit™ holder's TruCentre™

Our patent-pending TruCentre™ design features an expandable hydraulic spigot to precisely hold the shell mill, eliminate play and minimize run out.

The clamping force between the cutter and the holder is further secured by the central bolt.



- Piston
- Expanding chamber
- Sealing
- Hydraulic fluid
- Spigot



Other features

Large bearing face OD, same as Types 5525/5521.

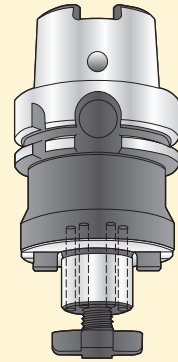
Directional through coolant channels in the spigot, same as Types 5525/5524.

Direct run-out of the spigot with fitted control ring in relation to the external taper is 5 µm maximum.

Accessories: When the cutter has no through coolant channels, it is possible to replace the standard cross head centre bolt by a cross head centre bolt with through coolant channels shown in Accessories. This will direct the coolant towards the cutter's front end.

Shell mill holders, available in Monobloc and Graflex®

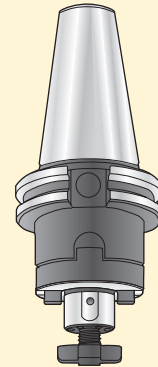
- Types:** 5525, 5524, 5521 and 552 – Holders for tenon drive milling cutters.
Types 5525 and 5524 are with directional coolant channels through the spigot.
- Norms:** Types 5525 and 5521 : No norm, large bearing face OD suitable for most cutters and optimized rigidity.
Types 5524 and 552, ISO 3937 : small bearing face OD suitable for e.g. disc mill cutters Type B.
Types 5525 and 5521 with $\varnothing 40$ have 4 threaded holes according to DIN 6357 in addition to the central locking bolt.
- Run-out:** Direct run-out of the spigot in relation to the external taper is 5 μm maximum.
- Balancing:** See Product pages.
- Accessories:** When the cutter has no through coolant channels, it is possible to replace the standard cross head centre bolt by a cross head centre bolt with through coolant channels shown in Accessories. This will direct the coolant towards cutter's front end.



5524/ 5525

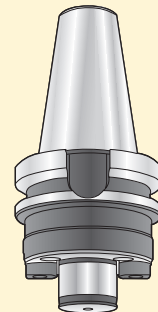
Combi shell mill holders, available in Monobloc and Graflex®

- Type:** 553 – For tenon drive cutters or key drive cutters by removing the driving ring.
- Norm:** DIN 6358
- Run-out:** Direct run-out of the spigot in relation to the external taper is 5 μm maximum.
- Balancing:** Not suitable for balancing due to the removable driving ring.



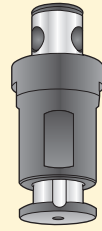
Milling cutter holders, flange mounting, available in Monobloc and Graflex®

- Type:** 569 – For large diameter face mill cutters. Offering a large bearing face and secure locking using 4 screws according to DIN2079. High torque transmission thanks to large driving keys.
- Norm:** DIN 6357/DIN 2079
- Run-out:** Direct run-out of the spigot in relation to the external taper is 5 μm maximum.
- Balancing:** See Product pages.



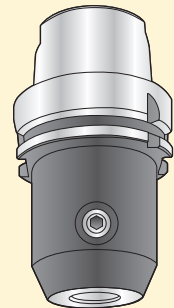
Disc mill holders, available in Graflex®

- Type:** **M5656** – The Disc mill is held by an adjustable sliding shaft arbor equipped with a driving key. The arbor and Disc mill are locked using a pulling screw. Discmill holders are only available with Graflex back end.
- Norm:** Suitable for e.g. Seco disc mill cutters Type A.
- Balancing:** See Product pages.



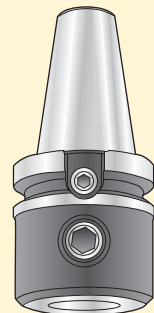
Side lock holders, Weldon, available in Monobloc and Graflex®

- Type:** **584** – The tool position is fixed as a result of the tool shank flat(s) and cannot be adjusted. The locking method offers high torque transmission. Bore sizes Ø 16, 20, 25, 32 and 40 mm have the front face ground (Seco Weldon shanks compatible).
- Norm:** DIN 1835-2 Form B/ISO 5414-1.
- Tool shanks:** Weldon DIN 1835-1 Form B/ DIN 6535 Form HB
- Run-out:** Direct run-out of the bore to the external taper is 3 µm. Reduced bore tolerances on Ø 6 to 18 mm is +1 to +5 µm and Ø 20 and > is +1 to +7 µm.
- Balancing:** See Product pages.



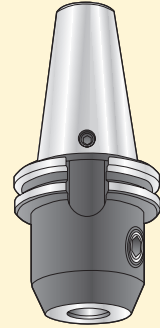
Side lock holders, Weldon short, available in Monobloc

- Type:** **5842** – Short, giving maximum rigidity. Bore sizes Ø 16, 20, 25 and 32 mm have the front face ground (Seco Weldon shanks compatible).
- Norm:** Compatible to DIN 1835-1 Form B/ISO 5414-1 but not conformed.
- Tool shanks:** Weldon DIN 1835-1 Form B/ DIN 6535 Form HB
- Run-out:** Direct run-out of the bore to the external taper is 5 µm. Reduced bore tolerances on Ø 6 to 18 mm are +1 to +5 µm and on Ø 20 and > are +1 to +7 µm.
- Balancing:** See Product pages.



Side lock holders, Whistle Notch, available in Monobloc and Graflex®

- Type:** 5843 – Similar to Weldon, but with screw(s) angled 2° to lock the tool against an adjustable stop screw. Ø 16, 20, 25 and 32 mm have the front face ground. A securing screw is provided for the stop screw.
- Norm:** DIN 1835-2 Form E
- Tool shanks:** Whistle Notch DIN 1835-1 Form E/DIN 6535 Form HE
- Run-out:** Direct run-out of the bore to the external taper is 3 µm. Reduced bore tolerances on Ø 6 to 18 mm is +1 to +5 µm and Ø 20 and > is +1 to +7 µm.
- Balancing:** See Product pages (balancing with median clamping position of the screws).



Holders, designed for HSM

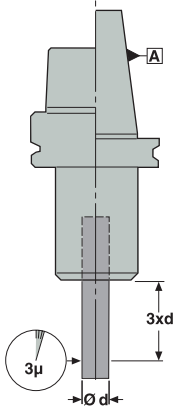
HSM (High Speed Machining) technology gives significant productivity and quality improvements. Three EPB holder types meet all the requirements of HSM:

Shrinkfit holders

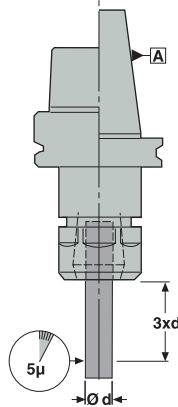
D type collet chucks

Hydraulic chucks

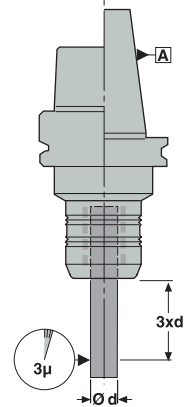
- Balance : HSM holders are all fine balanced as standard.
- Precision: Maximum run-out at $3 \times d$ is 3 to 5 μm . See below.
- Rigidity.
- High transmittable torque.



Shrinkfit holders



D type collet chucks



Hydraulic chucks

Main features	Shrinkfit holders	D Type collet chucks	Hydraulic chucks
Run-out precision	+++ (3 μm)	++ (5 μm)	+++ (3 μm)
Balance quality as standard	+++ (fine balanced)	+++ (fine balanced)	+++ (fine balanced)
Transmittable torque	+++	++	+++
RPM max. front end	up to 45 000*	up to 100 000*	up to 40 000*
Rigidity	+++	++	+(avoid radial forces)
Accessibility	+++	+	+
Additional equipment	Shrinkfit device required	Collets and compression tool required	Clamping test gauges recommended
Flexibility	+(extensions)	+++ (collets)	++ (sleeves)
Shank diameter and relevant tolerances - max.	3, 4, & 5 mm: h5 - 6, 8, 10, 12, 14, 16, 18, 20, 25, 32mm: h6 (h5 recommended)	Collets 1 to 20 mm by steps 0,5 mm: h8	3, 4 and 5 mm: with sleeves - 6, 8, 10, 12, 14, 16, 18, 20, 25 and 32 mm: h6
Available types	Types 5803, 5801 and 5800	Types 5872 and LIBRAFLEX 5872	Type 5834

+ = Good, ++ = Very good, +++ = Excellent

* For details see following pages.

Other holders suitable for HSM:

D type collet chucks are also available in balanceable Libraflex type, in order to balance an assembled tool and holder. Selected shell-mill holders (including all Accu-Fit), Weldon and ER collet chucks are fine balanced as standard, see Product pages. All Combimaster arbors are fine balanced as standard. Balanceable Graflex boring heads (Libraflex) are available for fine boring at high rpm, and most Graflex arbors are fine balanced as standard.

Shrinkfit holders

A Shrinkfit tool holder works in conjunction with a specialised heater e.g. EasyShrink. The bore in which the tool locates is slightly undersized compared to the tool shank. Heating the holder opens up this bore, allowing the tool to be inserted. As the holder cools, the bore shrinks around the tool to create a concentric and rigid clamping. Bore size \varnothing 3 mm to 32 mm.

Thermal expansion:
 Approx. 11 $\mu\text{m}/\text{m}/^\circ$ for steel and HSS
 Approx. 6 $\mu\text{m}/\text{m}/^\circ$ for carbide and heavy metal

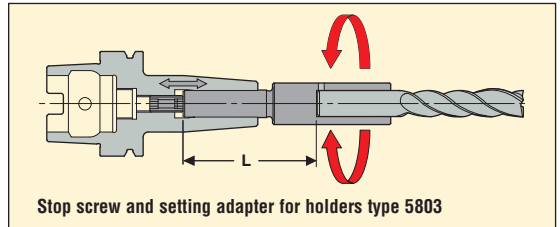
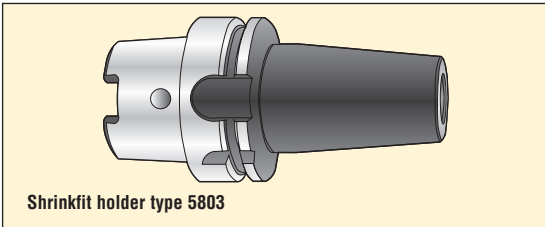
e.g.: $\varnothing 20$, heating from 20°C to 270°C , increase of 250°C .
 Steel: $0,020 \times 11 \times 250 = + 55 \mu\text{m}$
 Carbide: $0,020 \times 6 \times 250 = + 30 \mu\text{m}$

Shrinkfit holders type 5803, available in Monobloc, Combimaster and Graflex®

Type 5803 has a $4,5^\circ$ nose angle and a thread for a stop screw according to draft E DIN 69882-8. E DIN 69882-8 defines the overall dimensions of some HSK holder sizes, refer to the product page. For the other holder types this norm only applies to the front end. Bore size \varnothing 6 mm to \varnothing 32 mm.

Stop screws must be ordered separately, see Accessories.

Stop screw setting adapter with hexagonal back-end - shown in Shrinkfit devices pages: Required to set the stop screw position taking into account the actual tool to be shrink gripped. For application details see the information in the Guide to - Shrinkfit devices.



Shrinkfit holders type 5801 and 5800, available in Monobloc

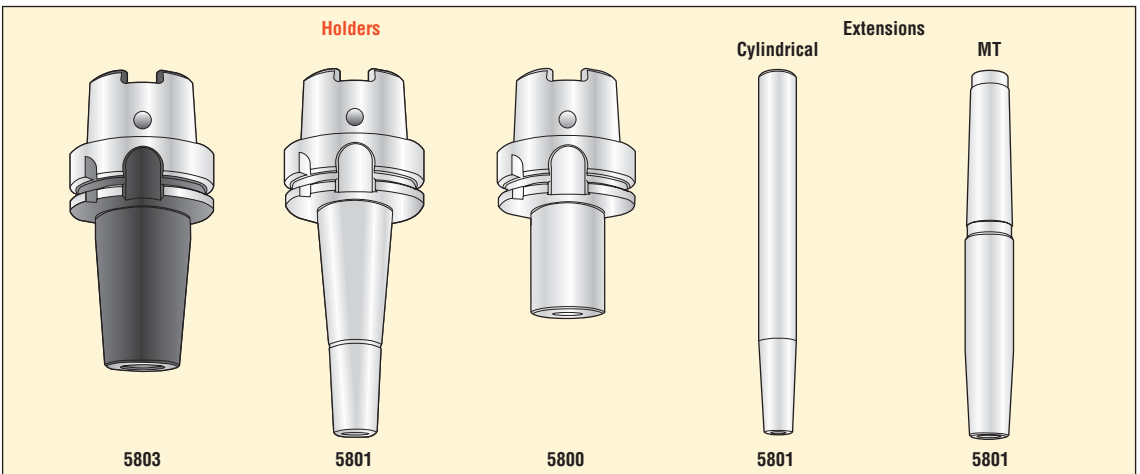
Type 5801 long and slim $5^\circ/3^\circ$ nose angle design, with coated external surfaces. Designed to be suitable for Mould & Die application.

Type 5800 cylindrical strong external shape, with coated external surfaces.

Shrinkfit extensions, see Additional equipment

Together with the Shrinkfit holders, comes a complete range of Type 5801 slim Shrinkfit extensions with cylindrical shank, tolerance h5, or Morse Taper for pull-back screw.

Extensions can be used for extending the overall length of holders, or holding small diameter tools from \varnothing 3 mm.



Tool shank types and tolerances for Shrinkfit holders.

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA.

Shank tolerance, Ø 3 to 5 mm maximum h5, tool shank must be carbide or heavy metal (e.g. Densimet). Ø 6 to 32 mm maximum h6, tool shank can be steel, HSS, carbide or heavy metal. **Using h5 for Ø 6 to 32 mm provides a safer minimum clamping torque.**

Run-out: Maximum run-out when measured at a gauge projection of 3 x d (d = bore dia.) in relation to the external taper or shank is 3 µm.

Direct run-out of the holder bore in relation to the taper or the shank is 3 µm maximum.

Balancing, all Shrinkfit holders are fine-balanced as standard.

Heat resistance: Epb Shrinkfit holders are made from heat resistant steel guaranteeing structure, geometry and dimensional stability after many Shrinkfit heating cycles. The maximum acceptable temperature is 400°C.

Transmittable torque to the tool shank (Nm), Shrinkfit holders Type 5803

Clamp Ø (mm)	Minimum static transmittable torque (Nm)	Shrinkfit clamping system Max RPM*
6	22	45 000
8	35	45 000
10	65	40 000
12	110	40 000
14	150	38 000
16	200	38 000
18	250	35 000
20	320	35 000
25	500	32 000
32	550	30 000

* The maximum RPM for holders equipped with this clamping system is often restricted by the holder's back-end taper type and size.

High precision D type collet chucks, available in Monobloc and Graflex®

Type 5872 – Alternative solution to hydraulic chucks and Shrinkfit suitable for HSM. Good flexibility is a result of the interchangeability of the collets (D type collets available from Ø 1 to 20 mm).

Norm: No norm.

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA, tolerance h8.

Dedicated clamping size on the nominal diameter.

Collets available in steps of 0,5 mm.

Run-out: Maximum run-out when measured at a gauge projection of $3 \times d$ in relation to the external taper is $5 \mu\text{m}$.

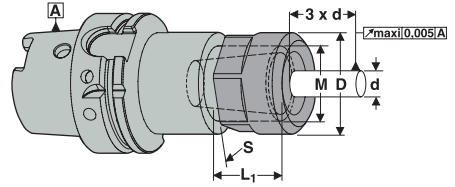
Balancing: Fine balanced is standard.

Through coolant supply:

To direct the coolant through the tool shank, two solutions are available:

- sealing obtained by using a concave tapered stop end screw available as Accessories (for tool shanks without groove),
 - sealing obtained by using a sealing nut (available as Accessories) and a sealing ring (available as Additional equipment).
- Sealing nuts are slightly longer than standard nuts, see lengths listed in Product pages.

Note: D type chucks are delivered as standard without stop end screws. Stop end screws are not recommended for high spindle speeds, e.g. over 10 000 rpm. Stop end screws have to be ordered separately, see Accessories.



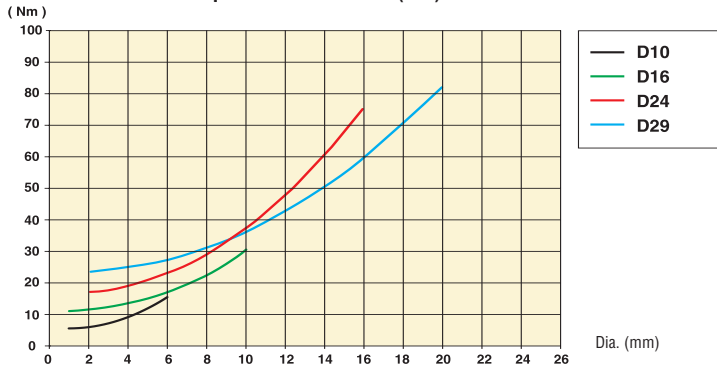
Recommended tightening torque for the locking nut

Collet chuck size	Capacity d mm	D	L ₁	M	S	Max. tightening torque	D type clamping system Max RPM*
D10	1–6	15,7	14	M12 x 0,7	14	15 Nm	100 000
D16	1–10	27	19	M20 x 1	24	40 Nm	60 000
D24	2–16	36	22	M28 x 1	32	70 Nm	40 000
D29	2–20	42	25	M34 x 1	38	80 Nm	30 000

* The maximum RPM for holders equipped with this clamping system is often restricted by the holder's back-end taper type and size.

Note: Suitable torque control keys are not available from Seco/EPB. On request we can advise on possible suppliers.

Transmittable static torque to the tool shank (Nm)



Libraflex® high precision D type collet chucks, available in Monobloc

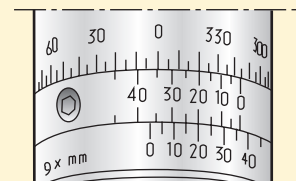
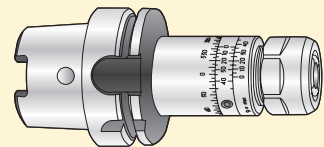
Type Q 5872 (Libraflex) has the same features as D type collet chuck.

The Libraflex type has two settable rings graduated in g. mm, and has graduation from 0 to 360° around the body. This offers the possibility to have a balanced holder and cutting tool assembly. Up to 120 g.mm unbalance can be compensated.

Max rpm for Libraflex chucks, see Product pages.

Note! A balancing machine is necessary to indicate the rings settings.

Balancing: Fine balanced with rings in the 0 'zero' positions.



Hydraulic chucks, available in Monobloc and Graflex®

Type 5834: A good choice for HSM and high precision. **It is not recommended where high radial forces are involved.**

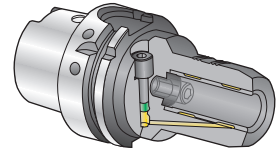
An internal piston pressurises hydraulic fluid into a chamber surrounding the holder bore. The high pressure is uniformly applied to grip 360° around the tool shank. Cutting tools are held with excellent precision. The bore has a helical groove where dirt, oil or grease can collect when it has inadvertently been left on the tool shank. The pressurising screw must be completely tightened.

PLEASE NOTE: NEVER LOCK THE CHUCK WITHOUT A TOOL IN PLACE.

DIN 69882-7 defines the overall dimensions of some HSK holder sizes, refer to the product pages. For the other holder types this norm only applies to the front end.

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA, Ø 6 to 32 mm and Weldon DIN 1835-1 Form B/ DIN 6535 Form HB, Ø 6 to 20 mm.

Cylindrical	Weldon	Weldon	Whistle Notch
	Ø 6 mm – Ø 20 mm	Ø 25 mm – Ø 32 mm	

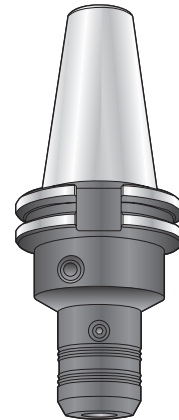


Shank tolerance: h6 maximum.

Run-out: Maximum run-out when measured at a gauge projection of 3 x d in relation to the external taper is 3 µm.

Balancing: Fine-balanced is standard.

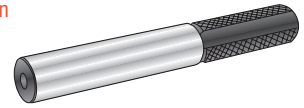
Clamp Ø (mm)	Minimum static transmittable torque (Nm)	Operating temperature	Maxi coolant pressure	Hydraulic system Max RPM*
6	20	10 – 50°C	50 bar	40 000
8	30			40 000
10	40			40 000
12	70			40 000
14	100			40 000
16	120			40 000
18	140			40 000
20	170			40 000
25	200			25 000
32	250			25 000



*The maximum RPM for holders equipped with this clamping system is often restricted by the holder's back-end taper type and size.

To reach maximum transmittable torque, the tool shank and bore must be clean and dry. **Suitable cleaning brushes are shown in Additional equipment page 'Cleaning equipment'.**





Control gauges, see Additional equipment: To check that the pressure remains sufficient it is recommended to regularly test the chucks with suitable gauges. For application details see the information in the Guide - Additional equipment, control gauges or refer to the instruction sheet supplied with the chuck.

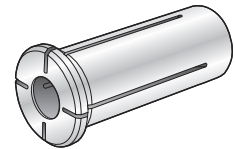


Reduction sleeves for hydraulic chucks, see Additional equipment

The reduction sleeves for hydraulic chucks act like a split collet, more shank types and sizes can be gripped: cylindrical, Weldon, Whistle Notch $\varnothing < 25$ mm.

The run-out with the sleeve is maximum 5 μ m at 3 x d.

Cylindrical	Weldon	Weldon	Whistle Notch
			
	$\varnothing 6 \text{ mm} - \varnothing 20 \text{ mm}$	$\varnothing 25 \text{ mm}$	$\varnothing 6 \text{ mm} - \varnothing 25 \text{ mm}$



ER collet chucks, available in Monobloc and Graflex®

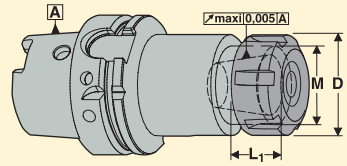
Type 5875 offers good flexibility thanks to the interchangeability of the collets. The clamping range of an ER collet is up to 1 mm.

Norm: DIN 6499

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA.

Run-out: Direct run-out of the ER taper in relation to the external taper is 5 µm maximum. Run-out at the tool is related to the collet used: ER standard collets and ER high precision collets, see Guide and Product pages - Additional equipment.

Balancing: See Product pages.



Recommended tightening torque for the locking nut

Collet chuck size	D	L ₁	M	Max. tightening torque
ER16	32	18	M22 x 1,5	48 Nm
ER25	42	21	M32 x 1,5	57 Nm
ER32	50	23	M40 x 1,5	72 Nm
ER40	63	26	M50 x 1,5	83 Nm

Through coolant supply:

There are two possibilities to direct the coolant through the tool shank coolant channel(s) when fitted into a ER collet chuck:

- by applying the concave front face of the stop end screw equipping the ER collet chucks onto the tool shank (for tool shanks without groove)
- by using a sealing nut, available as Accessories, and a sealing ring, available as Additional equipment. Sealing nuts are slightly longer than standard nuts, see lengths listed in Product pages.

ER collet chuck extensions, with cylindrical shank, Additional equipment

Type 5450 – these collet chuck extensions have a cylindrical shank, tolerance h6. They can be used where there is restricted access, when a long reach is required or to hold small tools. Extensions in sizes ER08R, ER11R, ER16R and ER25R are equipped with reduced diameter locking nuts.

Direct run-out of the ER taper is 5 µm.

Balancing: See Product pages.



Norm: DIN 6499.

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA.

Recommended tightening torque for the locking nut

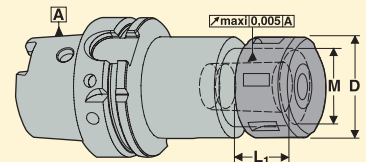
Collet chuck size	D	L	M	Max. tightening torque
ER08R	12	11	M10 x 0,75	10 Nm
ER11R	16	12	M13 x 0,75	20 Nm
ER16R	22	18	M19 x 1	30 Nm
ER25R	32	20	M30 x 1	38 Nm
ER32	50	23	M40 x 1,5	72 Nm

OZ collet chucks, available in Monobloc and Graflex®

- Type:** 5873 – Flexibility thanks to the interchangeability of collets. Ball bearing type locking nut.
- Norm:** DIN 6388
- Tool shanks:** Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA (with collet type A and B), or cylindrical with thread DIN 1835-1 Form D (with collet type C).
- Run-out:** Direct run-out of the OZ taper in relation to the external taper is 5 µm maximum. Run-out at the tool is related to the collet used: OZ collets, see Additional equipment.
- Balancing:** See product pages.

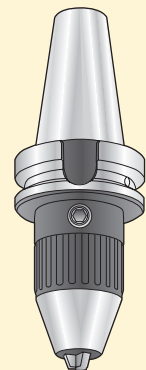
Recommended tightening torque for the locking nut

Collet chuck size	D	L ₁	M	Max. tightening torque
OZ25	60	30	M48 x 2	90 Nm
OZ32	72	33,5	M60 x 2.5	140 Nm



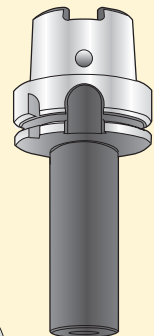
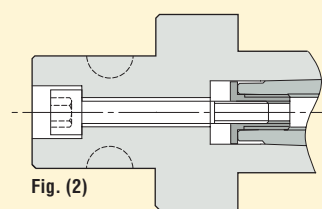
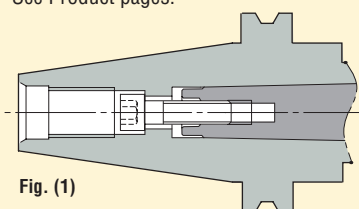
Universal drill chucks, available in Monobloc and Graflex®

- Type:** 5085 – Compact one piece design, allowing both CW or CCW spindle rotation. Clamping is made through a hexagonal screw and gear mechanism.
- Norm:** No norm.
- Tool shanks:** Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA.
- Run-out:** Maximum run-out when measured at a gauge projection of 2,5 x d in relation to the external taper is 40 µm for diameters from 2 mm. No run-out precision guarantee for diameters lower than 2 mm.
- Balancing:** See Product pages.



Holders for Morse Taper, available in Monobloc and Graflex®

- Type:** 533 – Holder for Morse Taper with thread, and equipped with a pull screw.
- Norm:** DIN 228-2 Form C.
- Type:** 536 – Holder for Morse Taper with tang. Some sizes can be equipped with a pull-back screw to hold Morse Tapers with thread, (fig. 1); some Graflex adapters require a pull-back screw and a pull-back sleeve (fig. 2). Morse Taper reducers suitable for type 536 holders, see Additional equipment.
- Norm:** DIN 228-2 Form D.
- Run-out:** Direct run-out of the Morse Taper in relation to the external taper is 5 µm.
- Balancing:** See Product pages.



Quick change Tapping chucks, available in Monobloc and Graflex®

Type: 5283 – Offers an axial feed compensation in extension and compression which protects the tap against breakage. [Shown here.](#)

Note: Type 5283 chucks are also available with Weldon/Whistle Notch combined back end shank, see [Additional equipment.](#)

Type: 5260 – No axial compensation. Most machines on the market today are available with a standard option of rigid synchronized tapping.

Norm: No norm.

Adapters: Tap adapters, with or without torque limiter, see [Additional equipment.](#)

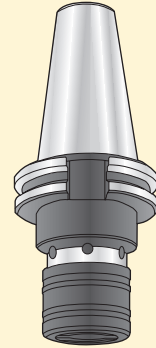
Tool shanks: DIN 374/376, DIN 371, ISO R529, PIPE.

Balancing: Pre balanced, cannot be fine balanced.

Assembly advice for the tap adapters:

Push the tap adapter into the chuck until it is locked automatically.

To dismantle, push the front sleeve of the chuck to unlock and remove the tap adapter. In size 4, pulling the sleeve also unlocks the tap adapter.



ER tapping chucks, available in Monobloc and Graflex®

Type: 5865 – For rigid synchronized tapping, with ER collets, offering flexibility, and precise tap holding. The square clamping system is based on two driving jaws, the tap square is clamped between the jaws, while the cylindrical shank is clamped into the ER collet.

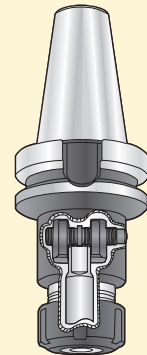
Norm: No norm.

Tool shanks: Only the cylindrical part should be located in the collet.

Balancing: See Product pages.

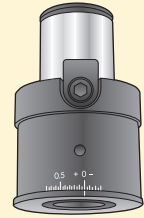
Through coolant supply:

By using a sealing nut, available as [Accessories](#), and a sealing ring, available as [Additional equipment](#). Sealing nuts are slightly longer than standard nuts, see lengths listed in [Product pages](#).



Adjustable drill holders, available in Graflex®

- Type:** **BM/6100-6101** – These holders allow SECO Perfomax drills to be radially offset from centre.
Available for R7 drill shanks, ISO 9766, Ø 25, 32 and 40.
Reduction sleeves are available as Accessories.
- Norm:** No norm.
- Runout:** Offset is adjusted by rotating the holder's internal sleeve and then lock.
 - Adjustable +0,8 to - 0,3 mm on diameter.
 - Internal sleeve graduated in increments of 0,05 mm on diameter.
 - Maximum radial adjustment for the drills is shown in the Drilling catalogue.
- Balancing:** **Not suitable for balancing due to the sleeve.**



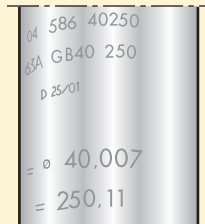
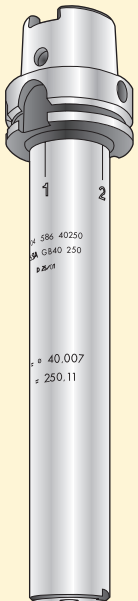
Greenstock blanks, available in Monobloc and Graflex®

- Type:** 5023 – The taper/flange and Graflex connection are case hardened and ground. The cylindrical front part 120 to 130 daN/mm² tensile strength it is not hardened and can be machined by the customer. Subsequent heat treatment is not possible.
- Norm:** No norm.
Used for special (custom-made) tooling.
- Balancing:** Not suitable for balancing.

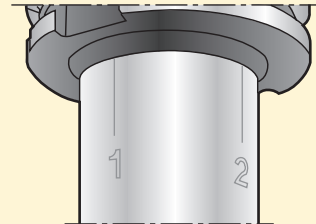


Test/Control bars, available in Monobloc

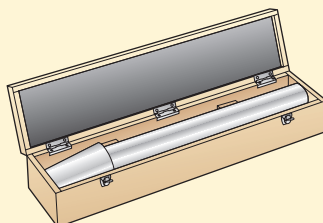
- Type:** 586 – Test bars are used primarily for checking the accuracy and to set the axes of the machine tool and tool presetter.
- Norm:** No norm.
- Accuracy:** Direct run-out between front part and taper 5 µm maximum. Measurement values are tabulated on the accompanying datasheet and certificate of accuracy.



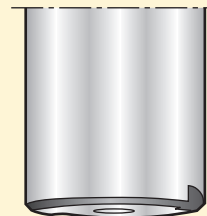
Diameter and length measurement values are laser engraved on each test bar.



Measurement positions are laser engraved.



Delivered in a protective case.



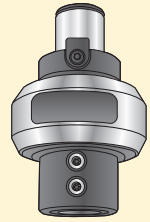
The front leading edge can be used for optical presetting.

Rotary coolant inducers for drills, available in Graflex®

For machines not equipped with 'through the spindle' coolant, these inducers provide a way of delivering coolant through the drill.
Inducers are available with Graflex back end size 5 or 6.

Inducers are available in five types of front ends:

- Type BSM/6180-6182:** for Type 5 drill shanks, e.g. brazed drills (Whistle Notch with shoulder compatible).
- Type BSM/6181-6183:** for Type 7 drill shanks, ISO 9766 (Weldon compatible). Reduction sleeves are available, see Accessories.
- Type BSM/5872:** for D type precision collets for Type 1 cylindrical drill shanks (sealing rings must be used and are available in Additional equipment).
- Type BSM/6100-6101:** for Performax drills with Type 7 shanks, adjustable + 0,8 to - 0,3 mm on Ø.
- Type BSM/401:** for Graflex modular system modules.



Manual inducers:

Connection to the coolant feed pipe has to be made manually after every holder change.

Inducers for automatic tool change:

The inducer has an indexable and compressible connecting pipe. The pipe connects to a coolant supply socket mounted on the machine tool spindle housing during the automatic tool change procedure. Before use, the connecting pipe has to be shortened to the required length.

Pipe orientation has to be set in line with the socket position.

For application details, e.g. pipe shortening procedure, refer to the instruction sheet supplied with the inducers. Spare connecting pipes are available, the same pipe is suitable for all inducers shown in the catalogue : Part No: EU9023001.

If not already fitted to the machine, the coolant supply socket has to be ordered and fitted. The socket is available as Accessories: Part No. E99000.

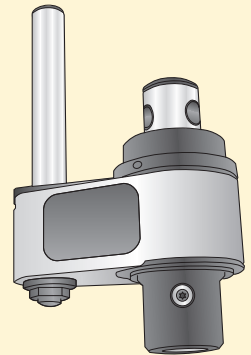
Application note: (also marked on the inducer body):

Max. coolant supply pressure: 20 bar (240 psi).

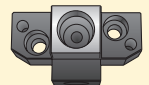
Never run the inducer without coolant.

Max. speed: 4000 or 6000 rpm, depending on the inducer's size (shown on Product pages).

Coolant to be filtered to 40 µm maximum.



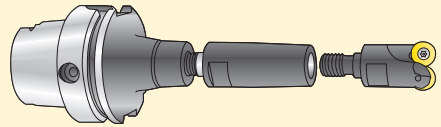
Balancing: Not suitable for balancing.



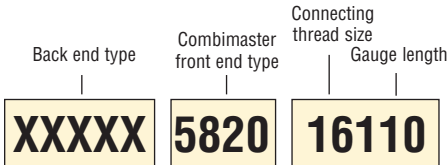
Photo

The modular milling solution for medium size cutters

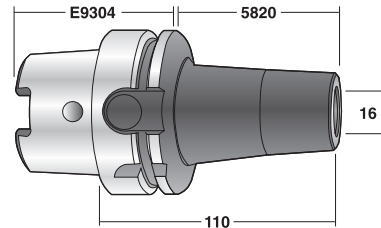
Combimaster tools achieve maximum access and shortest overhang.
 Stability, precision and balance are improved vs. classic assemblies,
 e.g. Weldon or collet chucks.
 Modular: Extensions and reducers. Graflex and Shrinkfit adapters.



Combimaster holders, code key



Code separation spaces are only there to facilitate easy reading of the part numbers. They do not form part of the ordering code.



Front end types

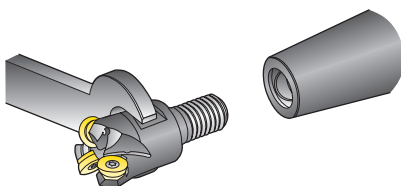
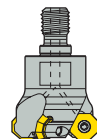
5820	5821	5822
Entirely tapered	Cylindrical and front tapered	Entirely cylindrical

Balancing quality

Most holders are fine balanced. See [Product pages](#).

Combimaster heads

Note: Combimaster heads are shown 'all grouped' in the Milling 2 catalogue and also shown 'in each cutter family' in Milling 1 and Milling 2 catalogues.

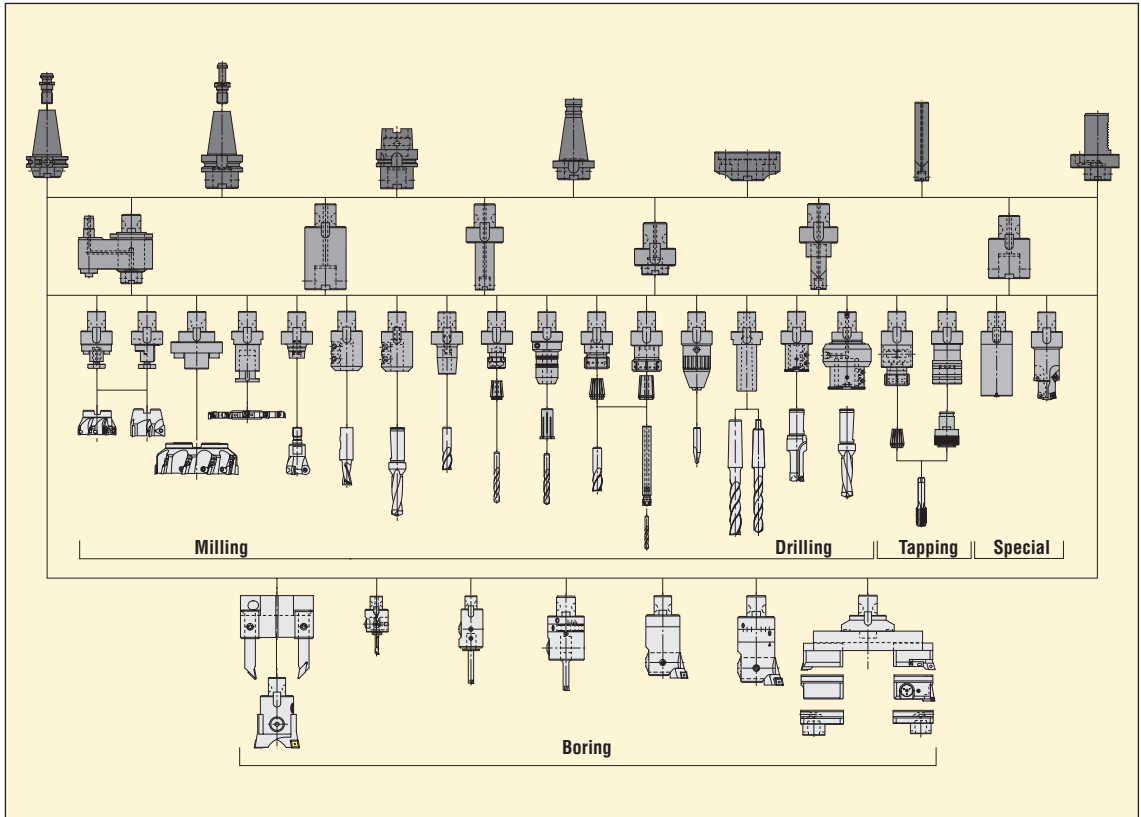


Recommended Combimaster connection tightening torques

Connecting thread size	Tightening torque	Mounting key size (mm)
M08	25 Nm	11
M10	40 Nm	15
M12	60 Nm	19
M16	80 Nm	26

Photo

A complete range of modules, suitable for all machines and all machining operations



A modular system for flexibility and performance

Flexibility:

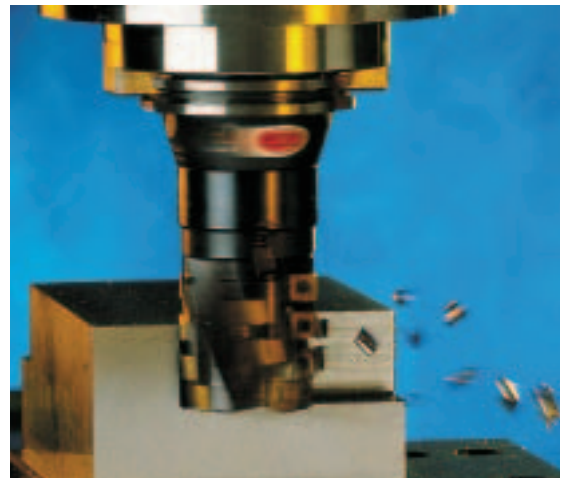
Tooling of variable lengths and diameters can rapidly be built together, when they are needed. Graflex modules e.g. toolholders and boring heads, as well as cutting tools can be fitted on all types of machines, by the substitution of only the basic Graflex arbor.

The Graflex modules are suitable for milling, drilling, tapping, reaming and boring.

Performance:

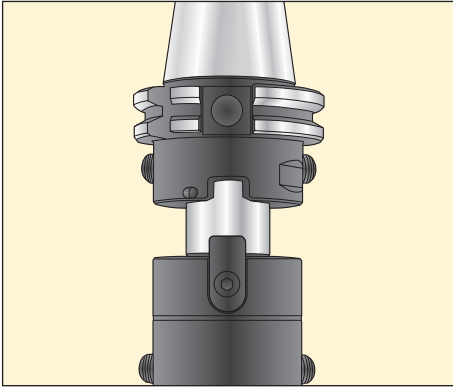
The connection rigidity and precision, enables Graflex assemblies to be used in similar machining conditions as the same sized Monobloc holders. The wide range of modules permits tooling dimensions closest to the required machining operation, for optimised cutting conditions.

All basic arbors, extensions and reducers, main toolholders and all boring heads have 'through' coolant possibilities.



Power milling with Graflex Modular System:
metal removal rate 432 cm³/min

The Graflex® connection (patented)

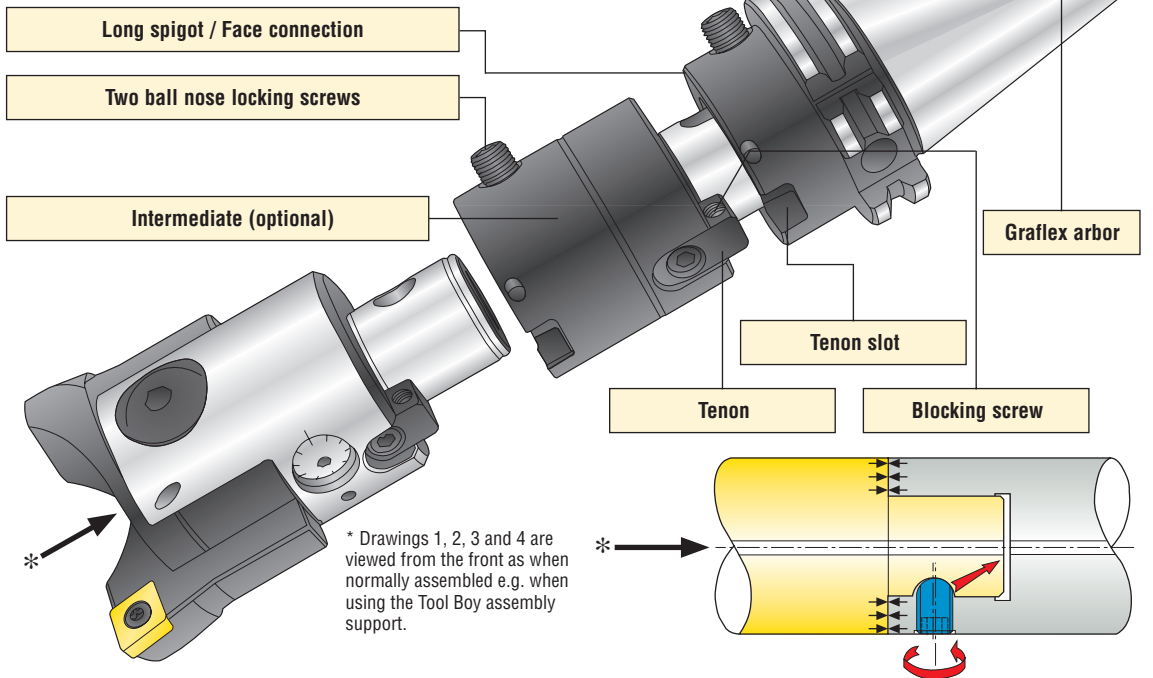


The long spigot and face connection, combined with EPB's production quality, masters all machining requirements, e.g. strength and precision in milling as well as in boring.

Radial access to the locking screws = easy handling

High face contact pressure which can be enhanced by self-locking of the connection during machining = improved rigidity

Graflex is a registered trademark of Seco/EPB.

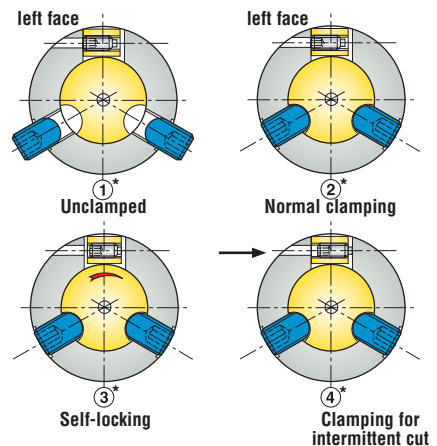


* Drawings 1, 2, 3 and 4 are viewed from the front as when normally assembled e.g. when using the Tool Boy assembly support.

Graflex® assembly procedure

1. Assemble the Graflex arbor and module(s) using the tenon(s) for easy orientation. Tighten the ball nose locking screws ensuring that the left face of the tenon contacts the left face of the tenon slot (Drawings 1 & 2).
2. Strong machining torque e.g. during boring may create micro rotational movement of the spigot in relation to the bore, causing micro displacement of the ball nose screw's contact surfaces. This results in complementary self-locking of the connection, enhancing the system's rigidity (Drawing 3).
3. For operations involving intermittent cutting e.g. heavy milling, the blocking screw provided in the tenon can be tightened so as to avoid micro rotational movement and prevent self locking (Drawing 4).

Note: For 'optimised' assembly procedure, see next page.



'Optimised' assembly procedure

Normal clamping for continuous cut, e.g. boring, light duty milling

1. Clean the parts to be assembled*.
2. Assemble the parts ensuring that the left face of tenon contacts the left face of the tenon slot.
3. Lightly tighten screw A
4. Lightly tighten screw B

5. 'Torque' screw A (low values).
6. 'Torque' screw B (low values).

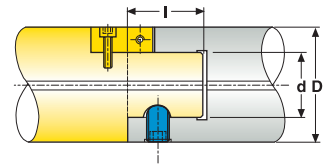
*Apply thin film lubrication.

Clamping for intermittent cut, e.g. interrupted boring, heavy duty milling

5. 'Torque' the blocking screw C.
6. 'Torque' screw A (high values).
7. 'Torque' screw B (high values).
8. Double check the blocking screw tightening.

Graflex®, sizes and recommended locking torques

The Graflex connection is self locking, therefore it has a low requirement for checking that the locking torques have been applied. There is usually no requirement for torque control. The table shows the recommended torque ranges, as a guide for 'optimised' assembly precision (low values) and rigidity/heavy duty (high values).



Graflex size	d mm	D mm	l mm	Recommended Graflex connection locking torques	
				Ball nose screws Low values – High values	Tenon blocking screw
0	08	16	12	1,5 – 2 Nm	–
1	11	20	13	1,5 – 2 Nm	–
2	14	25	16	2,5 – 4 Nm	–
3	18	32	20	5 – 8 Nm	0,4 Nm
4	22	40	24	13 – 20 Nm	0,7 Nm
5	28	50	30	17 – 25 Nm	2 Nm
6	36	63	40	23 – 35 Nm	4 Nm
7	46	90	50	40 – 60 Nm	8 Nm

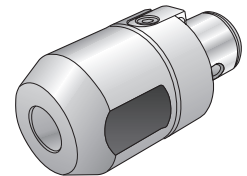
Balancing of the Graflex® modules

All basic arbors except size 7 are fine balanced as standard for optimised compatibility with the NanoBore and Libraflex boring heads used at high speeds. Graflex intermediates and tool holders are pre-balanced.

In the Product pages, each Graflex module balancing quality is indicated in the balancing column.

See also the 'Maximum speeds for Graflex boring heads' Guide page.

Main Graflex intermediates and adapters can be fine balanced on request, please enquire.



Graflex® connection, Accessories and Spare Parts

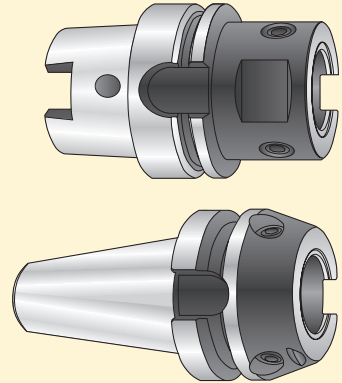
Accessories (locking keys) and spare parts (two ball nose screws kits or tenon kits - a tenon kit comprises the tenon with its locking screw and the integrated blocking screw) are grouped in a Graflex Product page.

Graflex® arbors - Type EM..., ER..., M409..., VDI...

Graflex basic arbors are available for all machine spindles type HSK and SA
- Type EM...

Arbors are mainly available in 3 different lengths (short, medium and long).

All HSK and SA arbors except size 7 are fine balanced as standard, see Product pages.

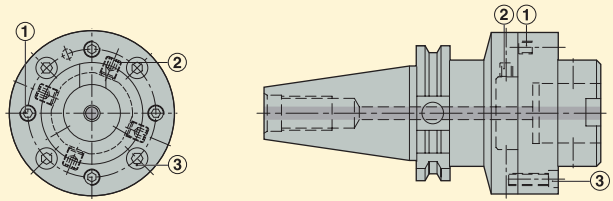


Graflex adjustable arbors - Type ER...401...

Radial and angular adjustment enable the elimination of run-out of the cutting tool edge (e.g. reamer) in any Graflex adapter e.g. hydraulic chuck, Weldon, collet chuck.

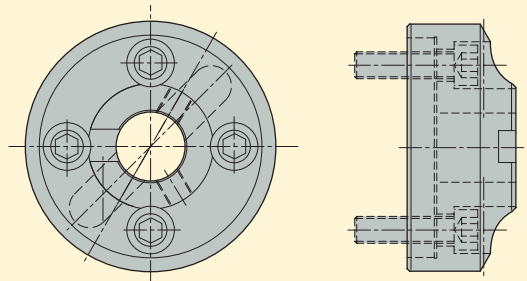
Setting:

In order to adjust the cutting tool centre line, 4 screws (1) perform the angular adjustment and 4 screws (2) the radial adjustment. The assembly is locked by 4 screws (3).



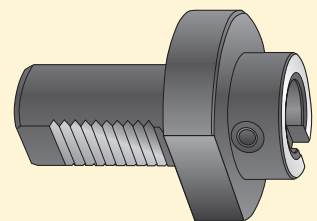
Graflex flange mounts - Type M409...

Graflex modules can be securely locked onto the machine spindle, without being influenced by the taper precision and the locking performance of the spindle. Designed to suit to DIN2079 spindle front ends.



Arbors Type VDI...

With VDI (DIN 69880) back-end shank in order to use Graflex modules on lathes.

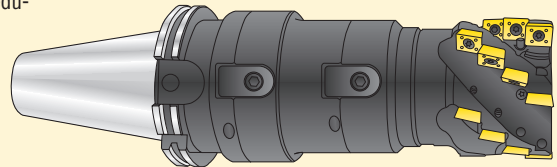
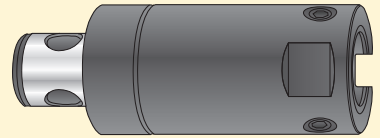


Graflex® extensions - Type M402...

Extensions have the same Graflex size at the front (Graflex bore) and at the back (Graflex shank). They are mainly available in different lengths: short, medium and long.

Graflex extensions with reduced outer diameter – type M40277..R:

With an outer diameter reduced to 78 mm instead of 90 mm, these extensions are suitable for 'deep wall' milling and plunging. These extensions with reduced outer diameter are best used with Graflex reduced shell mill adapters, e.g. M55254632R (with reduced OD of connection 78 mm, holding milling cutters with OD 80 mm).



Graflex® reducers - Type M403...

Reducers have a smaller Graflex size at the front (Graflex bore) in relation to the back (Graflex shank).

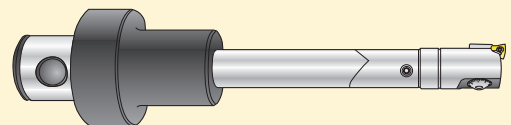
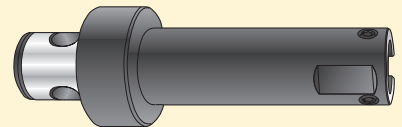
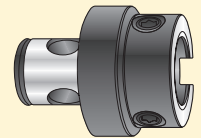
Long Graflex reducers

When used with a Graflex boring head, long Graflex reducers give boring length to diameter ratio of approx. 4xD.

Extra long Graflex reducers, carbide type – Type M403... C...

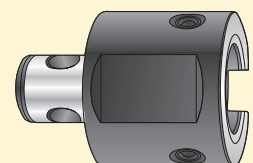
The extension section is manufactured from carbide. The extra long reducers to be used with fine boring heads for boring length to diameter ratio of approx. 7xD. Maximum boring lengths are listed in the Product pages (14).

Other lengths can be supplied on request, please enquire.



Graflex® enlargers - Part No. M40356 and M40367

The enlargers enable the mounting of modules with large Graflex connection size 6 or 7 on arbors with maximum connection size 5 or 6.



Graflex® cylindrical extensions – Type M401...

Cylindrical Graflex extensions, steel type

The cylindrical shank, with tolerance h6, with flat, can be held in Weldon holders, or any other suitable holding system.

Suitable for long rough or fine boring.

Maximum boring depths are listed in the Product pages (lu).



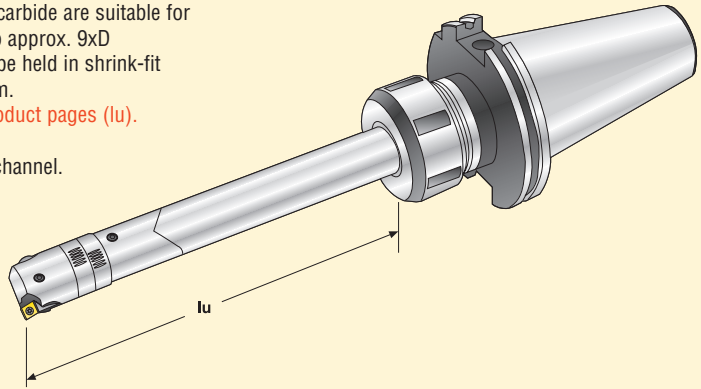
These extensions have a 'through' coolant channel.

Cylindrical Graflex extensions, carbide type M401...C

Graflex extensions with cylindrical shank in carbide are suitable for fine boring length to diameter ratios of up to approx. 9xD

The cylindrical shank with tolerance h5 can be held in shrink-fit holders, or any other suitable holding system.

Maximum boring depths are listed in the Product pages (lu).

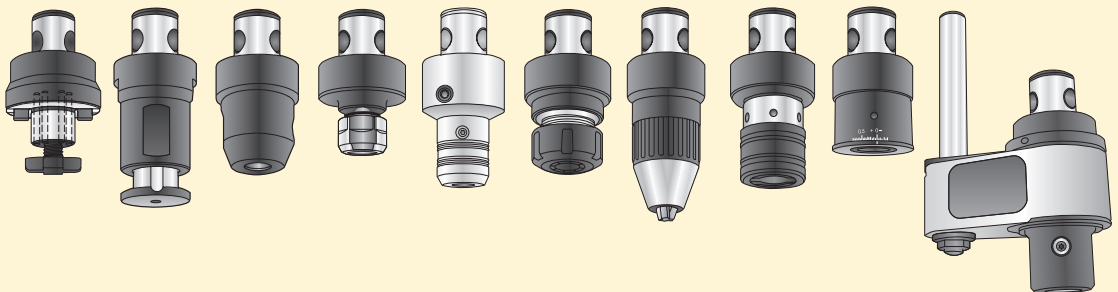


These extensions have a 'through' coolant channel.

Graflex® tool holders – Type M5525..., M584..., etc

Graflex holders are available with main front end types similar to Monobloc holders. Disk mill holders, adjustable drill holders and rotary coolant inducers only available with a Graflex connection.

Note: Graflex adapters with Combimaster front end, see Combimaster holders.



Graflex® rough boring heads – Type A750...

8 boring heads for rough boring \varnothing 18 to 205 mm.

Symmetrical or staggered positioning of the insert holders is possible.
See setting procedures in the following Guide page.

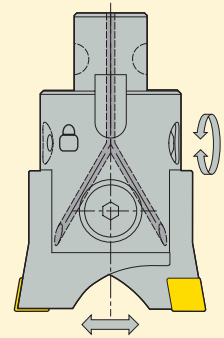
Simultaneous or independent adjustment of the insert holders is possible:
Simultaneous adjustment by the built-in coupling mechanism (no coupling mechanism in the smallest head \varnothing 18 to 24 mm).
Simultaneous adjustment is accessible from both sides of the boring head, using either of two graduated adjusting screws (1 increment = 0,1 mm on the diameter).

The insert holders are axially and radially locked in the body by the central clamping screw. Easy assembly and interchange of the insert holders.

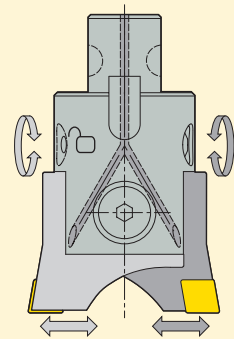
'Through' coolant is directed towards the inserts.

Angular orientation of the cutting edges according to DIN69871.

Minimised unbalance thanks to a symmetrical design.



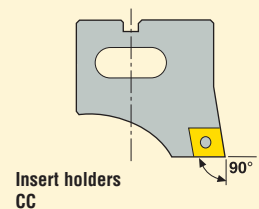
Simultaneous adjustment



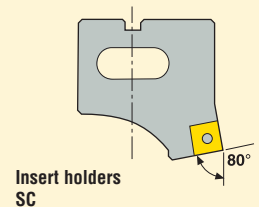
Independent adjustment

Rough boring insert holders (have to be ordered separately) – standard 'A' types and extended 'B' types

Insert holders A75...CC...have a 90° lead angle for rhombic and A75...SC... have a 80° lead angle for square.



Insert holders
CC



Insert holders
SC

Setting procedure for Graflex® rough boring heads type A750...

Symmetrical boring (fig. 1):

Symmetrical boring requires two identical type A standard insert holders (with identical lead angle). Symmetrical positioning of the insert holders is achieved by using the integrated coupling mechanism of the head for simultaneous movement.

The feed per rev. equals the recommended feed per tooth, times the number of teeth. A caliper gauge can be used to measure the diameter adjustment.

The graduated adjusting screws allow additional diameter adjustment directly on the machine tool.

Note: A750 boring heads are delivered with the coupling mechanism engaged ready for symmetrical boring.

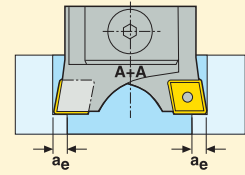


Fig. 1 Symmetrical boring

Staggered boring (fig. 2):

When the symmetrical positioning does not allow the required radial depth of cut, staggered positioning is possible. It permits e.g. completion of machining in one operation instead of two, saving tooling as well as tool changing time.

Inserts have to be set so that each one cuts half ($a_e/2$) of the total radial depth of cut (a_e). The required (Z) axial leading offset on the minor diameter is obtained by substitution of one Type A insert holder by an extended Type B (with a distinguishing mark in front, see fig. (3)) of identical lead angle.

Independent adjustment is obtained by disengaging the coupling mechanism of the head, and by independent use of each adjusting screw.

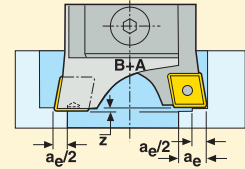


Fig. 2 Staggered boring

Maximum feed per rev. when staggered boring (f Max.) is dictated by type B insert holder and is shown in the table below. The feed per rev. equals the recommended feed for one tooth.

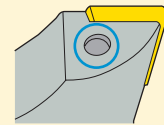


Fig. 3

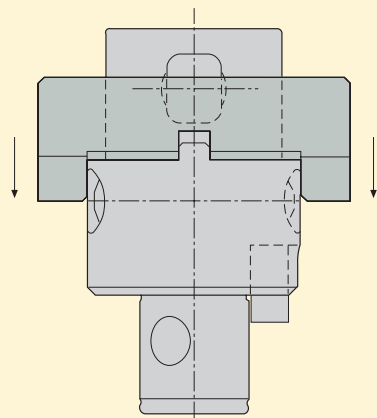
Insert holder size (type B)	01	11	21	31	41	51	61	66	71	76
f Max. (mm/rev)	0,25	0,3	0,4	0,5	0,6	0,6	0,6	0,6	0,6	0,6

To return from staggered into symmetrical positioning by re-engaging the coupling mechanism there is the choice between two methods:

- use a pre-setter and two identical insert holders with inserts fitted.
- use the setting gauge to index the coupling mechanism, without insert holders.

Setting gauges – Type CAA750... are available for each head size with coupling mechanism (dia 23 and more). Shown as Accessories on 'A750... heads' Product page.

For further application details refer to the instruction sheet supplied with the boring head.

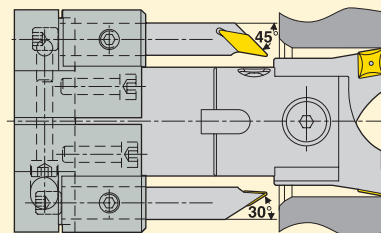


Chamfering rings - Type A5162...

Chamfering rings allow the combination of one or two chamfering operations together with a boring operation. The rings fit onto the external diameter of the Graflex arbors and intermediates.

Each ring covers the full range of the corresponding boring head. On each of both sliding blocks, a square shank tool can be fitted, allowing the machining of chamfers or other specific machining operations.

Square shank tools with a 15°, 30° or 45° lead angle have to be ordered separately, see Product pages.



NanoBore™ fine boring head, axial type – Part No. A76001

Ultra small head for fine boring \varnothing 0,3 to 8 mm, using axially fitted boring tools

Small, compact head with Graflex® connection size 2 (Graflex® shank 14 mm), external diameter 25 mm, length 25 mm. Made from stainless steel.

Boring tool setting mechanism with a micrometric adjusting screw (1 increment = 0,01 mm on the diameter) and a vernier scale (resolution of 2,5 μ m on the diameter). The setting system is dust proof and lubricated for life. The precision of the mechanism guarantees repeatable accuracy.

Coolant is directed towards the cutting edge: through the head and the boring tools (insert types); through the head and along the boring tools (solid carbide types).

The NanoBore™ maximum operating speed is 30 000 rpm or 1 500 m/min whichever is reached first without exceeding either of them.

Balanced head: residual unbalance less than 15 g.mm, even while using the largest tools. Best performance is obtained with fine balanced Graflex® arbors and intermediates.

For application details refer to the instruction sheet supplied with the boring head.

Boring tools have to be ordered separately:

Available for \varnothing 0,3 to 6,2 mm in solid carbide with lead angle 98°, shank diameter 4 mm. A tapered flat on the back end matches with the orienting pin in the reduction bushing to achieve the angular orientation of the single cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.

Recommended cutting speeds for NanoBore™ solid carbide tools: see following page.

Available for \varnothing 6 to 8 mm as indexable insert boring tools with lead angle 90° for triangular inserts (WB...0301...). Shank diameter 6 mm, made from steel with L = 16 mm or from carbide (extended section) with L = 26 mm.

A flat on the tool shank achieves the angular orientation of the single cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.

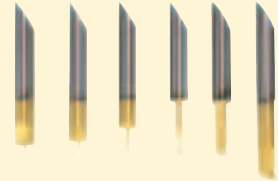
The reduction bushing (6-4 mm) with orienting flat and pin for fitting the solid boring tools is part of the head delivery content.

The head is available separately (Part No. A76001), or delivered in kits (Part No. A76001A and A76001B).

A head is delivered in a standard cardboard box with reduction bushing, setting keys and instruction sheet. The kits are delivered in a protective case.

Kit A includes the head A76001, the reduction bushing, setting keys and instruction sheet as well as a magnifying glass.

Kit B includes the content of kit A and a complete set of tools, see Product page.



Recommended cutting speeds for NanoBore™ solid carbide tools

Steel

Seco material group	Workpiece material	R _m (N/mm ²)	v _c (m/min)*
1	Very soft low-carbon steels. Purely ferritic steels.	<450	120–250
2	Free-cutting steels. Other than stainless free cutting steels.	400 <700	100–220
3	Structural steels. Ordinary carbon steels with low to medium carbon content (<0,5%C).	450 <550	80–180
4	Medium to high carbon steels, ordinary low-alloy steels. Medium hard steels for toughening. Medium/high carbon steels. Ferritic and martensitic stainless steels.	550 <700	80–160
5	Normal tool steels. Harder steels for toughening. Martensitic stainless steels.	700 <900	70–150
6	Difficult tool steels. High-alloy steels with high hardness. Martensitic stainless steels.	900 <1200	60–120
7	Difficult high-strength steels. Hardened steels from material group 3–6. Martensitic stainless steels.	>1200	–

Stainless steel

8	Easy austenitic stainless steels. Free-cutting stainless steels. Calcium-treated stainless steels.		60–150
9	Moderately difficult stainless steels. Austenitic and duplex stainless steels.		60–130
10	Difficult stainless steels. Austenitic and duplex stainless steels.		50–100
11	Very difficult stainless steels. Austenitic and duplex stainless steels.		40–80

Cast iron

12	Un-alloy cast iron with medium hardness. Grey iron.		60–150
13	Low-alloy cast iron with low hardness. Malleable iron castings. Nodular cast iron.		60–130
14	Medium hard alloy cast iron. Moderately difficult malleable castings. Nodular cast iron.		50–100
15	High-alloy cast iron difficult to machine. Difficult malleable iron castings. Nodular cast iron.		40–80

Other materials

16	Free-cutting non-ferrous materials. Aluminium with <16% Si. Brass, Zinc, Magnesium.		200–800
17	Non-ferrous materials. Aluminium with >16% Si. Bronze, Cupro-nickel.		150–500
20	Nickel-, Cobalt- and Iron-based superalloys with hardness <30 HRC. Incoloy 800, Inconel 601, 617, 625. Monel 400.		20–60
21	Nickel-, Cobalt- and Iron-based superalloys with hardness >30 HRC. Incoloy 925, Inconel 718, 750-X, Monel K-500.		20–50
22	Titanium based alloys, Ti-6Al-4V.		20–50

Bear in mind that the R_m-value is only an aid in the selection of the material group when the material has been worked by rolling, drawing, heat treatment or other methods that increase the strength of the material.

* For recommended depth of cut and feed, see NanoBore tools Product page.

Graflex® fine boring head, axial type - Part N° A72002

Head for fine boring \varnothing 2 to 24 mm, using axially fitted boring tools

A72002 has a slim body with external diameter 36 mm, useful for difficult to access bores.

Boring tool setting mechanism with a micrometric adjusting screw (1 increment = 0,01 mm on the diameter) and a vernier scale (resolution of 2,5 μ m on the diameter).

The precision of the mechanism guarantees repeatable accuracy. Dust proof micrometric system.

Coolant through the head, with an adjustable nozzle on the head front.

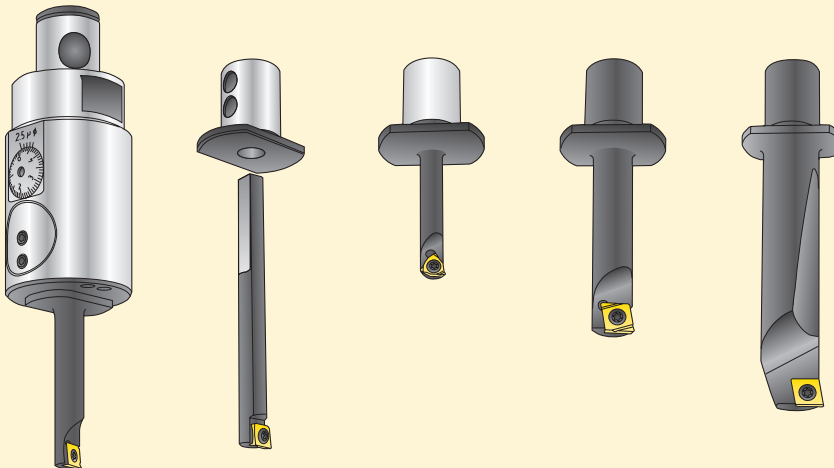
Two-part design, allowing the indexing of the cutting edge orientation in relation to the spindle stop, every 30°.

See also 'Max. speeds for boring heads' Guide page.

For application details refer to the instruction sheet supplied with the boring head.

Boring tools have to be ordered separately: available for \varnothing 2 to 6 mm in solid carbide, \varnothing 6 to 24 mm as indexable insert boring tools, \varnothing 6 to 18 mm as heavy metal indexable insert boring tools in longer lengths.

The reduction bushing (14-6 mm) for fitting small boring tools is delivered with the boring head.



Graflex® fine boring head, axial type - Part N° A78000

Head for fine boring \varnothing 2 to 32 mm, using axially fitted boring tools

A78000 is the classic type, similar to Libraflex type A79000 (see below) but without the balancing possibility.

See also 'Max. speeds for boring heads' Guide page.

Boring tool setting mechanism with a micrometric adjusting screw (1 increment = 0,01 mm on the diameter) and a vernier scale (resolution of 2,5 μ m on the diameter).

The setting system is dust proof and lubricated for life.

The precision of the mechanism guarantees repeatable accuracy.

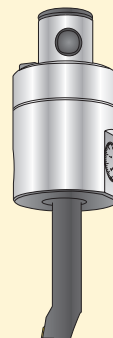
Angular orientation of the cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.

Rigid body with external diameter 54 mm, designed for reliable setting and holding of a large range of boring tools (bore length up to 112 mm is standard).

Coolant is directed towards the cutting edge: through the head and the boring tools (insert types), through the head and along the boring tools (solid carbide types).

Boring tools have to be ordered separately: available for \varnothing 2 to 6 mm in solid carbide, \varnothing 6 to 32 mm as indexable insert boring tools, \varnothing 6 to 16 mm as heavy metal indexable insert boring tools in longer lengths, and \varnothing 6 to 18 mm as carbide (extended section) indexable insert boring tools for extra long lengths.

The reduction bushing (16-6 mm) for fitting small boring tools must be ordered separately, see Accessories in head's Product page.



Libraflex® balanceable fine boring head, axial type - Part N° A79000

Libraflex is a system of holders and boring heads equipped with a balancing mechanism.

Head for fine boring \varnothing 2 to 32 mm, at high speeds, using axially fitted boring tools

Boring speeds up to 20,000 rpm meet the latest machining requirements.

Balancing reduces spindle stress, cutting parameters can be optimised, better machining qualities are achieved even at conventional speeds.

Best performance of this head is obtained with fine balanced Graflex arbors and modules.

See also 'Max. speeds for boring heads' Guide page.

For application details refer to the instruction sheet supplied with the boring head.

Balancing procedure for Libraflex head, axial type

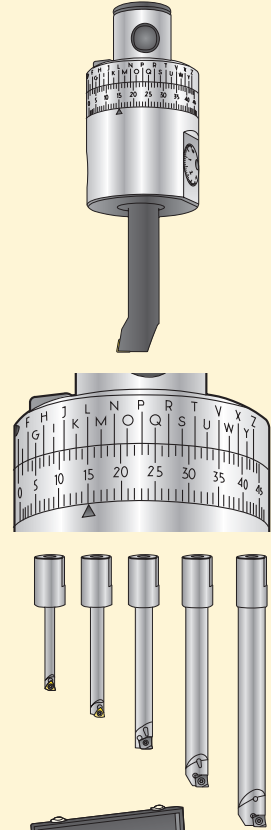
Balancing is performed easily by two alphanumerical graduated rings, adjusted according to the values given in a chart (the chart is part of the instruction sheet supplied with the boring head), in relation to the tool used and the diameter to be bored.

Example: with boring tool A795003, and required bore diameter of 12,10 mm, set the rings graduation (39 and W) in line with the mark on the head's body.

Libraflex axial type boring kits - Part N° A79001; A79002 and A79003

The kits include the head A79000, the reduction bushing, setting keys and a set of tools. Kits are delivered in a protective case. See boring head A79000 Product page.

Other features are similar to the A78000 head.



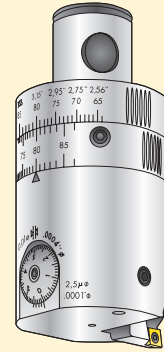
Libraflex® balanceable fine boring heads, radial type - Type A790...

5 boring heads for fine boring \varnothing 30 to 115 mm, at high speeds, using radially fitted insert holders

Libraflex radial boring heads accept cutting speeds up to 1500 m/min. The built-in balancing system is based on two precision balancing rings.

Balancing reduces spindle stress, cutting parameters can be optimised, better machining qualities are achieved even at conventional speeds.

The best performances of these heads are obtained with fine balanced Graflex arbors and modules.



Insert holder setting mechanism with a micrometric adjusting screw (1 increment = 0,01 mm on the diameter) and a vernier scale (resolution of 2,5 μ m on the diameter).

The setting system is dust proof and lubricated for life.

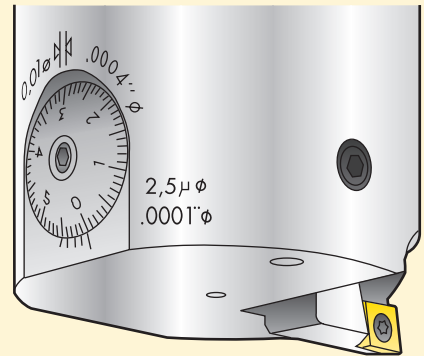
The precision of the mechanism guarantees repeatable accuracy.

Angular orientation of the cutting edge according to DIN 69871/ISO 7388 for SA and ISO 12164 for HSK.

Coolant through the head directed towards the cutting edge.

See also 'Maximum speeds for boring heads' guide page.

For application details refer to the instruction sheet supplied with the boring head.

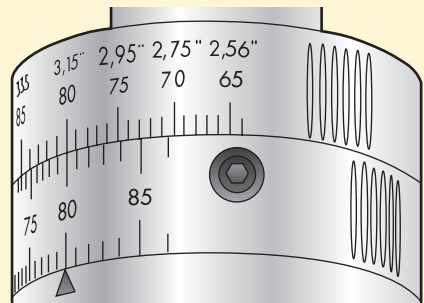


Balancing procedure for the Libraflex heads, radial type

Balancing is performed by setting both graduated rings in accordance with the diameter to be bored (pitch on rings is 1 mm; set to the nearest value). The residual unbalance once adjusted is 10 or 20 g.mm maximum (see values in product page).

Example: with boring head A79030, and required bore diameter of 45 mm, set the graduation (45) of both rings in line with the mark on the head's body.

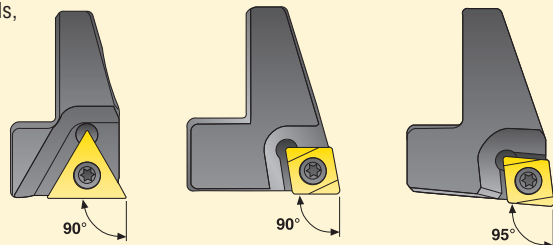
For balancing details refer to the instruction sheet supplied with the boring head.



Fine boring insert holders have to be ordered separately - Type A724..., A725... and A726...

They are suitable for both A790... and A780... fine boring heads, radial types.

Available with a 90° lead angle for both rhombic and triangular and a 95° lead angle for rhombic.



Graflex® fine boring heads, radial type – Type A780...

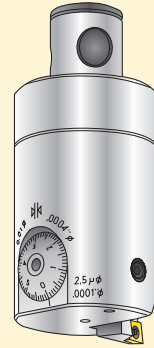
9 boring heads for fine boring \varnothing 15 to 205 mm, using radially fitted insert holders

A780... are the classic type, similar to Libraflex type A790... but without the balancing possibility.

The five smallest heads covering \varnothing 15 to 51 mm, when mounted onto carbide extensions, enable high performance fine boring, also in extremely long reach applications.

Fine boring insert holders - Type A724..., A725... and A726...

See details in A790... guide.

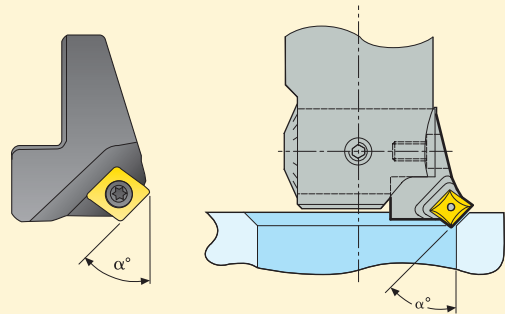


Chamfering insert holders for radial type fine boring heads – Type A729...

Chamfering Insert holders are suitable for fine boring heads, type A780... and A790..., radial types.

Available with a 15°, 30° or 45° lead angle for rhombic inserts.

Libraflex balancing can also be achieved when using chamfering insert holders.



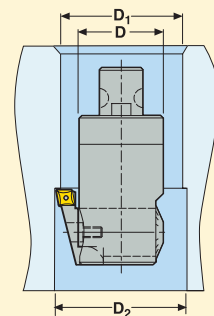
Fine back-boring insert holders for radial type fine boring heads – Type A789...

Fine back boring insert holders are suitable for fine boring heads type A780... and A790..., radial type.

When using these insert holders, please note the minimum access diameter (D_1 min)* and the left hand cutting action required.

Libraflex precision balancing is not possible when using back-boring insert holders. In this case, the highest unbalance reduction is obtained when both balancing rings are set on their largest graduation.

The back boring insert holders are delivered with a screw to fix them on the head, this has to replace the standard screw already fitted on the head (excluding the smallest item A789X08WB0390, for which the standard screw is suitable).



*For head sizes 08, 09 and 10: $D_1 \text{ mini} = \frac{D_2 + D}{2} + 0,5$

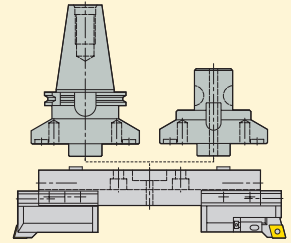
*For head sizes 20 to 70: $D_1 \text{ mini} = \frac{D_2 + D}{2} + 1$

Graflex® Bridge bar boring heads - Holders and adapters

Dedicated holders permit shortest possible bridge bar holding. The Graflex size 7 adapter permits flexibility in length as well as flange mounting, with the use of a Graflex flange mount.

One holder or adapter size to hold all bridge bars.

Indexable fixing onto bridge bars every 30° to facilitate tool storage in the machine magazine.

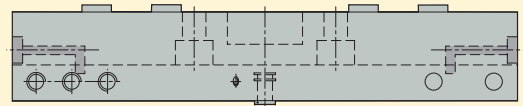
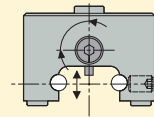


Graflex® Bridge bar boring heads - Bridge bars

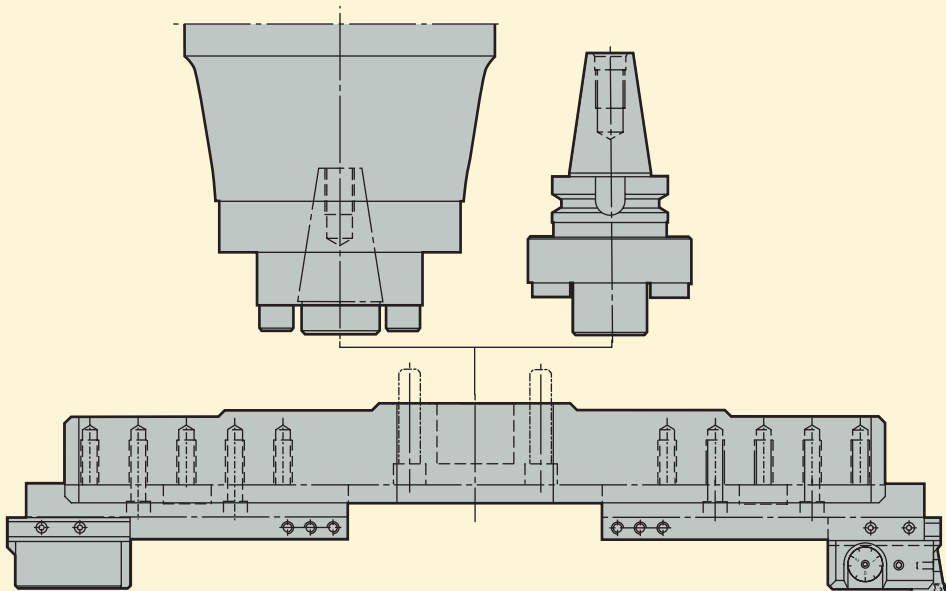
6 Bridge bars for boring \varnothing 204 to 655 mm

Bridge bars can hold rough, fine or counter weight boring blocks. Easy assembly and setting of the blocks using a 'cam' driving mechanism and 3 clamping screws.

Bridge bars are delivered with plugged through coolant channels, they can be equipped with two indexable coolant pipes available in Accessories to direct coolant towards the cutting edges, please order separately.



3 Jumbo Bridge bars for boring \varnothing 654 to 2155 mm: 'Jumbo Bridge bars' made of high tensile aluminium with steel interfaces, are designed to hold two normal Bridge bars in several positions. Delivered with 4 locking screws to be fitted onto a milling cutter holder, flange mounting Type 569, diameter 60 mm - or to be fitted directly onto the machine spindle (DIN 2079 front end) equipped with a centering spigot diameter 60 mm.

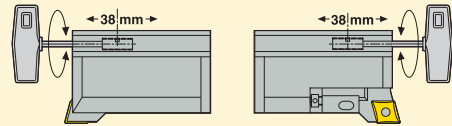


Graflex® Bridge bar boring heads - Sliding blocks

Boring sliding blocks are adjusted on the bridge bars by an integrated adjusting mechanism (38 mm stroke on radius).

Rough boring sliding block

A large twin rough boring head is assembled using two rough boring blocks. Blocks equipped with a cartridge can be set on the same diameter or in a staggered position. For staggered boring, the cutting edge operating on the minor diameter must be advanced to a leading position. This can be achieved by using the height adjustment screw of the cartridge or by using shims under the cartridge. The minimum advanced value is equal to half the feed per revolution.



Suitable cartridges have to be ordered separately, see product pages

Fine boring sliding block and Counter weight sliding block

A large fine boring head is assembled from one fine boring block and one counter weight block.

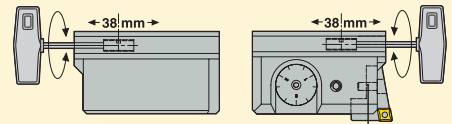
Insert holder setting mechanism of the fine boring block with a micrometric setting screw

(1 increment = 5 μm on the diameter).

The setting system is dust proof and lubricated for life.

The precision of the mechanism guarantees repeatable accuracy.

The adjusting screw is located on the side of the block to offer an easy access.



Suitable fine boring insert holders A72460, A72560 or A72660

have to be ordered separately, see product pages Fine boring insert holders.

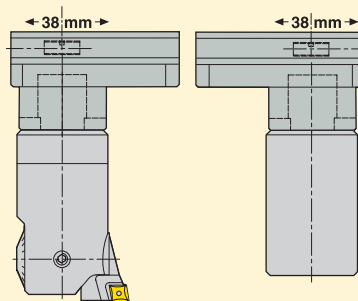
Graflex® Bridge bar boring heads - Sliding blocks with Graflex® connection

This block has a female Graflex connection size 5.

Any Graflex special tool or standard Graflex module size 5 can be mounted onto the bridge bars, e.g. for external boss machining. The drawing shows a typical set-up for external boss machining.

Two positions of the Graflex module are possible on the block, as there are two times two ball nose screw positions, and two tenon notches placed at 180°.

It also has the integrated adjusting mechanism (38 mm stroke on radius).

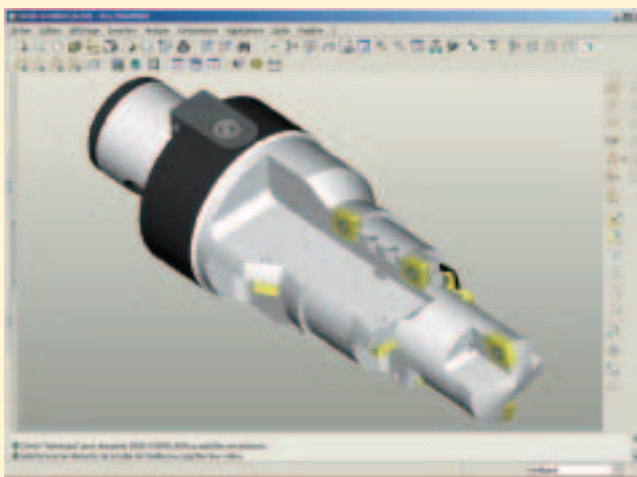


Seco-EPB Engineering, customised tool holders and multi-step boring bars

3D CAD-CAM system, dedicated quotation, order and production flow complete the engineering know-how for customised Seco-EPB solutions.

Note: Multi-step boring bars mainly use the Graflex connection, so as to permit flexibility in use (same boring bar suitable for any machine, by replacing the Graflex arbor only).

Please enquire.



Maximum speeds for Graflex® boring heads

Head	Capacity Ø	Max. Rpm	Max. cutting speed v_c at min. Cap.	Max. cutting speed v_c at max. Cap.
	(mm)	(Rpm)	(m / min)	(m / min)
Rough boring heads (with two identical insert holders set symmetrically)				
A75000	18 - 24	15000	848	1131
A75010	23 - 31	12000	867	1169
A75020	30 - 40	9500	895	1194
A75030	39 - 51	7500	919	1202
A75040	50 - 65	5700	895	1164
A75050	64 - 86	4500	905	1216
A75060	85 - 115	3500	935	1264
	114 - 144	2700	967	1221
A75070	114 - 160	2500	895	1257
	159 - 205	2000	999	1288
Bridge bar boring heads (with the two sliding blocks set symmetrically)				
A731010	204 - 280	650	417	572
A731020	279 - 355	525	460	585
A731030	354 - 430	425	473	574
A731040	429 - 505	350	472	555
A731050	504 - 580	300	475	547
A731060	579 - 655	260	473	535
Libraflex balanceable fine boring heads				
A79000	2 - 32	20000	126	2011
A79020	30 - 40	16000	1508	2011
A79030	39 - 51	12250	1501	1963
A79040	50 - 65	10000	1571	2042
A79050	64 - 86	7500	1508	2026
A79060	85 - 115	5600	1495	2023
Fine boring heads				
A76001	0,3 - 8	30000	28	1500
A72002	2 - 24	6000	38	452
A78000	2 - 32	8000	50	804
A78008	15 - 18,5	16000	754	930
A78009	18 - 23,5	13000	735	960
A78010	23 - 31	10000	723	974
A78020	30 - 40	8000	754	1005
A78030	39 - 51	6000	735	961
A78040	50 - 65	5000	785	1021
A78050	64 - 86	3700	744	1000
A78060	85 - 115	2700	721	975
	114 - 144	2200	788	995
A78070	114 - 160	2000	716	1005
	159 - 205	1600	799	1030

Note: The maximum speeds are related to the boring head's mechanical design and balancing quality. Speeds inside these limits have to be chosen in regard to the other machining conditions, e.g. workpiece material, cutting edge (insert), tooling length, machine spindle. At speeds from approx. 8000 rpm and above, the basic holders and the extensions/reducers should be fine balanced. Using Libraflex balanceable heads, fine balanced arbors and modules improves the tool life and the boring performances even at lower speeds.

Inserts for boring

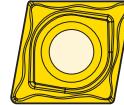
This Seco/EPB range of inserts has been selected to provide the best possible characteristics for a full range of boring applications. The insert sizes are all suitable for the Graflex range of boring heads.

The inserts are listed in the tables shown in the last few Graflex modular system Product pages, (inserts for chamfering tools are in the rough boring inserts table).

Code key, examples

CCMT120408	-	F2	TP3000
size (ISO designation)		Seco geometry	Seco grade

CCGT09T304	-	03	G3
size (ISO designation)		EPB grade	EPB geometry



Inserts for rough boring have high toughness and mainly positive geometries to guarantee high chip removal and minimised spindle torque requirement.

Inserts for fine boring have mainly positive geometries and small radii for accurate control of the bore tolerance, geometry and surface finish.

Recommended insert grades - Boring applications (Seco material groups)

Grade	Application (Seco material groups)
KX 03 (EPB)	Grades for light rough boring, semi-fine boring and fine boring in aluminium, Al-alloys, copper, brass, bronze and synthetic materials (Groups 16 - 17), superalloys and Ti-alloys (Groups 20 - 22).
TP40 T300D TP400	CVD coated grades, for rough boring in carbon steel, alloyed steel, cast steel (Groups 1 - 6) and stainless steel (Groups 8 - 11). Very tough grades suitable in the most difficult conditions.
TP3000 T2000D TP200 25 (EPB)	CVD coated grades, for rough boring in carbon steel, alloyed steel, cast steel (Groups 1 - 6), in stainless steel (Groups 8 - 11) and cast iron (Groups 12 - 15). Universal grades, combines good wear resistance with high toughness.
TK 2000	CVD coated grade, for rough boring in cast iron (Groups 12-15). Universal grade, combines good wear resistance with high toughness.
CP500 26 (EPB)	PVD coated grades, for fine boring in steel (Groups 1 - 11), cast iron (Groups 12 - 15) and non ferrous metals (Groups 16 - 17), superalloys and Ti-alloys (Groups 20 - 22).
CMP 51 (EPB)	Cermet for fine boring in steel (Groups 1 - 11). The grades have high strength and a high wear resistance.
CBN10 81 (EPB)	CBN, Cubic boron nitride grades, for fine boring in hardened steel (Group 7) with continuous to moderate interrupted cuts.
82 (EPB)	CBN, Cubic boron nitride, for fine boring in grey cast iron (Group 12). This grade has high strength and high wear resistance.
PCD20 91 (EPB)	PCD, polycrystalline diamond, for fine boring in aluminium and Al-alloys, copper, brass, bronze, and synthetic materials (Groups 16 - 17).

HSK coolant tubes and sealing plugs

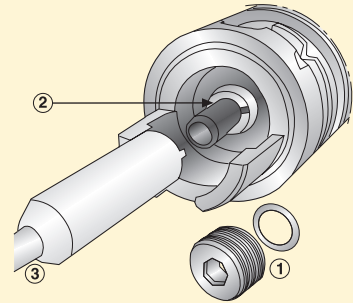
Depending on the machine requirements, HSK form A, -B or -D holders must be equipped with a coolant tube or a sealing plug.

WARNING :

Using holders without a coolant tube or a plug fitted, when required, could cause unseen machine spindle damage.

EPB holders HSK-A (standard range), and HSK-B and -D (special), are delivered without coolant tube (2) or sealing plug (1).

Coolant tube (2), tube spanner (3) and sealing plug (1) are shown as Additional equipment: please order separately.



Features:

Coolant tubes, made of two parts and including two identical seals, allow a slight angular movement of $\pm 1^\circ$ (standard requirement).

They require a specific design of mounting spanner (there is no standardised design) shown in Additional equipment.

Plugs (delivered with a seal) use standard hexagonal keys, not available in the catalogue.

Note: DIN 69893 Form C, -E and -F do not require a coolant tube or plug. Through coolant and sealing functions are provided by the locking unit.

Pull studs

Pull studs (also called retention knobs) are the link between the drawbar of the machine and the holder.

The superior material and hardening quality of EPB pull studs is important, as the pulling forces exerted on them can be up to 3000 daN on SA 50 spindles.

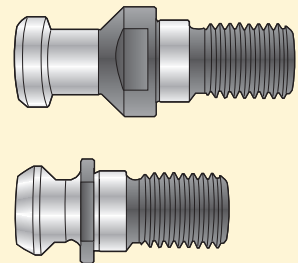
Precision machining of the pull studs guarantees precise positioning and safe locking of the holder in the spindle.

Most machines require a standard pull stud design (DIN, ISO, BT, CAT), but some require a specific design.

Standard pull studs are in the Product pages.

Pull studs to convert DIN 69871, BT and CAT holders to DIN 2080 are also shown in the product pages.

Specific pull studs are available on request, please enquire: a sketch or drawing should accompany the enquiry.



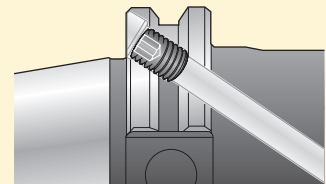
Spare sealing plugs for ADB holders

A number of holders are of the ADB through coolant design.

For B through coolant (flange through coolant), the two originally fitted sealing plugs in the holder's flange have to be removed, and a non through coolant pull stud has to be used so as to seal the back of the holder.

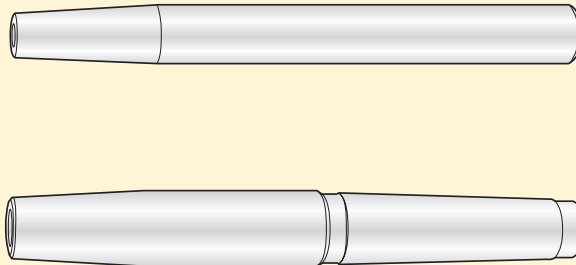
For AD through coolant (central 'draw bar' through coolant), the two plugs in the holder's flange have to be in place, and a through coolant pull stud has to be used.

Spare sealing plugs are shown as Additional equipment.



Shrinkfit extensions

See information in Guide pages 'Front end types, Shrinkfit holders'.

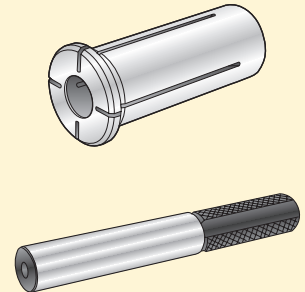


Reduction sleeves and control gauges for hydraulic chucks

The reduction sleeves for hydraulic chucks act like split collets, more shank types and sizes can be gripped: cylindrical, Weldon, Whistle Notch $\varnothing \leq 25$ mm. The run-out with the sleeve is maximum $5 \mu\text{m}$ at $3 \times d$ (d being the internal diameter of the sleeve). Transmittable torque with a reduction sleeve is at least equivalent to chucks without a sleeve.

Control gauges:

To check the clamping capability of the hydraulic chuck:
Insert the control gauge into the chuck.
Tighten the clamping screw until you cannot turn the control gauge.
Then it should be possible to complete a minimum of three full turns of the pressurising screw, before completely tightening (2,5 turns for $\varnothing 6$ mm and $\varnothing 8$ mm).
This will confirm that the clamping capability is adequate.



D type collets (high precision, suitable for high speed applications)

Norm: No norm

Collet taper angle: 10°

The locking face of the collet is flat so as to avoid radial influence during locking.

This type of locking does not influence run-out.

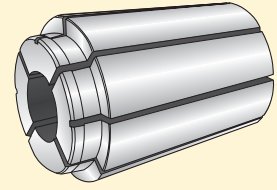
Run-out: Maximum run-out when measured at a gauge projection of 3 x d in relation to the external taper of the chuck is 5 µm.

Suitable for HSM.

Dedicated clamping size on the nominal diameter.

Tool shanks: Cylindrical DIN 1835-1 Form A/DIN 6535 Form HA, tolerance h8.

Assembly advice: D type collets require a compression ring for their assembly to and removal from the nut, see below.



Range: A selection of D type collets in most current diameters are available as standard, as listed in the Product pages.

As shown below, further diameters are available on request, please enquire.

Collet size	From Ø (mm)	To Ø (mm)	Ø steps (mm)	Clamping range (mm)
D10	0,5	6	0,5	0
D16	0,5	10	0,5	0
D24	1	10	0,5	0
	11	16	1	0
D29	2	10	0,5	0
	11	20	1	0

Assembly advice for D type collets, compression ring

(1) Remove the nut from the chuck.

(2) Insert and squeeze the collet into the compression ring.*

(3) Insert the unit collet & ring into the nut until stop end.

(4) Push the back end of the collet to remove the unit collet & nut from the ring.

To dismantle, push unit collet & nut into the compression ring in order to squeeze the collet. Remove the nut.

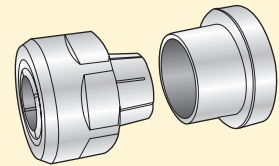
Finally, push the back end of the collet to remove it from the compression ring.

The collet must always be inserted into the nut, and the nut screwed

on to the chuck before introducing the tool into the collet.

Never lock the nut without a tool shank located in the full length of the collet.

* **A D type compression ring** is available for each collet size D10, D16, D24 and D29: to be ordered separately. See Accessories on 'D type collet chucks' Product pages.

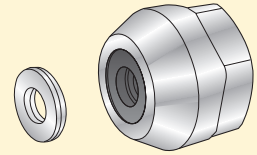


Sealing rings for D type sealing nuts

In order to seal tool shanks, sealing rings are used in conjunction with sealing nuts.

Coolant pressure maximum 100 bar.

Range: A selection of D type sealing rings in most current diameters are available as standard, as listed in the Product pages.



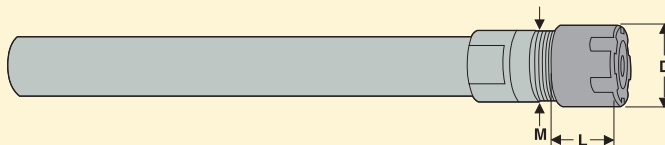
As shown below, further diameters are available on request, please enquire.

Sealing ring size	From Ø (mm)	To Ø (mm)	Ø steps (mm)	Sealing range (mm)
D10*	3	6	0,5	-0,5
D16	3	10	0,5	-0,5; (0 Ø = 10)
D24	3	16	1	-0,5; (0 Ø = 16)
D29	3	20	0,5	-0,5; (0 Ø = 20)

*Sealing rings in size D 10 are only available on request, please enquire.

ER collet chuck extensions, with cylindrical shanks

See information in Guide pages 'Front end types, ER collet chucks'.

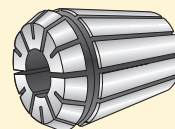


ER collets

Norm: DIN 6499

Collet taper angle: 16°.

High flexibility: The clamping range of an ER collet is nominal to -1 mm (-0,5 mm for ER 08 and ER 11).



ER collets are available in two versions:

- ER collets, standard

Run-out: Maximum run-out when measured at a gauge projection of approx. 3 x d in relation to the external taper of the collet is 35 µm.

- ER collets, HP (High Precision)

ER-HP are polished and precision deburred.

Run-out: Maximum run-out when measured at a gauge projection of approx. 3 x d in relation to the external taper of the collet is 15 µm.

Range: A selection of ER and ER-HP collets in most current diameters are available as standard, as listed in the product pages.

As shown below, further diameters are available on request, please enquire.

Collet size	From Ø (mm)	To Ø (mm)	Ø steps (mm)	Clamping range (mm)
ER 08	1	5	0,5	-0,5
ER 11	1	7	0,5	-0,5
ER 16	1	10	0,5	-1; (-0,5 Ø = 1)
ER 25	1	16	0,5	-1
ER 32	2	20	0,5	-1
ER 40	3	26	0,5	-1
ER-HP 08*	1	5	0,5	-0,5
ER-HP 11*	1	7	0,5	-0,5
ER-HP 16	1	10	0,5	-1; (-0,5 Ø = 1)
ER-HP 25	1	16	0,5	-1
ER-HP 32	2	20	0,5	-1
ER-HP 40	3	30	0,5	-1

*Collets in sizes ER-HP 08 and ER-HP 11 are only available on request, please enquire.

Sealing rings for ER sealing nuts

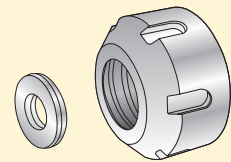
ER chucks are delivered as standard with stop screws for plain ended tool shanks.

In order to seal other types of shanks, sealing rings are used in conjunction with sealing nuts, see Accessories in ER collet chucks Product pages.

Sealing range of a ring is nominal to -0,5 mm.

Coolant pressure maximum 100 bar.

Sealing ring assembling advice: Insert sealing ring into the nut from the back, until it "clicks" into the nut's front face. The sealing ring's marked face should be oriented inside the nut to avoid erosion of the diameter information marking. Release by pressure onto the sealing ring's front face.



Range: A selection of ER sealing rings in most current diameters are available as standard, as listed in the product pages. As shown below, further diameters are available on request, please enquire.

Sealing ring size	From Ø (mm)	To Ø (mm)	Ø steps (mm)	Sealing range (mm)
ER 16	3	10	0,5	-0,5
ER 25	3	16	0,5	-0,5
ER 32	3	20	0,5	-0,5
ER 40*	3	26	0,5	-0,5

* Sealing rings in size ER 40 are only available on request, please enquire.

Note: Rings and sealing nuts in sizes ER 08 and ER 11 are not available.

OZ collets

Norm: DIN 6388

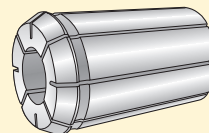
Collet taper angle 1/10 (approx. 5° 44').

Run-out: Maximum run-out when measured at a gauge projection of approx. 3 x d in relation to the external taper of the collet is 35 µm.

OZ collets are available in two types:

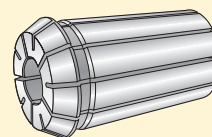
Type A:

Dedicated clamping size on the nominal diameter.



Type B:

More slots than on type A. The clamping range of a type B collet is nominal to -0,5 mm.



Range: A selection of OZ type A and type B collets in most current diameters are available as standard, as listed in the Product pages. As shown below, further diameters are available on request, please enquire.

Collet size	From Ø (mm)	To Ø (mm)	Ø steps (mm)	Clamping range (mm)
OZ-A 16*	2	16	0,5	0
OZ-A 25	2	25	0,5	0
OZ-A 32	4	32	0,5	0
OZ-A 40*	6	29	0,5	0
OZ-B 16*	2	16	0,5	-0,5
OZ-B 25	2	25	0,5	-0,5
OZ-B 32	4	32	0,5	-0,5
OZ-B 40*	8	40	0,5	-0,5

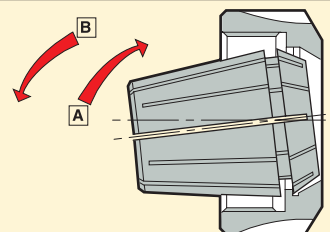
*Collets in sizes OZ 16 and OZ 40 are only available on request, please enquire.

Assembly advice for ER and OZ collets

The collet must always be inserted into the nut, and the nut screwed on the chuck before introducing the tool into the collet.

The collet is fitted inside the nut by applying slight pressure A, and released by a radial pressure B.

Never lock the nut without a tool in place.



Morse taper reducers

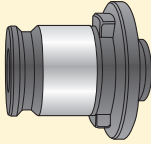
Reducers are an economical solution to hold smaller tool shanks in existing type 536 holders.

Quick change tapping chucks, with Weldon/Whistle Notch combined back end shank

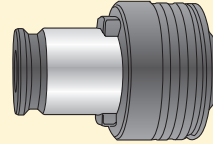
These quick change tapping chucks with axial compensation have economic advantages as they are not dependent on a specific spindle size. See more information in Guide page 'Front end types, Quick change tapping chucks, Type 5283'.

Quick change tap adapters

Permit quick changing of the tap and adapter.



Adapters without torque limiter
Type T5241

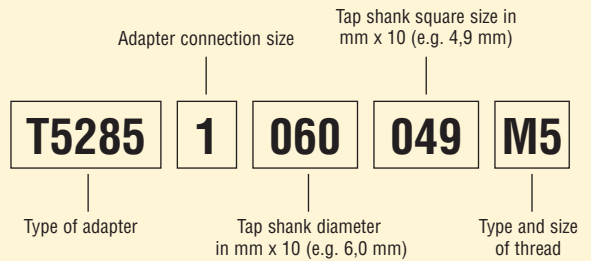


Adapters with torque limiter
Type T5285

The adapter has to be chosen according to the tap shank diameter and its square size. Both dimensions are in relation to norms DIN, ISO, PIPE, which also cover the thread size. Suitable for taps with or without through coolant channel.

The torque of an adapter with a torque limiter, is set according to the thread size, when delivered. Therefore a tap with the same shank diameter and same square size, but with a different pitch (e.g. Ø 6 x 4,9, comes in M5 and M6) cannot be substituted.

For adapters without torque limiter this can be done, as only tap shank diameter and square are critical.



Assembly supports, Tool Boy

This indexable toolholder assembly support provides a safe and efficient tool preparation facility.

Easily fixed to a workbench.

Modular concept: The common base unit accommodates all head types and sizes.

Available as complete kits or as individual modules, see product page.

Horizontal orientation to right or left, e.g. for tool and insert assembly.

Vertical orientation up or downwards, e.g. for boring head setting or pull stud mounting.



Cleaning equipment

Wipers for spindles and brushes for holder bores. Clean conditions guarantee precise and reliable tool fittings, as well as long holder life time.

HSK locking units, TF

TF units enable spindles with HSK interface to be adapted to take HSK-C and HSK-A holders.

For access to the locking mechanism, HSK-A holders must have the radial access hole in the taper.

Units also enable the release of the holder from the spindle (HSK is self-locking).

Operating principle

Locking: the side access locking screw activates two gripping jaws, which exert axial and radial locking forces on to the holder's internal pulling taper. This locks the holder into the spindle and pushes the coolant seal on to the internal face. (fig. 1 and 2).

Releasing: by turning the screw in the opposite direction the jaws are removed from the pulling taper and the ejector pushes on the holder's internal face to release it from the spindle (fig. 3).

Main features:

The two locking jaws are self orientating in order to achieve four point locking.

The locking principle guarantees the required HSK locking pressures.

Sealing is designed to withstand high pressure coolant flow.

Symmetrical acting ejector, no risk of holder sticking.

Unit fitting:

Simple and inexpensive spindle machining operations for fitting the unit, based on a thread and a centring bore. See machining advice in Product pages.

The unit is fitted by screwing down to a dead stop. A slip clutch allows alignment of the unit clamping screw with the access holes in the spindle. After alignment, secure the slip clutch by tightening the screw located at the bottom of the two coolant holes.

For installing and removing the units use the dedicated spanners available in Accessories. Indexing pins are also available, they are not included in the delivery content, please order separately. For application details, refer to the instruction sheet supplied with the unit.

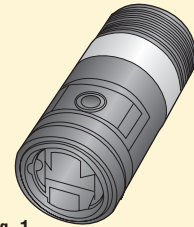


Fig. 1

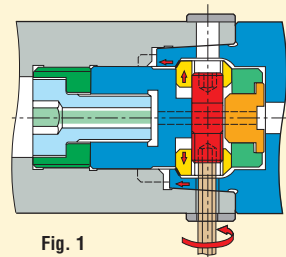


Fig. 1

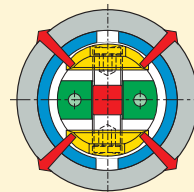


Fig. 2

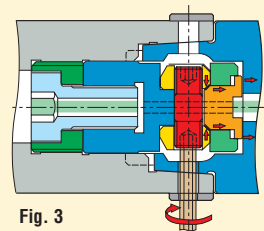


Fig. 3

HSK locking flange mounts, TF

TF flange mounts allow spindle front faces to be easily equipped with a complete HSK connection (HSK interface and locking).

The flange mounts have a precise HSK taper/face, drivers for HSK-A and HSK-C holders, and include a TF locking unit, already fitted.

Three flange types are available:

- Type BR1: with radial and angular adjustment.
- Type BR2: short, with radial adjustment.
- Type BR3: short and slim, with radial adjustment.

Features:

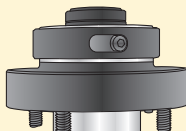
Protecting ring to seal the mount's radial holes for TF unit access.

Simple and inexpensive spindle machining operations for fitting the flange mount.

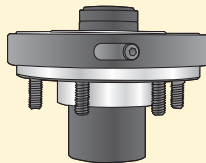
See machining advice in Product pages.

Flanges are delivered with all components included, also shown as spare parts.

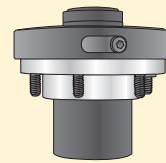
Spanners to release the TF units, and indexing pins are not included in the delivery content, please order separately: they are listed on the TF unit product page.



BR1



BR2



BR3

Photo

Modular design

A wide range of modules permits the build-up of a Shrinkfit device meeting the customer's specific requirements.



Automatic heating cycles

The required heating cycles are automatically calculated by a holder recognition system.

Height setting using stop rods

Using stop rods instead of stop screws eliminates the risk of tool inaccuracies as well as vibrations and unbalance caused by a loose screw.

The heating module with height measuring, used in combination with stop rods, achieves precise cutting edge length setting from the gauge line.

Rotary plate

The multi-station support box with a rotary plate avoids any contact with hot holders.

Air and water cooling

Forced air cooling is achieved by ventilator fans fitted to all support boxes as standard.

Refrigerated water cooling bells gives the fastest cooling time.

EasyShrink® 20, modules overview and selection suggestions

Automatic heating cycles

Both heating modules offer a choice of 3 starting modes for the shrink grip and shrink release heating cycles:

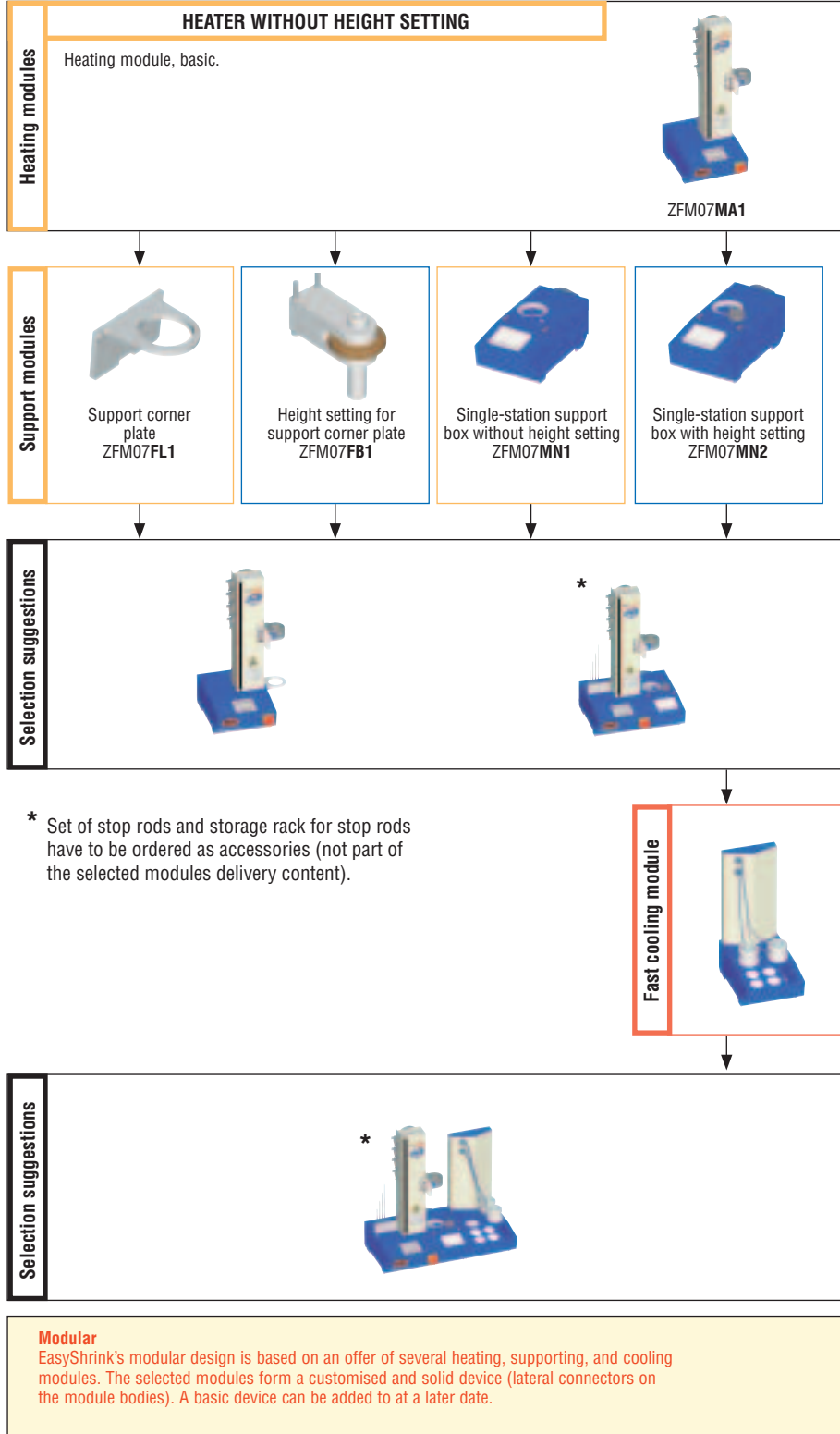
- Automatic: user starts the cycle, no need to select any diameter or holder type; the required heating cycle is automatically calculated by a holder recognition system.



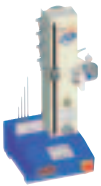
- Manual I and II : allows the programming of 2 ranges of specific heating times, when required ; e.g. for special holders.
- Heating cycle stop is automatic in all modes, for safety and holder life. Induction heating achieves shrink grip and shrink release in a few seconds. Suitable for tool shanks in carbide, heavy metal or steel.

Shrink depth setting

The support modules with height setting achieve precise tool shrink depth setting. A required stop rod is fitted into the height setting system, and adjusted by the setting wheel to the required Shrinkfit depth: e.g. a depth vernier can be used to control the stop rod front end position in reference to the holder front end. The tool shank will bear onto the stop rod front end when fitted into the holder during the shrink grip cycle. The stop rod can also be used during the shrink release cycle to push a broken tool out from the holder.



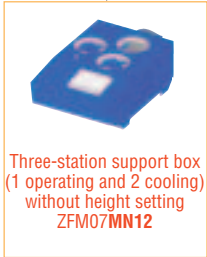
HEATER WITH HEIGHT SETTING



ZFM07MA2

Heating module with height measuring fittings (digital rule, comparator, setting wheel, set of 4 standard stop rods in a rack).

Heating modules



Three-station support box (1 operating and 2 cooling) without height setting ZFM07MN12



Three-station support box (1 operating and 2 cooling) with height setting ZFM07MN22

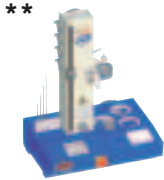


Three-station rotary support box without height setting ZFM07MU1

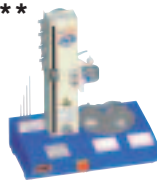


Three-station rotary support box with height setting ZFM07MU2

Support modules



**

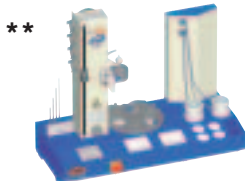


**

Selection suggestions



** Set of stop rods and storage rack for stop rods are part of the ZFM07MA2 heating module delivery content.



**

Selection suggestions

Main module selection parameters are:

Heating modules: with or without height setting / Supporting modules: corner plate or box with streamered air cooling / Support boxes: Single or three-station – with or without height setting – with or without rotary plate / Fast cooling module: Refrigerated water cooling bells.

Direct tool height setting

Precise cutting edge gauge length can be achieved when the stop rod position is set taking into account the actual tool to be shrink gripped: therefore, the support modules with height setting fittings (stop rod adjustment with a setting wheel) have to be used in combination with the heating module with height measuring fittings (comparator, fine adjustment setting wheel, digital rule with display, set of standard stop rods). The tool shank has to be located onto the stop rod front end, in order to adjust the stop rod until the cutter front end reaches the preset position controlled by the digital rule and comparator. Gauge length precision $\pm 0,05$ mm is possible.



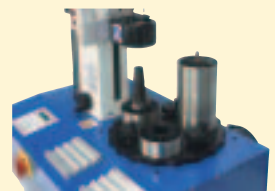
Support boxes air cooling feature

Ventilator fans fitted to all boxes as standard, stream air through the finned support, towards the finned cooling tube fitted onto the tool holder front end; cooling time approx. 3 minutes.

Note: For faster cooling, use the refrigerated bells; cooling time approx. 0,5 minutes.

Safety

The three-station rotary support boxes avoid any contact with hot holders. By a 1/3 plate rotation, the plate with a hot holder switches from the heating position to a cooling position. Each station is equipped with an LED indicator indicating the holder near the LED is in the cooling process.



Heating modules

Common features of the heaters

Induction heating with shrink grip and shrink release capacity 3 to 32 mm for carbide and heavy metal, 6 to 32 mm for steel and HSS.

Automatic or manual heating modes for the shrink grip and shrink release heating cycles.

The inductor is guided on a precision sliding support with pneumatic stop.



Fast and easy location system for the heat focusing plates onto the inductor.

Delivery content:

A pair of gloves.

Four heat focusing stoppers for 3 to 32 mm.

Operating instructions are supplied.

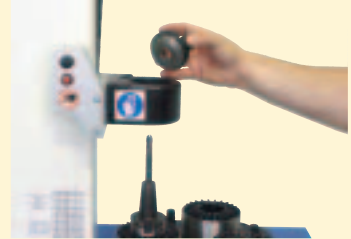
Accessories:

When required, 4 split heat focusing stoppers for tools with a larger head than shank are available as Accessories.

Connections:

AC 3x400V + PE/ 16 A/ 50-60Hz/ Differential breaker 300 mA. 5 meter cable is supplied.

Air 3 to 6 bar/ 5l/min / pipe internal Ø 7 mm required.



Heating module without height setting

Basic induction heating module, without height setting features.



Standard and split heat focusing plates

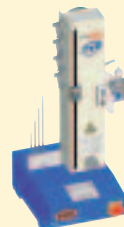
Heating module with height setting

The height setting fittings include:

- A comparator (0,01 mm) fixed onto the inductor sliding support.
- A fine adjustment of the sliding support using a height adjustment setting wheel.
- A digital rule to control the sliding support /comparator position (0,01 mm display).



Heating module without height setting



Heating module with height setting

Support corner plate

To hold the finned supports during the heating cycle; to be fitted onto the heating modules.

Height setting for support corner plate

When assembled onto the corner plate, the height setting supports and adjusts the fitted stop rod, using the setting wheel (adjusting range is 60 mm).



Support boxes with air cooling

Support boxes, common features:

To hold the finned support during the heating and cooling cycles. One or two ventilator fans stream air through the finned support, towards the finned cooling tube fitted onto the tool holder front end; cooling time approx. 3 minutes. When using cooling cones fitted onto the finned supports instead of finned cooling tubes, cooling time is approx. 7 minutes, see accessories.

Operating instructions are supplied.

Connections:

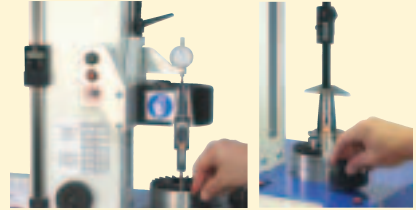
AC 1x230V + PE/16A/50-60Hz, cable with a DE/FR electrical plug is supplied.



All box types are available with or without height setting:

The height setting fittings consist of a stop rod bearing and adjusting system, with a setting wheel (adjusting range of the fitted stop rod is 60 mm). The three-station rotary support box with height setting integrates 3 height setting fittings. Note: Stop rods are not part of the support boxes delivery content, but part of the delivery content of the heating module with height setting, and available as Accessories.

Stop rod used in combination with a heater with height setting, allows the tool's gauge length setting (A). Stop rod used in combination with a heater without height setting, allows only the shrink depth setting (B).



(A)

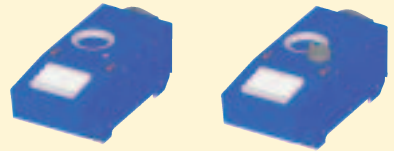
(B)

Single-station support boxes - with or without stop rod height setting

The single station is used for both heating and cooling cycles.

In addition to the common features:

Two timers with an LED indicator can be switched on manually, to indicate the holder is in the cooling process: left timer to be used by air cooling (timing approx. 3 minutes); right timer to be used for the cooling station of the refrigerated water cooler.



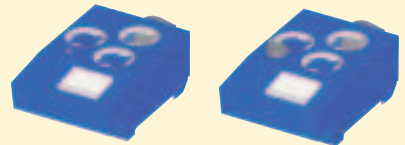
Three-station support boxes with 1 operating and 2 cooling stations - with or without stop rod height setting

One heating and cooling station, and two cooling stations.

In addition to the common features:

The two cooling stations can be used with either a finned support or a support ring.

No LED indicator.

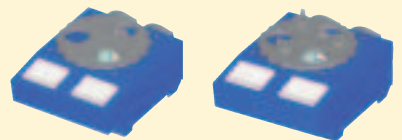


Three-station rotary support boxes - with or without stop rod height setting

Three heating and cooling stations.

In addition to the common features:

The rotary plate prevents the user having any contact with hot holders: by a simple plate rotation, each station switches from the heating position to a cooling position. Each station is equipped with an LED indicator which switches on automatically when the table is rotated in to a cooling position (timing approx. 3 min).



Accessories for support boxes

Finned supports (A)

Required to provide positioning of the tool holder onto the support module (corner plate or box) during heating and cooling.

Designed to let air stream towards the finned cooling tube or cooling cone.

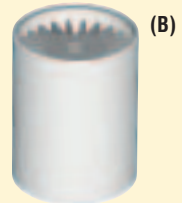
Select the suitable sizes for HSK and SA (DIN, JIS-BT, ANSI) holder tapers, see product pages.



Finned cooling tubes (B)

Fins in contact with the holder front end offer a large surface area for fast heat dispersal; cooling time approx. 3 minutes.

Select suitable tube sizes for 5803, 5801 or 5800 Shrinkfit holders.



Air cooling cone (C)

The cone is a simple solution to direct the air stream towards the holder front end; cooling time is approx. 7 minutes.

The cone is independent of the holder type and size, the unique cone (part N° ZFAR02C) fits all holders.

The cone fits directly onto the two cooling stations of the single station support box.

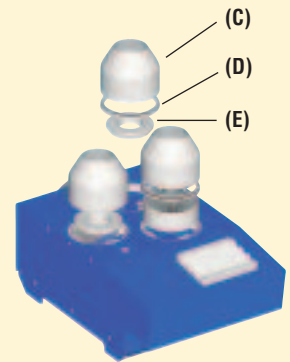
Cone fitting ring (D)

The ring is required to fit the air cooling cone onto the flange mounts with fins; the unique ring (part N° ZFAR07C) fits all flanges.

Support ring (E) for cooling stations

Note: Support ring are only suitable for the two cooling stations of the three-station support box and the cooling station of the cooling bells water cooler, as an economical means of direct holder positioning, instead of using finned supports.

Select the suitable support rings for HSK and SA (DIN, JIS-BT, ANSI) holder tapers.



Set of stop rods

Stop rods are required in conjunction with the height setting fittings of the support modules.

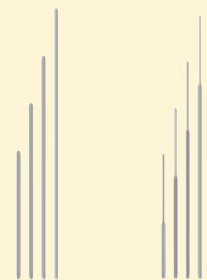
Stop rods are available as sets of 4 standard or 4 thin stop rods, covering a shrink depth capacity 0 to 240 mm.

Standard stop rods with 5 mm front end are for shrinkfit holders Ø 6 mm and above.

Thin stop rods with 2.5 mm front end are for shrinkfit holders Ø 3 to 5 mm.

Note: A set of standard stop rods is part of the heating module with height setting delivery content.

There is no stop rod in the heating module without height setting delivery content.



Storage rack for 16 stop rods

Note: A storage rack is part of the heating module with height setting delivery content.

There is no rack in the heating module without height setting delivery content:

A rack selected as Accessories can be fitted onto the heater body.



Shrinkfit height setting accessories

Tool supporting sleeves for stop rods

These sleeves can be used for locating the cutter back end in contact with the stop rod front end, to free both hands, when using the direct tool height setting.

Select the suitable sleeve diameter in regard to the tool shank diameters:

Available for tool shanks dia. (d2) 3, 4 or 5 mm for slim stop rods (front dia. (d1) 2,5 mm) and dia. (d2) 6 to 32 mm for standard stop rods (front dia. (d1) 5 mm).



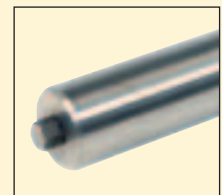
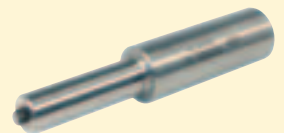
Stop screw setting adapters with hexagonal back-end.

Required for adjustment of the stop screw which can be fitted into type 5803 Shrinkfit holders (stop screws are available as Accessories for type 5803 Shrinkfit holders, see holders Product pages).

The adapter bore is oversized in relation to the cutting tool shank, and the adapter shank is undersized to the Shrinkfit holder bore.

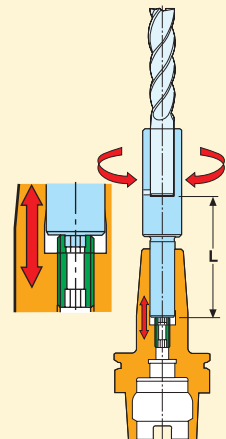
The tool is placed into the adapter. The hexagonal nose on adapter's back end engages the stop screw. By turning the adapter the stop screw moves until the cutter front end reaches the preset position : the tool preset position can be controlled on the height measuring fittings of the EasyShrink heating module, or on a presetter, taking into account the adapter's length from the bottom of the bore to the back end of the shank (L = 80 mm).

Select the suitable adapter diameter in regard to the tool shank diameters, available for dia. 6 to 32 mm.



Note: when using EasyShrink's stop rod setting features, there is no need for a stop screw, nor a stop screw setting adapter with hexagonal back-end.

Using stop rods instead of stop screws eliminates the risks of tool inaccuracies (stress between tool shank and stop screw) and vibrations (unbalance caused by a loose screw).



Refrigerated water cooling bells unit

The fastest cooling module.

Two aluminium bells are cooled by refrigerated water and placed over contact bushes onto the front end of the holder, cooling time approx. 0,5 minute.

There are 2 storing rests for the bells and 6 storage locations for contact bushes.

Note: If needed, a cooling station to support a finned support or a support ring can be created by the user on the cooler body, by moving the left storing rest behind the right one (2 holders can be cooled simultaneously by the two bells e.g. also when using a single station support box).

The refrigeration unit can be stored under or to one side of the device.

Operating instructions are supplied.

Connections:

AC 1x230V + PE/16A/50-60Hz cable with a DE/FR electrical plug is supplied.

Accessories: Contact bushes for cooling bells

Required to extract heat from the holder front end towards the liquid cooling bell. Select the suitable contact bushes sizes for 5803, 5801 or 5800 Shrinkfit holders, see product pages.

3 water treatment tablets are part of the cooler delivery content.

Treatment needs 3 tablets (at once) every 6 months.

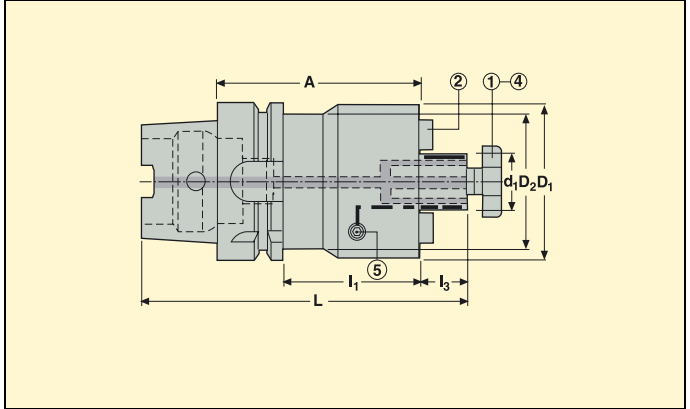
Sets of 12 water treatment tablets are available as Spare parts (ZFAP01).





Type 5545 - Shell mill holders, Accu-Fit™

HSK-A/ ISO 12164-1-A



- With expandable hydraulic spigot.
- Run-out 5 µm maximum.
- With coolant supply channels through the spigot.

Taper	d ₁	Part No.	Dimensions in mm						Balancing	
			A	D ₁	D ₂	L	I ₁	I ₃		
HSK-A63	22	E9304 5545 2250	50	48	48	101	24	19	1	1,10
	27	E9304 5545 2760	60	60	53	113	34	21	1	1,45
	32	E9304 5545 3260	60	78	53	116	34	24	1	1,75
HSK-A100	22	E9306 5545 2255	55*	48	48	124	26	19	1	2,40
	27	E9306 5545 2750	50	60	60	121	21	21	1	2,60
	32	E9306 5545 3250	50	78	78	124	21	24	1	3,10
	40	E9306 5545 4060	60	89	88	137	31	27	1	3,70

* Length A (55) on type 5545 is longer than on type 5525 (50).

Accessories

For d ₁	Key for pressurizing (5)		Spanner for bolt	Bolt, through coolant type (4)
		S		
22	H04-4	4	5812210	5802210L
27	H04-4	4	5812712	5802712L
32	H04-4	4	5813216	5803216L
40	H04-4	4	5814020	5804020L

Spare parts

Bolt (1)	Tenon/ Screw for tenon (2)	
5802210	16C2101111	951D0416
5802712	16C2121214	951D0508
5803216	16C2141421	951D0516
5804020	16C2161621	951D0516

Please check availability in current price and stock-list.

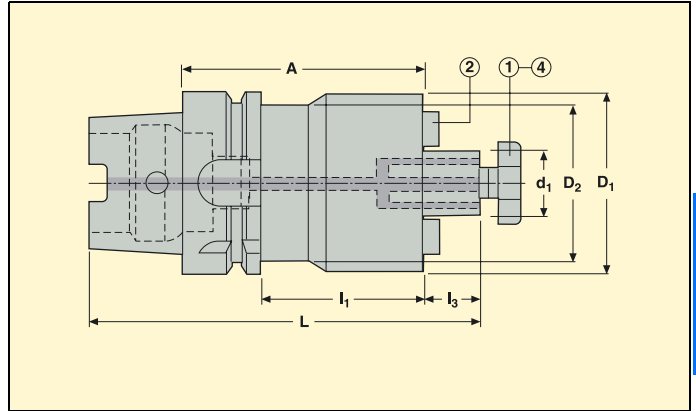
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5525/5524 - Shell mill holders, with through coolant channels

HSK-A/ ISO 12164-1-A



- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.



Page 1 of 2		Dimensions in mm							*	Balancing	
Taper	d ₁ mm	Part No.	A	D ₁	D ₂	L	I ₁	I ₃			
HSK-A63	16	E9304 5525 1650	50	38	38	99	24	17		1	0,90
	16	E9304 5525 16100	100	38	38	149	74	17		1	1,35
	16	E9304 5525 16145	145	38	38	194	119	17		1	1,75
	22	E9304 5525 2250	50	48	48	101	24	19	*	1	1,10
	22	E9304 5525 22100	100	48	48	151	74	19		1	1,80
	22	E9304 5525 22160	160	48	48	211	134	19		1	2,65
	27	E9304 5525 2760	60	60**	53	113	34	21	*	1	1,45
	27	E9304 5525 27100	100	60	53	153	74	21		1	2,30
	27	E9304 5525 27160	160	60	53	213	134	21		1	3,65
	32	E9304 5525 3260	60	78	53	116	34	24	*	1	1,75
	32	E9304 5525 32100	100	78	53	156	74	24		1	3,25
	40	E9304 5525 4060	60	89	53	119	34	27	*	1	2,10
	27	E9304 5524 2760	60	48**	48	113	34	21		1	1,25

d₁ 40, includes 4 threaded holes on the bearing face according to DIN 6357.

* Conform to DIN 69882-3.

** Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

Spare parts

For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	950D0416
27/5525	5812712	5802712L	5802712	16C11214243	951D0516
27/5524	5812712	5802712L	5802712	16C127	951D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

Please check availability in current price and stock-list.

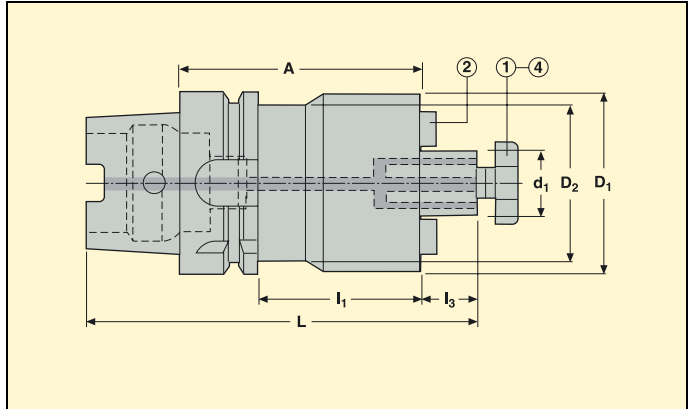
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5525/5524 - Shell mill holders, with through coolant channels

HSK-A/ ISO 12164-1-A



- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.



Page 2 of 2		Part No.	Dimensions in mm						*	Balancing	KG
Taper	d ₁ mm		A	D ₁	D ₂	L	I ₁	I ₃			
HSK-A100	16	E9306 5525 16100	100	38	38	167	71	17		1	2,74
	22	E9306 5525 2250	50	48	48	119	21	19	*	1	2,50
	22	E9306 5525 22100	100	48	48	169	71	19		1	3,24
	22	E9306 5525 22160	160	48	48	229	131	19		1	4,10
	27	E9306 5525 2750	50	60**	60	121	21	21	*	1	2,64
	27	E9306 5525 27100	100	60	60	171	71	21		1	3,72
	27	E9306 5525 27160	160	60	60	231	131	21		1	5,10
	32	E9306 5525 3250	50	78	78	124	21	24	*	1	3,08
	32	E9306 5525 32100	100	78	78	174	71	24		1	4,92
	32	E9306 5525 32160	160	78	78	234	131	24		1	7,20
	40	E9306 5525 4060	60	89	88	137	31	27	*	1	3,70
	40	E9306 5525 40100	100	89	88	177	71	27		1	5,68
	40	E9306 5525 40160	160	89	88	237	131	27		1	8,54
	27	E9306 5524 2750	50	48**	48	121	21	21		1	2,60

d₁ 40, includes 4 threaded holes on the bearing face according to DIN 6357.

* Conform to DIN 69882-3.

** Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

Spare parts

For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	950D0416
27/5525	5812712	5802712L	5802712	16C11214243	951D0516
27/5524	5812712	5802712L	5802712	16C127	51D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

Please check availability in current price and stock-list.

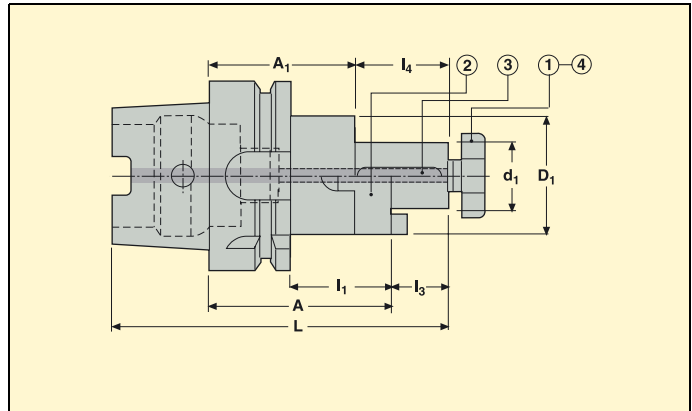
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 553 - Combi shell mill holders - DIN 6358

HSK-A/ ISO 12164-1-A



- Direct run-out 5 μm maximum.
- With removable driving ring,



Taper	d ₁ mm	Part No.	Dimensions in mm							*	Balancing	
			A	A ₁	D ₁	L	I ₁	I ₃	I ₄			
HSK-A63	16	E9304 553 1660	60	50	32	109	34	17	27	*	—	0,90
	22	E9304 553 2260	60	48	40	111	34	19	31	*	—	1,05
	27	E9304 553 2760	60	48	48	113	34	21	33	*	—	1,25
	32	E9304 553 3260	60	46	58	116	34	24	38	*	—	1,60
HSK-A100	16	E9306 553 1660	60	50	32	127	31	17	27	*	—	2,40
	22	E9306 553 2260	60	48	40	129	31	19	31	*	—	2,60
	27	E9306 553 2760	60	48	48	131	31	21	33	*	—	2,80
	32	E9306 553 3260	60	46	58	134	31	24	38	*	—	3,00
	40	E9306 553 4070	70	56	70	147	41	27	41	*	—	3,40
	50	E9306 553 5080	80	64	90	160	51	30	46	*	—	3,80

* Conform to DIN 69882-2.

Accessories

Spare parts

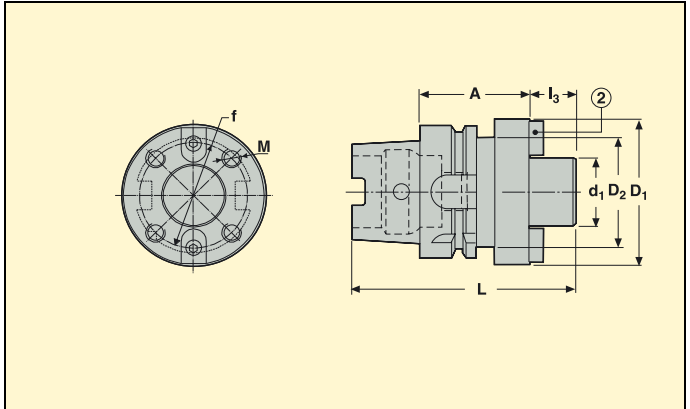
For d ₁	Spanner	Bolt, through coolant type (4)	Bolt (1)	Driving ring (2)	Flat key (3)
16	5811608	5801608L	5801608	58316	04C216
22	5812210	5802210L	5802210	58322	04C222
27	5812712	5802712L	5802712	58327	04C227
32	5813216	5803216L	5803216	58332	04C232
40	5814020	5804020L	5804020	58340	04C240
50	5815024	5805024L	5805024	58350	04C250

Please check availability in current price and stock-list.

For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 569 - Milling cutter holders, flange mounting - DIN 6357/ DIN 2079

HSK-A/ ISO 12164-1-A



- Direct run-out 5 μm maximum.

Taper	d ₁ mm	Part No.	Dimensions in mm						M mm	Balancing	
			A	D ₁	D ₂	L	I ₃	f			
HSK-A100	60	E9306 569 6075	75	129	88	165	40	101,6	M16	2	6,85

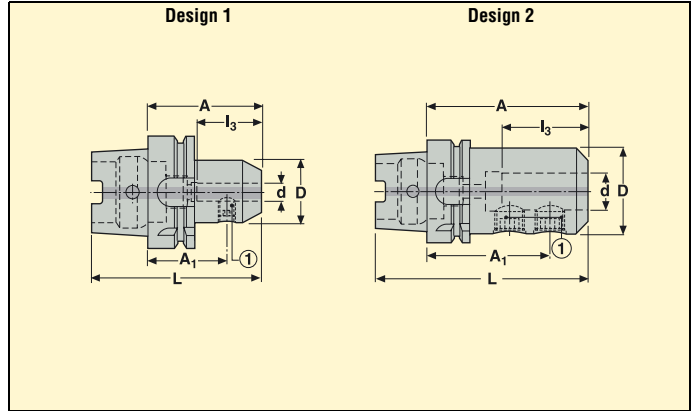
Spare parts

For d ₁	Tenon/ Screw (2)	
60	16C35060	951D1225

Please check availability in current price and stock-list.
 For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μ m maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).

Page 1 of 3		Dimensions in mm					*	Design	Balancing		
Taper	d mm	Part No.	A	D	L	I ₃					A ₁
HSK-A63	6	E9304 584 0665	65	25	97	30	47,5	*	1	1	0,85
	6	E9304 584 06120	120	25	152	30	102,5		1	1	1,05
	6	E9304 584 06160	160	25	192	30	142,5		1	1	1,20
	8	E9304 584 0865	65	28	97	30	47,5	*	1	1	0,90
	8	E9304 584 08120	120	28	152	30	102,5		1	1	1,15
	8	E9304 584 08160	160	28	192	30	142,5		1	1	1,35
	10	E9304 584 1065	65	35	97	39	45,5	*	1	1	1,00
	10	E9304 584 10120	120	35	152	39	100,5		1	1	1,40
	10	E9304 584 10160	160	35	192	39	140,5		1	1	1,70
	12	E9304 584 1280	80	42	112	44	58	*	1	1	1,25
	12	E9304 584 12120	120	42	152	44	98		1	1	1,70
	12	E9304 584 12160	160	42	192	44	138		1	1	2,10
	14	E9304 584 1480	80	44	112	44	58	*	1	1	1,30
	14	E9304 584 14160	160	44	192	44	138		1	1	2,25
	16	E9304 584 1680	80	48	112	47	56,5	*	1	1	1,30
	16	E9304 584 16120	120	48	152	47	96,5		1	1	1,85
	16	E9304 584 16160	160	48	192	47	136,5		1	1	2,40
	18	E9304 584 1880	80	50	112	47	56,5	*	1	1	1,35
18	E9304 584 18160	160	50	192	47	136,5		1	1	2,55	

Balancing 1, with steel shank.

* Conform to DIN 69882-4.

Spare parts

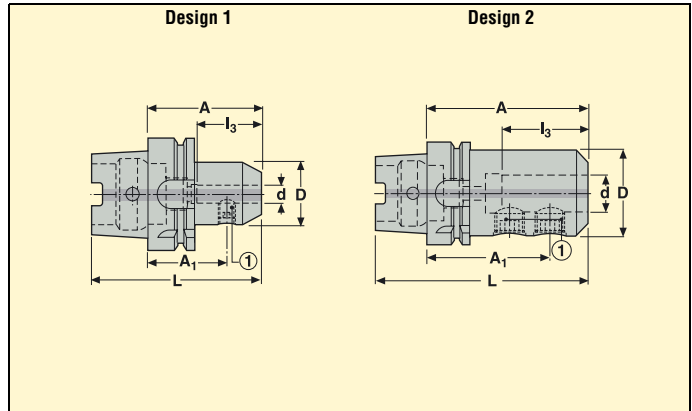
For d	Locking screw (1)		S
	Qty		
6	951C0610	1	3
8	951C0810	1	4
10	951C1012	1	5
12-14	951C1216	1	6
16-18	951C1416	1	6

Please check availability in current price and stock-list.

For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μ m maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).

Page 3 of 3		Dimensions in mm					*	Design	Balancing		
Taper	d mm	Part No.	A	D	L	I ₃					A ₁
HSK-A100	6	E9306 584 0680	80	25	130	27	62,5	*	1	1	2,35
	6	E9306 584 06160	160	25	210	27	142,5		1	1	2,60
	8	E9306 584 0880	80	28	130	30	62,5	*	1	1	2,40
	8	E9306 584 08160	160	28	210	30	142,5		1	1	2,70
	10	E9306 584 1080	80	35	130	39	60,5	*	1	1	2,50
	10	E9306 584 10160	160	35	210	39	140,5		1	1	3,00
	12	E9306 584 1280	80	42	130	44	58	*	1	1	2,60
	12	E9306 584 12160	160	42	210	44	138		1	1	3,40
	14	E9306 584 1480	80	44	130	44	58	*	1	1	2,65
	14	E9306 584 14160	160	44	210	44	138		1	1	3,55
	16	E9306 584 16100	100	48	150	47	76,5	*	1	1	3,00
	16	E9306 584 16160	160	48	210	47	136,5		1	1	3,80
	18	E9306 584 18100	100	50	150	47	76,5	*	1	1	3,10
	20	E9306 584 20100	100	52	150	49	75,5	*	1	1	3,10
	20	E9306 584 20160	160	52	210	49	135,5		1	1	4,05
	25	E9306 584 25100	100	65	150	54	76,5	*	2	1	3,60
	25	E9306 584 25160	160	65	210	54	136,5		2	1	5,10
	32	E9306 584 32100	100	72	150	58	76,5	*	2	1	3,85
	32	E9306 584 32160	160	72	210	58	136,5		2	1	5,70
	40	E9306 584 40120	120	90	170	68	90,5		2	1	5,50

Balancing 1, with steel shank.

* Conform to DIN 69882-4.

Spare parts

For d	Locking screw (1)	
	Qty	S
6	951C0610	3
8	951C0810	4
10	951C1012	5
12-14	951C1216	6
16-18	951C1416	6
20	951C1616	8
25	951C1820	10
32	951C2020	10
40	951C2025	10

Please check availability in current price and stock-list.

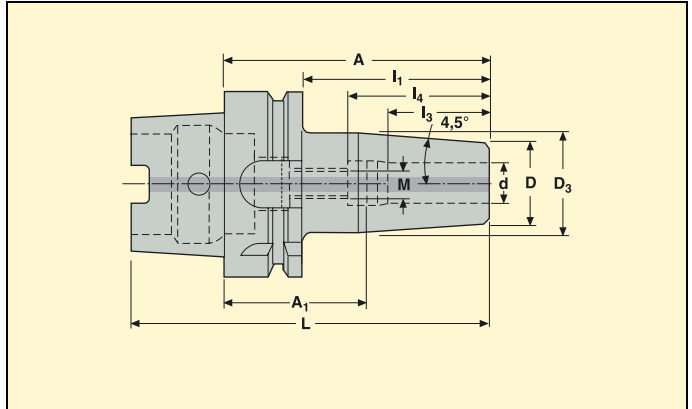
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5803 - Shrinkfit holders, DIN type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 1 of 5		Part No.	Dimensions in mm								M	*	Balancing	KG
Taper	d mm		A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max				
HSK-A32	6	E9301 5803 0670	70	21	26	86	50	26	36	34-44	M5	*	1	0,29
	8	E9301 5803 0870	70	21	26	86	50	26	36	34-44	M5	*	1	0,28
	10	E9301 5803 1075	75	24	30	91	55	31	41	34-44	M5	*	1	0,40
	12	E9301 5803 1280	80	24	31	96	60	34	47	33-43	M10	*	1	0,45
HSK-A40	6	E9302 5803 0680	80	21	27	100	60	26	36	44-54	M5	*	1	0,41
	8	E9302 5803 0880	80	21	27	100	60	26	36	44-54	M6	*	1	0,41
	10	E9302 5803 1080	80	24	32	100	60	31	41	39-49	M6	*	1	0,48
	12	E9302 5803 1290	90	24	32	110	70	34	47	43-53	M10	*	1	0,50
	14	E9302 5803 1490	90	27	34	110	70	34	47	43-53	M10	*	1	0,56
	16	E9302 5803 1690	90	27	34	110	70	38	50	40-50	M10	*	1	0,54

For Shrinkfit extensions, see chapter Additional equipment.

* Conform to DIN E 69882-8.

Accessories

For Taper/d	Stop end screw		
	S ₁	∅	
HSK-A32/6-10	19LS0520A	3	3
HSK-A32/12	19LS1016A	5	5
HSK-A40/6-10	19LS0620A	3	3
HSK-A40/12-16	19LS1016A	5	5

Please check availability in current price and stock-list.

For stop screw setting adapters, see chapter Shrinkfit devices.

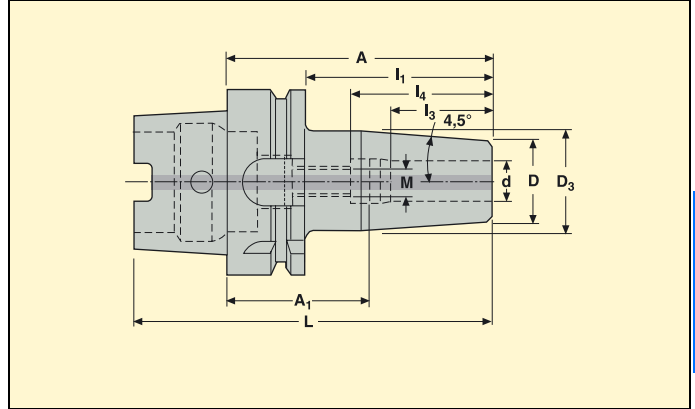
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5803 - Shrinkfit holders, DIN type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 2 of 5		Part No.	Dimensions in mm								M	*	Balancing	
Taper	d mm		A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max				
HSK-A63	6	E9304 5803 0680	80	21	27	112	54	26	36	44-54	M8	*	1	0,83
	6	E9304 5803 06120	120	21	27	152	94	26	36	74-84	M8		1	0,99
	6	E9304 5803 06160	160	21	27	192	134	26	36	114-124	M8		1	1,15
	8	E9304 5803 0880	80	21	27	112	54	26	26	44-54	M8	*	1	0,83
	8	E9304 5803 08120	120	21	27	152	94	26	36	74-84	M8		1	0,99
	8	E9304 5803 08160	160	21	27	192	134	26	36	114-124	M8		1	1,15
	10	E9304 5803 1085	85	24	32	117	59	31	41	44-54	M8	*	1	0,90
	10	E9304 5803 10120	120	24	32	152	94	31	41	69-79	M8		1	1,10
	10	E9304 5803 10160	160	24	32	192	134	31	41	119-129	M8		1	1,35

For Shrinkfit extensions, see chapter Additional equipment.

* Conform to DIN E 69882-8.

Accessories

		Stop end screw	
For d		S ₁	Ø
6-10	19LS0820T	3	3

Please check availability in current price and stock-list.

For stop screw setting adapters, see chapter Shrinkfit devices.

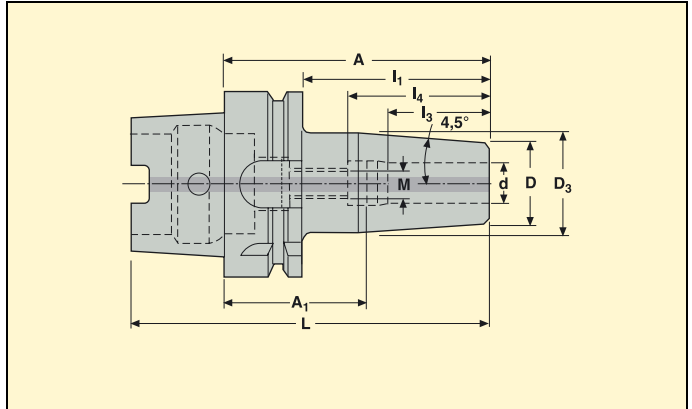
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5803 - Shrinkfit holders, DIN type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 3 of 5		Dimensions in mm										M mm	*	Balancing	
Taper	d	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max					
HSK-A63	12	E9304 5803 1290	90	24	32	122	64	34	47	43-53	M10	*	1	0,91	
	12	E9304 5803 12120	120	24	32	152	94	34	47	73-83	M10		1	1,10	
	12	E9304 5803 12160	160	24	32	192	134	34	47	113-123	M10		1	1,35	
	14	E9304 5803 1490	90	27	34	122	64	34	47	43-53	M10	*	1	0,96	
	14	E9304 5803 14120	120	27	34	152	94	34	47	73-83	M10		1	1,20	
	14	E9304 5803 14160	160	27	34	192	134	34	47	113-123	M10		1	1,43	
	16	E9304 5803 1695	95	27	34	127	69	38	50	45-55	M10	*	1	0,98	
	16	E9304 5803 16120	120	27	34	152	94	38	50	70-80	M10		1	1,20	
	16	E9304 5803 16160	160	27	34	192	134	38	50	110-120	M10		1	1,43	
	18	E9304 5803 1895	95	33	42	127	69	38	50	45-55	M10	*	1	1,15	
	18	E9304 5803 18120	120	33	42	152	94	38	50	70-80	M10		1	1,43	
	18	E9304 5803 18160	160	33	42	192	134	38	50	110-120	M10		1	1,83	
	20	E9304 5803 20100	100	33	42	132	74	42	52	48-58	M10	*	1	1,18	
	20	E9304 5803 20120	120	33	42	152	94	42	52	68-78	M10		1	1,45	
	20	E9304 5803 20160	160	33	42	192	134	42	52	108-118	M10		1	1,80	
	25	E9304 5803 25115	115	44	53	147	89	44	58	57-67	M10		1	1,78	
25	E9304 5803 25160	160	44	53	192	134	44	58	102-112	M10		1	2,54		
32	E9304 5803 32120	120	44	53	152	94	52	62	58-68	M10	*	1	1,72		

For Shrinkfit extensions, see chapter Additional equipment.

* Conform to DIN E 69882-8.

Accessories

		Stop end screw	
For d		S ₁	Ø
12-32	19LS1020A	5	5

Please check availability in current price and stock-list.

For stop screw setting adapters, see chapter Shrinkfit devices.

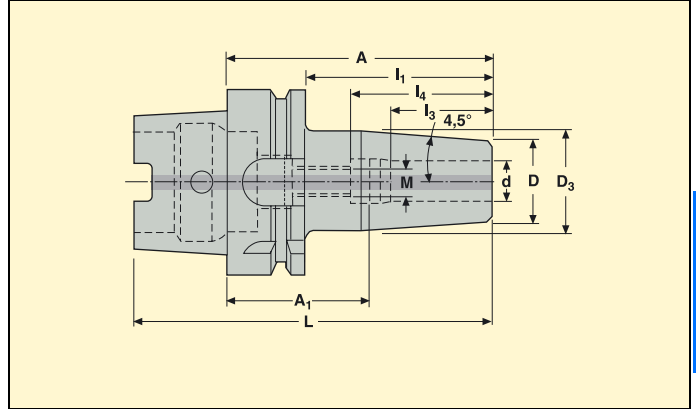
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5803 - Shrinkfit holders, DIN type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 4 of 5	Taper	d mm	Part No.	Dimensions in mm							M mm	*	Balancing		
				A	D	D ₃	L	I ₁	I ₃	I ₄					A ₁ min-max
	HSK-A100	6	E9306 5803 0685	85	21	27	135	56	26	-	49-59	M8	*	1	2,19
		6	E9306 5803 06120	120	21	27	170	91	26	-	84-94	M8		1	2,32
		6	E9306 5803 06160	160	21	27	210	131	26	-	124-134	M8		1	2,47
		8	E9306 5803 0885	85	21	27	135	56	26	36	49-59	M8	*	1	2,19
		8	E9306 5803 08120	120	21	27	170	170	26	36	84-94	M8		1	2,32
		8	E9306 5803 08160	160	21	27	210	131	26	36	124-134	M8		1	2,46
		10	E9306 5803 1090	90	24	32	140	61	31	41	49-59	M8	*	1	2,27
		10	E9306 5803 10120	120	24	32	170	91	31	41	79-89	M8		1	2,44
		10	E9306 5803 10160	160	24	32	210	131	31	41	119-129	M8		1	2,66

For Shrinkfit extensions, see chapter Additional equipment.

* Conform to DIN E 69882-8.

Accessories

		Stop end screw	
For d		S ₁	Ø
6-10	19LS0820T	3	3

Please check availability in current price and stock-list.

For stop screw setting adapters, see chapter Shrinkfit devices.

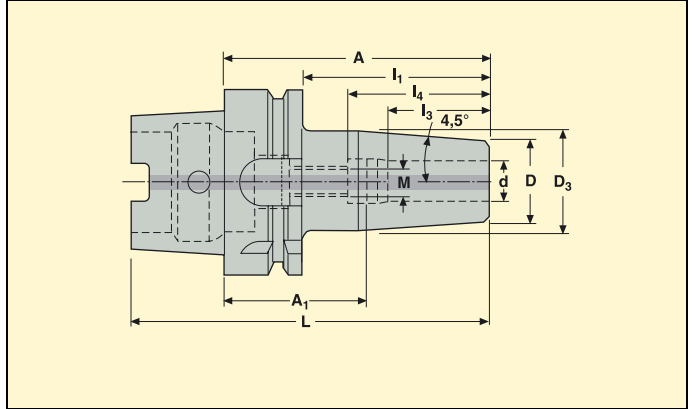
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5803 - Shrinkfit holders, DIN type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 5 of 5		Dimensions in mm										M mm	*	Balancing	KG
Taper	d	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max					
HSK-A100	12	E9306 5803 1295	95	24	32	145	66	34	47	51-61	M10	*	1	2,28	
	12	E9306 5803 12120	120	24	32	170	91	34	47	76-86	M10		1	2,42	
	12	E9306 5803 12160	160	24	32	210	131	34	47	116-126	M10		1	2,64	
	14	E9306 5803 1495	95	27	34	145	66	34	47	51-61	M10	*	1	2,34	
	16	E9306 5803 16100	100	27	34	150	71	38	50	50-60	M10	*	1	2,35	
	16	E9306 5803 16130	130	27	34	180	101	38	50	80-90	M10		1	2,54	
	16	E9306 5803 16160	160	27	34	210	131	38	50	110-120	M10		1	2,72	
	18	E9306 5803 18100	100	33	42	150	71	38	50	50-60	M10	*	1	2,53	
	20	E9306 5803 20105	105	33	42	155	76	42	52	53-63	M10	*	1	2,56	
	20	E9306 5803 20130	130	33	42	180	101	42	52	78-88	M10		1	2,8	
	20	E9306 5803 20160	160	33	42	210	131	42	52	108-118	M10		1	3,11	
	25	E9306 5803 25115	115	44	53	165	86	44	58	57-67	M10	*	1	3,09	
	25	E9306 5803 25160	160	44	53	210	131	44	58	102-112	M10		1	3,83	
	32	E9306 5803 32120	120	44	53	170	91	52	62	58-68	M10	*	1	3,01	

For Shrinkfit extensions, see chapter Additional equipment.

* Conform to DIN E 69882-8.

Accessories

		Stop end screw	
For d		S ₁	Ø
12-32	19LS1020A	5	5

Please check availability in current price and stock-list.

For stop screw setting adapters, see chapter Shrinkfit devices.

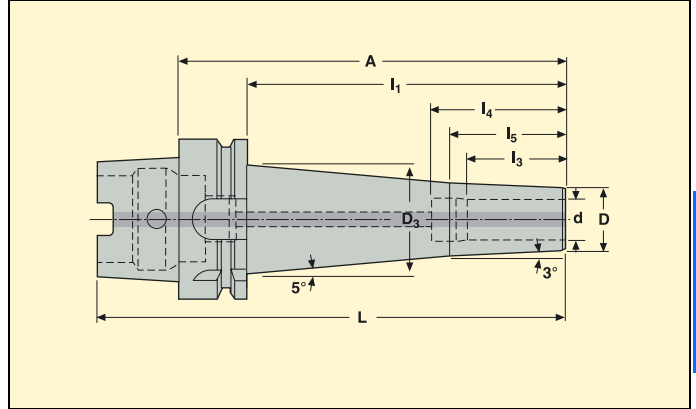
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5801 - Shrinkfit holders, Mould and Die type

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 1 of 2		Part No.	Dimensions in mm								Balancing	
Taper	d mm		A	D	D ₃	L	I ₁	I ₃	I ₄	I ₅		
HSK-A32	3	E9301 5801 0370	70	9	16	86	50	13	–	25	1	0,19
	3	E9301 5801 03100	100	9	22	116	80	13	–	25	1	0,25
	4	E9301 5801 0470	70	10	17	86	50	15	–	25	1	0,19
	4	E9301 5801 04100	100	10	23	116	80	15	–	25	1	0,25
	5	E9301 5801 0570	70	11	18	86	50	18	–	25	1	0,19
	5	E9301 5801 05100	100	11	24	116	80	18	–	25	1	0,25
	6	E9301 5801 0670	70	12	18,50	86	50	26	40	32	1	0,19
	6	E9301 5801 06100	100	12	24	116	80	26	40	32	1	0,25
HSK-A40	8	E9301 5801 0870	70	16	22	86	50	30	44	–	1	0,24
	8	E9301 5801 08100	100	16	25	116	80	30	44	–	1	0,30
	3	E9302 5801 0370	70	9	15,99	90	50	13	–	25	1	0,24
	3	E9302 5801 03100	100	9	22	120	80	13	–	25	1	0,30
	4	E9302 5801 0470	70	10	16,99	90	50	15	–	25	1	0,29
	4	E9302 5801 04100	100	10	23	120	80	15	–	25	1	0,35
	5	E9302 5801 0570	70	11	17,99	90	50	18	–	25	1	0,29
	5	E9302 5801 05100	100	11	24	120	80	18	–	25	1	0,35
	6	E9302 5801 0670	70	12	18,50	90	50	26	40	32	1	0,29
	6	E9302 5801 06100	100	12	24	120	80	26	40	32	1	0,35
	8	E9302 5801 0870	70	16	22,22	90	50	30	44	36	1	0,34
	8	E9302 5801 08100	100	16	28	120	80	30	44	36	1	0,40
	10	E9302 5801 1080	80	18	25,83	100	60	32	45	38	1	0,51
	10	E9302 5801 10120	120	18	33	140	100	32	45	38	1	0,55
	12	E9302 5801 1280	80	20	26,29	100	60	34	46	–	1	0,61
	12	E9302 5801 12130	130	20	32	150	110	34	46	–	1	0,65

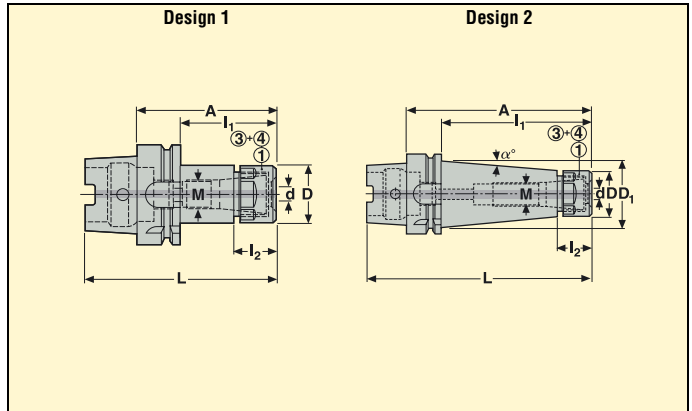
Please check availability in current price and stock-list.
 For Shrinkfit extensions, see chapter Additional equipment.
 For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5872 - D type precision collet chucks

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (5 μm with collet at 3xd) maximum.



Page 1 of 2	Taper	Capacity d mm	Part No.	D type size	Dimensions in mm					M mm	Design	α°	Balancing	KG
					A	D	D ₁	L	I ₁					
HSK-A32	1-6	E9301 5872 1050	D 10	50	15,7	—	66	30	18	M5	1	—	1	0,15
	1-6	E9301 5872 1090	D 10	90	15,7	25	106	70	18	M6	2	5	1	0,25
	1-10	E9301 5872 1660	D 16	60	27	—	76	40	23,3	M5	1	—	1	0,25
	1-10	E9301 5872 16110	D 16	110	27	—	126	90	23,3	M8	1	—	1	0,45
HSK-A40	1-6	E9302 5872 1050	D 10	50	15,7	—	70	30	18	M6	1	—	1	0,25
	1-6	E9302 5872 1090	D 10	90	15,7	25	110	70	18	M6	2	5	1	0,35
	1-10	E9302 5872 1660	D 16	60	27	—	80	40	23,3	M6	1	—	1	0,35

For D type collets (10° taper), see chapter Additional equipment.

Accessories

For D type size	Compression ring	Stop end screw	Sealing nut (4)		Sealing ring (3)	Nut (1)				
			S	L ₁	S	L ₁	S			
D 10	03D587210A	19B5870610	2	08B587210BE	20	14	01B587210..*	08B587210	14	14
D 16	03D587216A	19B5870812	3	08B587216BE	25	24	01B587216..*	08B587216	19	24

Spare parts

Please check availability in current price and stock-list.

* For D type sealing rings Part No., see chapter Additional equipment.

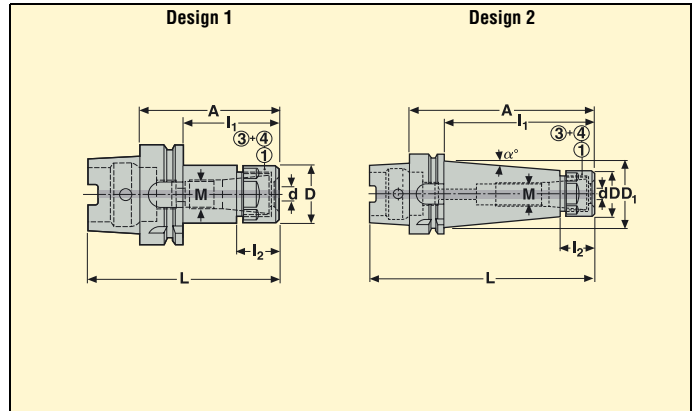
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5872 - D type precision collet chucks

HSK-A/ ISO 12164-1-A



- Direct run-out 3 μm (5 μm with collet at 3xd) maximum.



Page 2 of 2		Capacity d mm	Part No.	D type size	Dimensions in mm						M mm	Design	α°	Balancing	KG
Taper	A				D	D ₁	L	I ₁	I ₂						
HSK-A63	1-6	E9304 5872 1060	D 10	60	15,7	—	92	37	18	M6	1	—	1	0,80	
	1-6	E9304 5872 10100	D 10	100	15,7	25,5	132	68	18	M6	2	5	1	0,90	
	1-10	E9304 5872 16100	D 16	100	27	—	132	74	23,3	M8	1	—	1	1,00	
	1-10	E9304 5872 16130	D 16	130	27	41	162	104	23,3	M8	2	5	1	1,40	
	1-10	E9304 5872 16160	D 16	160	27	46,5	192	134	23,3	M8	2	5	1	1,60	
	2-16	E9304 5872 24100	D 24	100	36	—	132	74	26,3	M18x1,5	1	—	1	1,10	
	2-16	E9304 5872 24130	D 24	130	36	48	162	104	26,3	M18x1,5	2	5	1	1,70	
	2-16	E9304 5872 24160	D 24	160	36	53	192	134	26,3	M18x1,5	2	5	1	2,05	
	2-20	E9304 5872 29100	D 29	100	42	—	132	74	29,7	M22x1,5	1	—	1	1,25	
	2-20	E9304 5872 29130	D 29	130	42	—	162	104	29,7	M22x1,5	1	—	1	1,60	
2-20	E9304 5872 29160	D 29	160	42	53	192	134	29,7	M22x1,5	2	3	1	2,05		
HSK-A100	1-10	E9306 5872 16100	D 16	100	27	35,5	150	71	23,3	M8	2	5	1	2,35	
	1-10	E9306 5872 16160	D 16	160	27	44	210	131	23,3	M8	2	5	1	2,50	
	2-16	E9306 5872 24100	D 24	100	36	—	150	71	26,3	M18x1,5	1	—	1	2,40	
	2-16	E9306 5872 24160	D 24	160	36	52	210	131	26,3	M18x1,5	2	5	1	2,70	
	2-20	E9306 5872 29100	D 29	100	42	—	150	71	29,7	M22x1,5	1	—	1	2,50	
	2-20	E9306 5872 29160	D 29	160	42	—	210	131	29,7	M22x1,5	1	—	1	3,08	

For D type collets (10° taper), see chapter Additional equipment.

Accessories

For D type size	Compression ring	Stop end screw	Sealing nut (4)		Sealing ring (3)		
			S	L ₁			
D 10	03D587210A	19B5870610	2	08B587210BE	20	14	01B587210..*
D 16	03D587216A	19B5870812	3	08B587216BE	25	24	01B587216..*
D 24	03D587224A	19B58718	3	08B587224BE	28	32	01B587224..*
D 29	03D587229A	19B58722	3	08B587229BE	31	38	01B587229..*

Spare parts

Nut (1)		
L ₁	S	
14	14	08B587210
19	24	08B587216
22	32	08B587224
25	38	08B587229

Please check availability in current price and stock-list.

* For D type sealing rings Part No., see chapter Additional equipment.

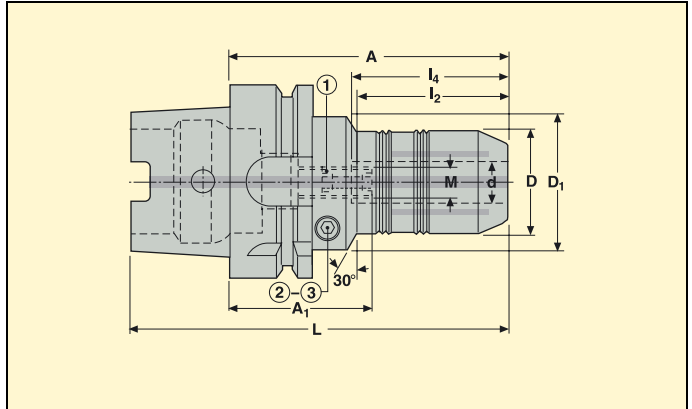
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5834 - Hydraulic chucks

HSK-A/ ISO 12164-1-A



- Run-out 3 μm maximum at 3xd.



Page 2 of 2		Dimensions in mm										M	*	Balancing	KG
Taper	d mm	Part No.	A	D	D ₁	L	I ₂	I ₄	A ₁ min-max						
HSK-A63	6	E9304 5834 0670	70	26	50	102	23	38	32-42	M5	*	1	1,00		
	8	E9304 5834 0870	70	28	50	102	24	38	32-42	M5	*	1	1,00		
	10	E9304 5834 1080	80	30	50	112	34	42	38-48	M8	*	1	1,00		
	12	E9304 5834 1285	85	32	50	117	40	47	38-48	M10	*	1	1,25		
	14	E9304 5834 1485	85	34	50	117	40	47	38-48	M10	*	1	1,25		
	16	E9304 5834 1690	90	38	50	122	46	50	40-50	M10	*	1	1,25		
	18	E9304 5834 1890	90	40	50	122	48	50	40-50	M10	*	1	1,25		
	20	E9304 5834 2090	90	42	50	122	47	52	38-48	M10	*	1	1,45		
	25	E9304 5834 25120	120	58	53	152	78	58	62-72	M10	*	1	1,80		
32	E9304 5834 32125	125	64	53	157	83	61	64-74	M10	*	1	1,85			
HSK-A100	12	E9306 5834 1295	95	32	50	145	40	47	48-58	M10	*	1	2,10		
	16	E9306 5834 1695	95	38	50	145	46	40	55-65	M10	*	1	2,50		
	20	E9306 5834 20105	105	42	50	155	48	52	53-63	M10	*	1	2,80		
	25	E9306 5834 25110	110	58	70	160	50	58	52-62	M10	*	1	3,50		
	32	E9306 5834 32110	110	64	70	160	50	63	47-57	M10	*	1	3,70		

For reduction sleeves and control gauges, see chapter Additional equipment.

* Conform to DIN 69882-7.

Accessories

For Taper/d ₁	Key for pressurizing (3)	
	S ₁	S ₂
HSK-A63/6-8	H04-4	4
HSK-A63/10	H04-4	4
HSK-A63/12	H04-4	4
HSK-A63/14-20	H04-4	4
HSK-A63/25-32	H04-4	4
HSK-A100/12	H04-4	4
HSK-A100/16-32	H04-4	4

Spare parts

Stop end screw (1)			Pressurizing screw (2)	
S ₁	∅		S ₂	
19LS0520A	3	3	950AF0810008	4
19LS0820T	3	3	950AF0810008	4
19LS1016A	5	5	950AF0810008	4
19LS1016A	5	5	950AF1010010	4
19LS1020A	5	5	950AF1010010	4
19LS1020A	5	5	950AF0810008	4
19LS1020A	5	5	950AF1010010	4

Please check availability in current price and stock-list.

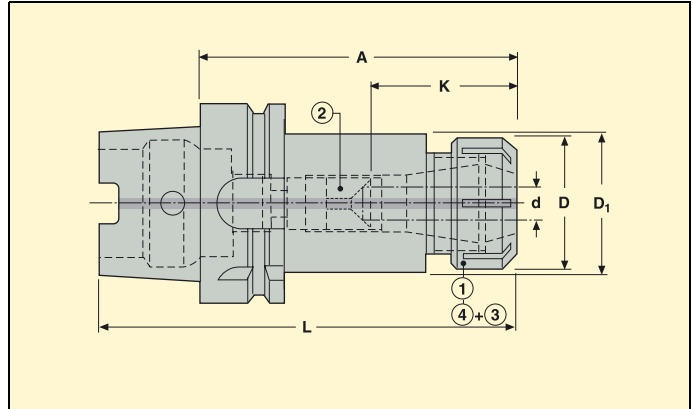
For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type 5875 - ER collet chucks - DIN 6499

HSK-A/ ISO 12164-1-A



- Direct run-out 5 μm maximum.



Taper	Capacity d mm	Part No.	Size	Dimensions in mm					*	Balancing	
				A	D	D ₁	L	K min-max			
HSK-A32	0,5 - 10	E9301 5875 1660	ER 16	60	32	32	76	30-36		1	0,25
HSK-A40	0,5-10	E9302 5875 1660	ER 16	60	32	32	80	30-34		1	0,40
	1-16	E9302 5875 2570	ER 25	70	42	34	90	-		1	0,50
HSK-A63	0,5-10	E9304 5875 16100	ER 16	100	32	32	132	30-44		1	1,00
	0,5-10	E9304 5875 16160	ER 16	160	32	32	192	30-44	*	1	1,35
	1-16	E9304 5875 25100	ER 25	100	42	42	132	38-53	*	1	1,20
	1-16	E9304 5875 25160	ER 25	160	42	42	192	38-53		1	1,80
	2-20	E9304 5875 32100	ER 32	100	50	50	132	43-53	*	1	1,40
	2-20	E9304 5875 32160	ER 32	160	50	50	192	43-67		1	2,20
	3-26	E9304 5875 40120	ER 40	120	63	53	152	50-65	*	1	2,25
HSK-A100	1-16	E9306 5875 25100	ER 25	100	42	42	150	38-46		1	2,95
	1-16	E9306 5875 25160	ER 25	160	42	42	210	38-46		1	3,55
	2-20	E9306 5875 32100	ER 32	100	50	50	150	43-46	*	1	3,00
	2-20	E9306 5875 32160	ER 32	160	50	50	210	43-46		1	3,87
	3-26	E9306 5875 40120	ER 40	120	63	63	170	50-65	*	1	3,15

For ER collets (16° taper, standard and precision types) and ER extensions, see chapter Additional equipment.

* Conform to DIN 69882-6.

Accessories

For Taper/Size	Spanner	Sealing nut (4)	Sealing ring (3)
		L ₁	
HSK-A32/ER 16	03B587516	08B5875161C	22,5
HSK-A40/ER 16	03B587516	08B5875161C	22,5
HSK-A63/ER 16	03B587516	08B5875161C	22,5
ER 25	03B587525	08B5875251C	25
ER 32	03B587532	08B5875321C	27,5
ER 40	03B587540	08B5875401C	30,5

Spare parts

Nut (1)	Stop end screw (2)		
	L ₁	S	
08B587516X	18	19B5870510	2,5
08B587516X	18	19B5870610	2
08B587516X	18	19B58708R10	3/4
08B587525X	21	19B58718	3
08B587532X	23	19B58722	3
08B587540X	26	19B58730	3

Please check availability in current price and stock-list.

* For ER sealing rings Part No., see chapter Additional equipment.

For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

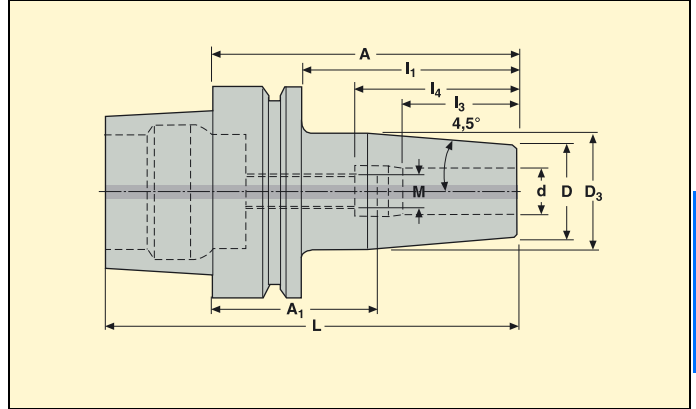


Type 5803 - Shrinkfit holders, DIN type

HSK-E



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 1 of 2		Dimensions in mm										Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max	M mm		
HSK-E32	6	E9341 5803 0670	70	21	27	86	50	26	36	34-44	M5	1	0,35
	8	E9341 5803 0870	70	21	27	86	50	26	36	34-44	M5	1	0,35
	10	E9341 5803 1075	75	24	32	91	50	31	41	34-44	M5	1	0,45
	12	E9341 5803 1280	80	24	32	96	55	34	47	33-43	M5	1	0,50
HSK-E40	6	E9342 5803 0665	65	21	27	85	45	26	36	29-39	M5	1	0,38
	8	E9342 5803 0865	65	21	27	85	45	26	36	29-39	M6	1	0,38
	10	E9342 5803 1075	75	24	32	95	55	31	41	34-44	M8	1	0,45
	12	E9342 5803 1280	80	24	32	100	60	34	47	33-46	M10	1	0,48
	14	E9342 5803 1480	80	27	34	100	60	34	47	33-46	M10	1	0,50
	16	E9342 5803 1685	85	27	34	105	65	38	50	35-47	M10	1	0,50

For Shrinkfit extensions, see chapter Additional equipment.

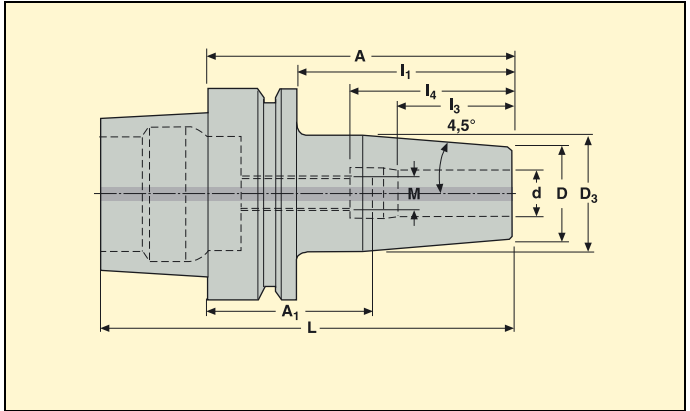
Accessories

Stop end screw			
For Taper/d	S ₁	Ø	
HSK-E32/6-10	19LS0520A	3	3
HSK-E32/12	19LS1016A	5	5
HSK-E40/6	19LS0520A	3	3
HSK-E40/8	19LS0620A	3	3
HSK-E40/10	19LS0820A	3	3
HSK-E40/12-16	19LS1016A	5	5

Please check availability in current price and stock-list.
For stop screw setting adapters, see chapter Shrinkfit devices.

Type 5803 - Shrinkfit holders, DIN type

HSK-E



- Direct run-out 3 μm (3 μm at 3xd) maximum.

Page 2 of 2		Dimensions in mm										M	Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max				
HSK-E50	6	E9343 5803 0680	80	21	27	105	54	26	36	34-44	M8	1	1,06	
	8	E9343 5803 0880	80	21	27	105	54	26	36	34-44	M8	1	1,06	
	10	E9343 5803 1085	85	24	32	110	59	31	41	34-44	M8	1	1,13	
	12	E9343 5803 1290	90	24	32	115	64	34	47	43-53	M8	1	1,14	
	14	E9343 5803 1490	90	27	34	115	64	34	47	43-53	M8	1	1,19	
	16	E9343 5803 1695	95	27	34	120	69	38	50	45-55	M8	1	2,30	
	20	E9343 5803 20100	100	33	42	125	74	42	52	48-58	M8	1	2,40	

For Shrinkfit extensions, see chapter Additional equipment.

Accessories

For Taper/d	Stop end screw		
	S ₁	∅	
HSK-E50/6-10	19LS0820T	3	3
HSK-E50/12-20	19LS1016A	3	3

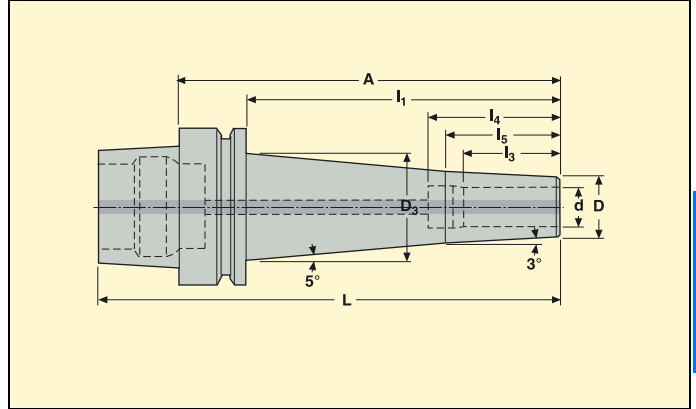
Please check availability in current price and stock-list.
For stop screw setting adapters, see chapter Shrinkfit devices.

Type 5801 - Shrinkfit holders, Mould and Die type

HSK-E



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Taper	d mm	Part No.	Dimensions in mm								Balancing		
			A	D	D ₃	L	I ₁	I ₃	I ₄	I ₅			
HSK-E32	3	E9341 5801 03100	100	9	22	116	80	13	–	25	1	0,25	
	4	E9341 5801 04100	100	10	23	116	80	15	–	25	1	0,25	
	5	E9341 5801 05100	100	11	24	116	80	18	–	25	1	0,25	
	6	E9341 5801 06100	100	12	24	116	80	26	40	32	1	0,25	
	8	E9341 5801 08100	100	16	25	116	80	30	44	–	1	0,30	
HSK-E40	3	E9342 5801 0360	60	9	13,2	80	40	13	–	–	1	0,25	
	3	E9342 5801 03100	100	9	22	120	80	13	–	25	1	0,30	
	4	E9342 5801 0460	60	10	14,2	80	40	15	–	–	1	0,25	
	4	E9342 5801 04100	100	10	23	120	80	15	–	25	1	0,35	
	5	E9342 5801 0560	60	11	15,2	80	40	18	–	–	1	0,25	
	5	E9342 5801 05100	100	11	24	120	80	18	–	25	1	0,35	
	6	E9342 5801 0660	60	12	16,2	80	40	26	40	–	1	0,25	
	6	E9342 5801 06100	100	12	24	120	80	26	40	32	1	0,35	
	6	E9342 5801 06140	140	12	31	160	120	26	40	32	1	0,55	
	8	E9342 5801 0860	60	16	20,2	80	40	30	44	–	1	0,30	
	8	E9342 5801 08100	100	16	28	120	80	30	44	36	1	0,40	
	8	E9342 5801 08140	140	16	34	160	120	30	44	36	1	0,65	
10	E9342 5801 1060	60	18	22,2	80	40	32	45	–	1	0,35		
10	E9342 5801 10120	120	18	33	140	100	32	45	38	1	0,55		
12	E9342 5801 12130	130	20	32	150	110	34	46	–	1	0,65		
HSK-E50	3	E9343 5801 03100	100	9	21	125	74	13	–	25	1	0,50	
	4	E9343 5801 04100	100	10	22	125	74	15	–	25	1	0,50	
	5	E9343 5801 05100	100	11	23	125	74	18	–	25	1	0,55	
	6	E9343 5801 06100	100	12	23	125	74	26	40	32	1	0,55	
	6	E9343 5801 06140	140	12	30	165	114	26	40	32	1	0,70	
	8	E9343 5801 08100	100	16	27	125	74	30	44	36	1	0,60	
	8	E9343 5801 08140	140	16	34	165	114	30	44	36	1	0,80	
	10	E9343 5801 10120	120	18	32	145	94	32	45	38	1	0,75	
	10	E9343 5801 10160	160	18	39	185	134	32	45	38	1	1,05	
	12	E9343 5801 12130	130	20	36	155	104	34	46	40	1	0,85	
	14	E9343 5801 14140	140	22	40	165	114	34	48	40	1	1,00	
	16	E9343 5801 16150	150	24	37	175	124	38	52	–	1	1,05	

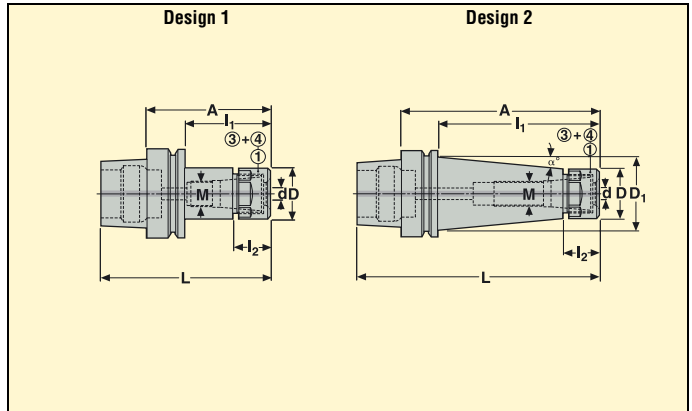
Please check availability in current price and stock-list.
For Shrinkfit extensions, see chapter Additional equipment.

Type 5872 - D type precision collet chucks

HSK-E



- Direct run-out 3 μm (5 μm with collet at 3xd) maximum.



Taper	Capacity d mm	Part No.	D type size	Dimensions in mm						M mm	Design	α°	Balancing	KG
				A	D	D ₁	L	I ₁	I ₂					
HSK-E25	1-10	E9340 5872 1645	D 16	45	27	—	58	35	23,3	—	1	—	1	0,15
HSK-E32	1-6	E9341 5872 1050	D 10	50	15,7	—	66	30	18	M5	1	—	1	0,15
	1-6	E9341 5872 1090	D 10	90	15,7	25	106	70	18	M6	2	5	1	0,25
	1-10	E9341 5872 1660	D 16	60	27	—	76	40	23,3	M5	1	—	1	0,25
	1-10	E9341 5872 16110	D 16	110	27	—	126	90	23,3	M8	1	—	1	0,45
HSK-E40	1-6	E9342 5872 1050	D 10	50	15,7	—	70	30	18	M6	1	—	1	0,25
	1-6	E9342 5872 1090	D 10	90	15,7	25	110	70	18	M6	2	5	1	0,35
	1-10	E9342 5872 1660	D 16	60	27	—	80	40	23,3	M6	1	—	1	0,35
	1-10	E9342 5872 16120	D 16	120	27	34	140	100	23,3	M8	2	3	1	0,70
	2-16	E9342 5872 2470	D 24	70	36	—	90	50	26,3	M6	1	—	1	0,45
HSK-E50	1-6	E9343 5872 1060	D 10	60	15,7	—	85	34	18	M6	1	—	1	0,50
	1-6	E9343 5872 10100	D 10	100	15,7	25,5	125	74	18	M6	2	5	1	0,60
	1-10	E9343 5872 1660	D 16	60	27	—	85	34	23,3	M8	1	—	1	0,55
	1-10	E9343 5872 16120	D 16	120	27	39,5	145	94	23,3	M8	2	5	1	1,00
	2-16	E9343 5872 2470	D 24	70	36	—	95	44	26,3	M8	1	—	1	0,65
	2-16	E9343 5872 24130	D 24	130	36	41,5	155	104	26,3	M18x1,5	2	2	1	1,15

For D type collets (10° taper), see chapter Additional equipment.

Accessories

For D type size	Compression ring	Stop end screw	Sealing nut (4)			Sealing ring (3)	Nut (1)			
			S	L ₁	S		L ₁	S		
D 10	03D587210A	19B5870610	2	08B587210BE	20	14	01B587210..*	08B587210	14	14
D 16	03D587216A	19B5870812	3	08B587216BE	25	24	01B587216..*	08B587216	19	24
D 24	03D587224A	19B58718	3	08B587224BE	28	32	01B587224..*	08B587224	22	32

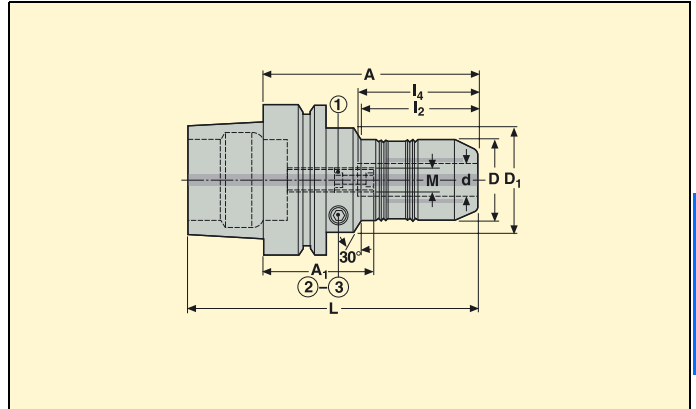
Please check availability in current price and stock-list.
* For D type sealing rings Part No., see chapter Additional equipment.

Type 5834 - Hydraulic chucks

HSK-E



- Run-out 3 μm maximum at 3xd.



Taper	d mm	Part No.	Dimensions in mm							M mm	Balancing	KG
			A	D	D ₁	L	l ₂	l ₄	A ₁ min-max			
HSK-E40	12	E9342 5834 1280	80	32	34	100	40	47	33-43	M10	1	0,71
	20	E9343 5834 2090	90	42	55	115	28	52	38-48	M10	1	1,65
HSK-E50	12	E9343 5834 1285	85	32	42	110	40	47	38-48	M10	1	0,90
	20	E9343 5834 2090	90	42	55	115	28	52	38-48	M10	1	1,65

For reduction sleeves and control gauges, see chapter Additional equipment.

Accessories

For d ₁	Key for pressurizing (3)	
	S ₂	S ₂
12	H04-4	4
20	H04-4	4

Spare parts

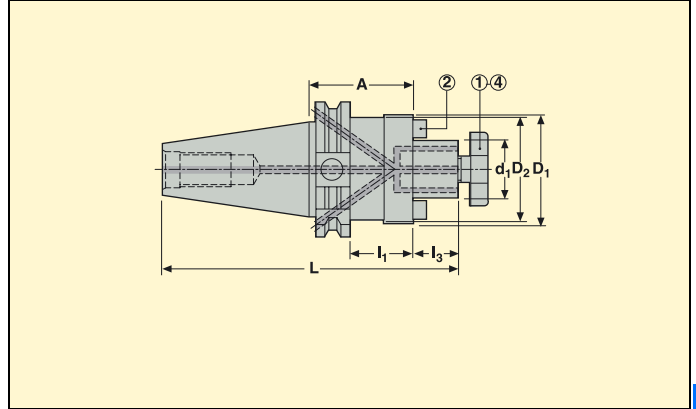
Stop end screw (1)			Pressurizing screw (2)	
S ₁	∅	S ₁	S ₂	S ₂
19LS1020A	5	5	950AF0810008	4
19LS1020A	5	5	950AF1010010	4

Please check availability in current price and stock-list.





- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.



Page 1 of 2		Part No.	Dimensions in mm						Balancing	KG	
Taper	d ₁ mm		A	D ₁	D ₂	L	I ₁	I ₃			
DIN40 ADB	16	E3469 5525 1635	35	38	38	120,4	16	17	2	1,00	
	16	E3469 5525 16100	100	38	38	185,4	81	17	2	2,56	
	22	E3469 5525 2235	35	48	48	122,4	16	19	2	1,05	
	22	E3469 5525 22100	100	48	48	187,4	81	19	2	2,18	
	27	E3469 5525 2745	45	60*	50	134,4	26	21	2	1,60	
	27	E3469 5525 27100	100	60	50	189,4	81	21	2	3,55	
	32	E3469 5525 3250	50	78	50	142,4	31	24	2	1,75	
	40	E3469 5525 4050	50	89	50	145,4	31	27	2	2,05	
	27	E3469 5524 2735	35	48*	48	124,4	15,9	21	2	1,13	

d₁ 40, includes 4 threaded holes on the bearing face according to DIN 6357.

* Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

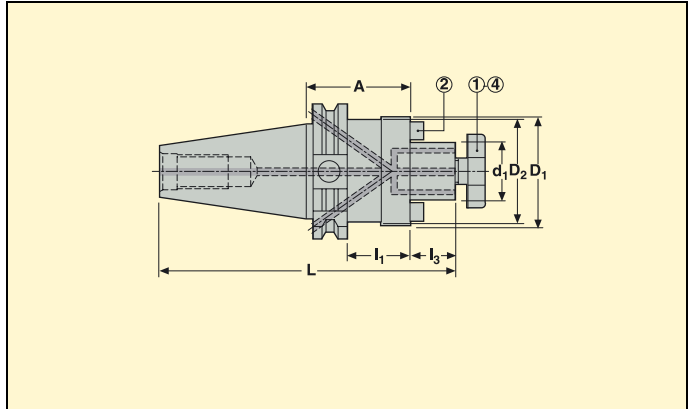
Spare parts

For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	951D0416
27/35/5525	5812712	5802712L	5802712	16C127	951D0512
27100/5525	5812712	5802712L	5802712	16C11214243	951D0516
27/5524	5812712	5802712L	5802712	16C127	951D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

Please check availability in current price and stock-list.

Type 5525/5524 - Shell mill holders, with through coolant channels

DIN 69871-ADB



- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.

Page 2 of 2		Part No.	Dimensions in mm						Balancing	
Taper	d ₁ mm		A	D ₁	D ₂	L	I ₁	I ₃		
DIN50 ADB	16	E3471 5525 16100	100	38	38	218,7	81	17	2	3,80
	22	E3471 5525 2235	35	48	48	155,7	16	19	2	3,00
	22	E3471 5525 22100	100	48	48	220,7	81	19	2	4,75
	22	E3471 5525 22160	160	48	48	280,7	141	19	2	5,15
	27	E3471 5525 2740	40	60*	60	162,7	21	21	2	3,20
	27	E3471 5525 27100	100	60	60	222,7	81	21	2	5,10
	27	E3471 5525 27160	160	60	60	282,7	141	21	2	6,10
	32	E3471 5525 3250	50	78	78	175,7	31	24	2	4,00
	32	E3471 5525 32100	100	78	78	225,7	81	24	2	6,40
	32	E3471 5525 32160	160	78	78	285,7	141	24	2	8,40
	40	E3471 5525 4050	50	89	80	178,7	31	27	2	4,10
	40	E3471 5525 40100	100	89	80	228,7	81	27	2	6,60
	40	E3471 5525 40160	160	89	80	288,7	141	27	2	8,70
	27	E3471 5524 2740	40	48*	48	162,7	20,9	21	2	3,08

d₁ 40, includes 4 threaded holes on the bearing face according to DIN 6357.

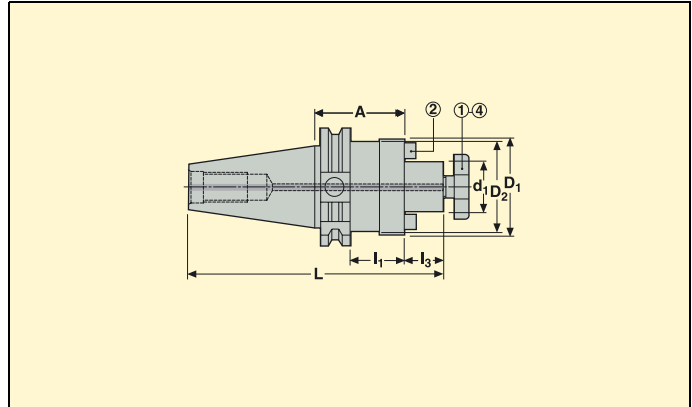
* Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

Spare parts

For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	950D0416
27/5525	5812712	5802712L	5802712	16C11214243	951D0512
27/5524	5812712	5802712L	5802712	16C127	951D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

Please check availability in current price and stock-list.



- Direct run-out 5 μm maximum.
- Small front face diameter D_1 according to ISO 3937.

Taper	d_1 mm	Part No.	Dimensions in mm						Balancing	KG
			A	D_1	D_2	L	I_1	I_3		
DIN40 AD	16	E4469 552 1644	44	32	32	129,4	25	17	2	1,05
	22	E4469 552 2244	44	40	40	131,4	25	19	2	1,15
	27	E4469 552 2744	44	48	48	133,4	25	21	2	1,30
	32	E4469 552 3260	60	58	50	152,4	41	24	2	1,80
	40	E4469 552 4060	60	70	50	155,4	41	27	2	2,15
DIN50 AD	22	E4471 552 2244	44	40	40	164,7	25	19	2	3,05
	27	E4471 552 2744	44	48	48	166,7	25	21	2	3,15
	32	E4471 552 3244	44	58	58	169,7	25	24	2	3,40
	40	E4471 552 4044	44	70	70	172,7	25	27	2	3,75
	50	E4471 5521 5050	50	120*	80	181,7	31	30	2	4,20

* DIN50 AD with d_1 50 is type 5521 (large bearing face) instead type 552 (small bearing face).

Accessories

For d_1	Spanner for bolt	Bolt, through coolant type (4)
16	5811608	5801608L
22	5812210	5802210L
27	5812712	5802712L
32	5813216	5803216L
40	5814020	5804020L
50	5815024	5805024L

Spare parts

Bolt (1)	Tenon/ Screw (2)
5801608	16C116
5802210	16C122
5802712	16C127
5803216	16C132
5804020	16C140
5805024	16C2181831

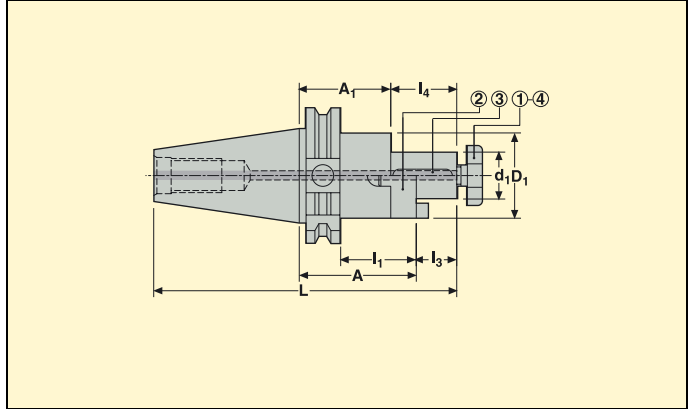
Please check availability in current price and stock-list.

Type 553 - Combi shell mill holders - DIN 6358

DIN 69871-AD



- Direct run-out 5 μm maximum.
- With removable driving ring.



Taper	d ₁ mm	Part No.	Dimensions in mm							Balancing	
			A	D ₁	L	I ₁	I ₃	I ₄	A ₁		
DIN40 AD	16	E4469 553 1655	55	32	140,4	36	17	27	45	-	1,10
	22	E4469 553 2255	55	40	142,4	36	19	31	43	-	1,25
	27	E4469 553 2755	55	48	144,4	36	21	33	43	-	1,45
	32	E4469 553 3260	60	58	152,4	41	24	38	46	-	1,75
	40	E4469 553 4060	60	70	155,4	41	27	41	46	-	1,85
DIN50 AD	16	E4471 553 1655	55	32	173,7	36	17	27	45	-	2,95
	22	E4471 553 2255	55	40	175,7	36	19	31	43	-	3,10
	27	E4471 553 2755	55	48	177,7	36	21	33	43	-	3,30
	32	E4471 553 3255	55	58	180,7	36	24	38	41	-	3,60
	40	E4471 553 4055	55	70	183,7	36	27	41	41	-	4,05
	50	E4471 553 5070	70	90	201,7	51	30	46	54	-	5,60

Accessories

For d ₁	Spanner for bolt	Bolt, through coolant type (4)
16	5811608	5801608L
22	5812210	5802210L
27	5812712	5802712L
32	5813216	5803216L
40	5814020	5804020L
50	5815024	5805024L

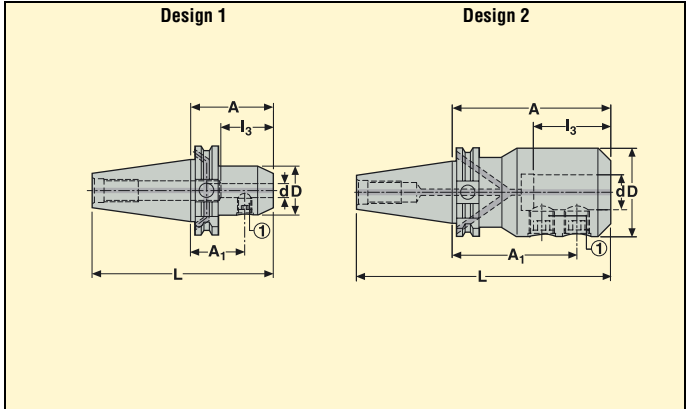
Spare parts

Bolt (1)	Driving ring (2)	Flat key (3)
5801608	58316	04C216
5802210	58322	04C222
5802712	58327	04C227
5803216	58332	04C232
5804020	58340	04C240
5805024	58350	04C250

Please check availability in current price and stock-list.

Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

DIN 69871-ADB



- Direct run-out 3 μm maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).

Page 1 of 3		Part No.	Dimensions in mm					Design	Balancing	KG
Taper	d mm		A	D	L	I ₃	A ₁			
DIN40 ADB	6	E3469 584 0650	50	25	118,4	30	32,5	1	2	0,90
	6	E3469 584 06120	120	25	188,4	30	102,5	1	2	1,20
	8	E3469 584 0850	50	28	118,4	30	32,5	1	2	0,95
	8	E3469 584 08120	120	28	188,4	20	102,5	1	2	1,30
	10	E3469 584 1050	50	35	118,4	39	30,5	1	2	1,00
	10	E3469 584 10120	120	35	188,4	39	100,5	1	2	1,55
	12	E3469 584 1250	50	42	118,4	44	28	1	2	1,15
	12	E3469 584 12120	120	42	188,4	44	98	1	2	1,90
	14	E3469 584 1450	50	44	118,4	44	28	1	2	1,15
	16	E3469 584 1663	63	48	131,4	47	39,5	1	2	1,30
	16	E3469 584 16120	120	48	188,4	47	96,5	1	2	2,10
	18	E3469 584 1863	63	50	131,4	47	39,5	1	2	1,30
	20	E3469 584 2063	63	52	131,4	49	38,5	1	2	1,35
	20	E3469 584 20120	120	52	188,4	49	95,5	1	2	2,30
	25	E3469 584 25100	100	63	168,4	54	76,5	2	2	2,25
	32	E3469 584 32100	100	72	168,4	58	76,5	2	2	2,60

Spare parts

For d	Locking screw (1)		
		Qty	S
6	951C0610	1	3
8	951C0810	1	4
10	951C1012	1	5
12-14	951C1216	1	6
16-18	951C1416	1	6
20	951C1616	1	8
25	951C1820	2	10
32	951C2020	2	10

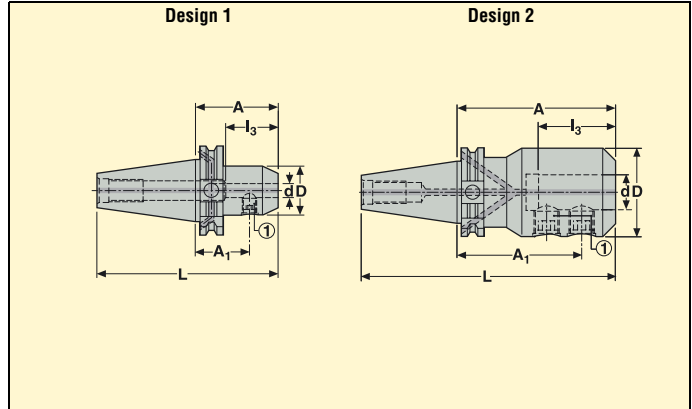
Please check availability in current price and stock-list.

Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

DIN 69871-ADB



- Direct run-out 3 μm maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Page 2 of 3		Dimensions in mm						Design	Balancing	
Taper	d mm	Part No.	A	D	L	I ₃	A ₁			
DIN50 ADB	6	E3471 584 0663	63	25	164,7	30	45,5	1	2	2,71
	6	E3471 584 06120	120	25	221,75	30	102,5	1	2	2,95
	6	E3471 584 06160	160	25	261,75	30	142,5	1	2	3,10
	8	E3471 584 0863	63	28	164,7	30	45,5	1	2	2,75
	8	E3471 584 08120	120	28	221,75	30	102,5	1	2	3,05
	8	E3471 584 08160	160	28	261,75	30	142,5	1	2	3,20
	10	E3471 584 1063	63	35	164,7	39	43,5	1	2	2,85
	10	E3471 584 10120	120	35	221,75	39	100,5	1	2	3,30
	10	E3471 584 10160	160	35	261,75	39	140,5	1	2	3,60
	12	E3471 584 1263	63	42	164,7	44	41	1	2	2,95
	12	E3471 584 12120	120	42	221,75	44	98	1	2	3,55
	12	E3471 584 12160	160	42	261,75	44	138	1	2	4,00
	14	E3471 584 1463	63	44	164,7	44	41	1	2	2,95
	16	E3471 584 1663	63	48	164,7	47	39,5	1	2	3,00
	16	E3471 584 16120	120	48	221,75	47	96,5	1	2	3,80
	16	E3471 584 16160	160	48	261,75	47	136,5	1	2	4,40
	18	E3471 584 1863	63	50	164,7	47	39,5	1	2	3,00

Spare parts

For d	Locking screw (1)	
	Qty	S
6	951C0610	3
8	951C0810	4
10	951C1012	5
12-14	951C1216	6
16-18	951C1416	6

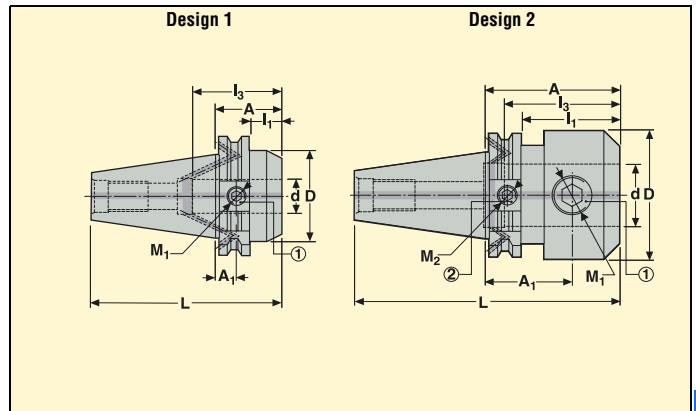
Please check availability in current price and stock-list.

Type 5842 - Side lock holders, Weldon short

DIN 69871-ADB



- Direct run-out 5 μ m maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Taper	d mm	Part No.	Dimensions in mm						M ₁ mm	M ₂ mm	Design	Balancing	
			A	D	L	I ₁	I ₃	A ₁					
DIN40 ADB	16	E3469 5842 1635	35	48	103,4	15,9	47	11,5	M14	–	1	2	0,95
	20	E3469 5842 2035	35	50	103,4	15,9	49	10,5	M16	–	1	2	1,00
	25	E3469 5842 2560	60	50	128,4	40,9	54	36,5	M18x2	–	2	2	1,60
	32	E3469 5842 3275	75	72	143,4	55,9	58	51,5	M20x2	M14	2	2	1,70
DIN50 ADB/ CAT50	32	E3478 5842 3260	60	72	161,7	40,9	58	36,0	M20x2	M14	2	2	3,50

Spare parts

For d	Locking screw (1)			Locking screw, reduced (2)		
	Qty	S		Qty	S	
16	951C1416	1	6	–	–	–
20	951C1616	1	8	–	–	–
25	951C1814	1	10	–	–	–
32/E3469	951C2020	1	10	950A1410	1	6
32/E3478	951C2020	1	10	950A1416	1	6

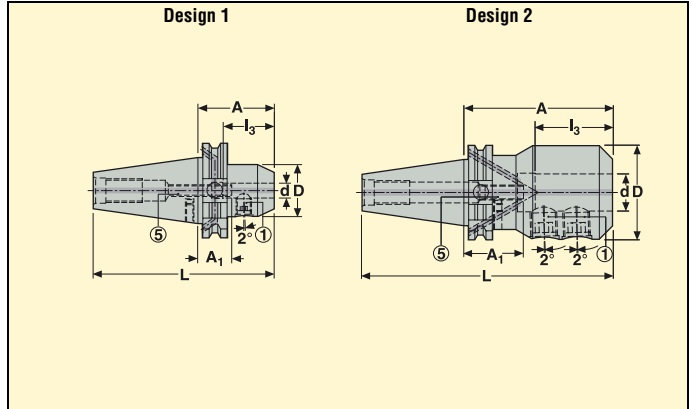
Please check availability in current price and stock-list.

Type 5843 - Side lock holders, Whistle Notch - DIN 1835 Form E/ DIN 6535 Form HE

DIN 69871-ADB



- Direct run-out 3 μm maximum.
- Whistle Notch d 16, 20, 25 and 32 with ground face.



Taper	d mm	Part No.	Dimensions in mm					Design	Balancing	KG
			A	D	L	I ₃	A ₁ min-max			
DIN40 ADB	6	E3469 5843 0650	50	25	118,4	30	10-20	1	2	0,90
	8	E3469 5843 0850	50	28	118,4	30	10-20	1	2	0,95
	10	E3469 5843 1050	50	35	118,4	39	5-20	1	2	1,00
	12	E3469 5843 1250	50	42	118,4	44	-2-20	1	2	1,15
	14	E3469 5843 1450	50	44	118,4	44	-2-20	1	2	1,15
	16	E3469 5843 1663	63	48	131,4	47	8-18	1	2	1,30
	18	E3469 5843 1863	63	50	131,4	47	8-18	1	2	1,30
	20	E3469 5843 2063	63	52	131,4	49	6-16	1	2	1,35
	25	E3469 5843 25100	100	63	168,4	54	36-46	2	2	2,25
	32	E3469 5843 32100	100	72	168,4	58	32-42	2	2	2,60
DIN50 ADB	6	E3471 5843 0663	63	25	164,7	30	23-33	1	2	2,71
	8	E3471 5843 0863	63	28	164,7	30	23-33	1	2	2,75
	10	E3471 5843 1063	63	35	164,7	39	18-33	1	2	2,85
	12	E3471 5843 1263	63	42	164,7	44	8-20	1	2	2,95
	14	E3471 5843 1463	63	44	164,7	44	8-20	1	2	2,95
	16	E3471 5843 1663	63	48	164,7	47	8-18	1	2	3,00
	18	E3471 5843 1863	63	50	164,7	47	8-18	1	2	3,00
	20	E3471 5843 2063	63	52	164,7	49	6-16	1	2	3,20
	25	E3471 5843 2580	80	65	181,7	54	16-26	2	2	3,80
	32	E3471 5843 32100	100	72	201,7	58	32-42	2	2	4,60

Spare parts

For d	Locking screw (1)			Stop end screw (5)		
		Qty	S		S	
6	951C0610	1	3	19TLR0830	4	
8	951C0810	1	4	19TLR1030	5	
10	951C1012	1	5	19TLR0830	4	
12-14	951C1216	1	6	19TLR1030	5	
16-18	951C1416	1	6	19TLR1030	5	
20	951C1616	1	8	19TLR1030	5	
25	951C1820	2	10	19TLR1030	5	
32	951C2020	2	10	19TLR1030	5	

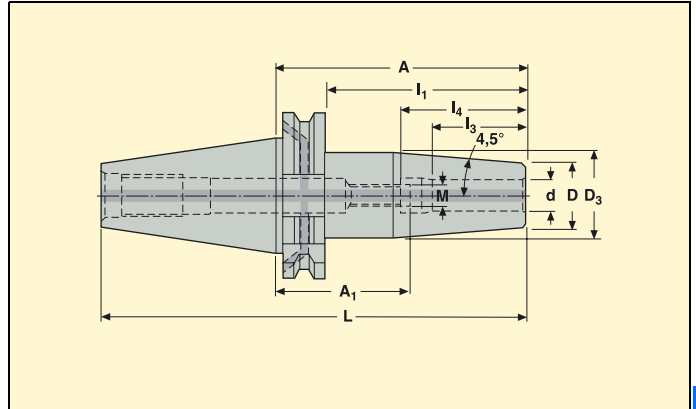
Please check availability in current price and stock-list.

Type 5803 - Shrinkfit holders, DIN type

DIN 69871-ADB



- Direct run-out 3 μm (3 μm at 3x ϕ) maximum.



Page 1 of 2		Dimensions in mm										Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max	M mm		
DIN40 ADB	6	E3469 5803 0680	80	21	27	148,4	60,9	26	36	54-54	M8	1	1,00
	6	E3469 5803 06120	120	21	27	188,4	100,9	26	36	94-94	M8	1	1,14
	6	E3469 5803 06160	160	21	27	228,4	140,9	26	36	134-134	M8	1	1,30
	8	E3469 5803 0880	80	21	27	148,4	60,9	26	36	54-54	M8	1	0,99
	8	E3469 5803 08120	120	21	27	188,4	100,9	26	36	94-94	M8	1	1,13
	8	E3469 5803 08160	160	21	27	228,4	140,9	26	36	134-134	M8	1	1,28
	10	E3469 5803 1080	80	24	32	148,4	60,9	31	41	39-49	M8	1	1,05
	10	E3469 5803 10120	120	24	32	188,4	100,9	31	41	79-89	M8	1	1,28
	10	E3469 5803 10160	160	24	32	228,4	140,9	31	41	119-129	M8	1	1,48
	12	E3469 5803 1280	80	24	32	148,4	60,9	34	47	33-43	M10	1	1,04
	12	E3469 5803 12120	120	24	32	188,4	100,9	34	47	73-83	M10	1	1,25
	12	E3469 5803 12160	160	24	32	228,4	140,9	34	47	113-123	M10	1	1,46
	14	E3469 5803 1480	80	27	34	148,4	60,9	34	47	33-43	M10	1	1,08
	14	E3469 5803 14120	120	27	34	188,4	100,9	34	47	73-83	M10	1	1,33
	16	E3469 5803 1680	80	27	34	148,4	60,9	38	50	30-40	M10	1	1,08
	16	E3469 5803 16120	120	27	34	188,4	100,9	38	50	70-80	M10	1	1,31
	16	E3469 5803 16160	160	27	34	228,4	140,9	38	50	110-120	M10	1	1,55
	18	E3469 5803 1880	80	33	42	148,4	60,9	38	50	30-40	M10	1	1,21
	18	E3469 5803 18120	120	33	42	188,4	100,9	38	50	70-80	M10	1	1,60
	20	E3469 5803 2080	80	33	42	148,4	60,9	42	52	28-38	M10	1	1,18
20	E3469 5803 20120	120	33	42	188,4	100,9	42	52	68-78	M10	1	1,58	

For Shrinkfit extensions, see chapter Additional equipment.

Accessories

Stop end screw			
For d		S ₁	∅
6-10	19LS0820T	3	3
12-20	19LS1020A	5	5

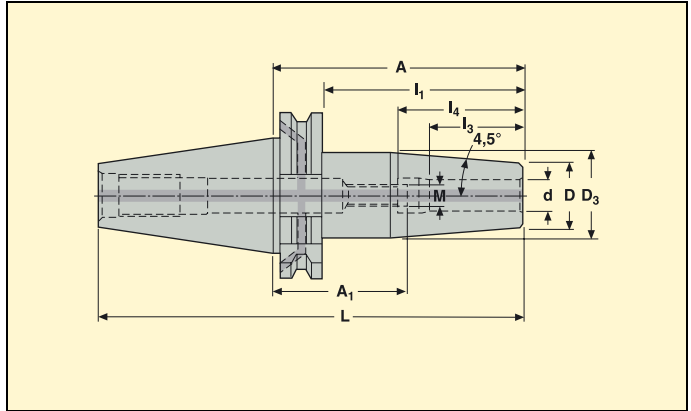
Please check availability in current price and stock-list.
For stop screws setting adapters, see chapter Shrinkfit devices.

Type 5803 - Shrinkfit holders, DIN type

DIN 69871-ADB



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 2 of 2		Dimensions in mm											M mm	Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max					
DIN40 ADB	20	E3469 5803 20160	160	33	42	228,4	140,9	42	52	108-118	M10	1	1,97		
	25	E3469 5803 25100	100	44	53	168,4	80,9	44	58	42-52	M10	1	1,64		
DIN50 ADB	6	E3471 5803 06100	100	21	27	201,8	80,9	26	36	64-74	M8	1	2,89		
	6	E3471 5803 06160	160	21	27	201,8	140,9	26	36	124-134	M8	1	3,09		
	8	E3471 5803 08100	100	21	27	201,8	80,9	26	36	64-74	M8	1	2,88		
	8	E3471 5803 08160	160	21	27	261,8	140,9	26	36	124-134	M8	1	3,09		
	10	E3471 5803 10100	100	24	32	201,8	80,9	31	41	59-69	M8	1	2,98		
	10	E3471 5803 10160	160	24	32	261,8	140,9	31	41	119-129	M8	1	3,19		
	12	E3471 5803 12100	100	24	32	201,8	80,9	34	47	53-63	M10	1	2,96		
	12	E3471 5803 12160	160	24	32	261,8	140,9	34	47	113-123	M10	1	3,28		
	14	E3471 5803 14100	100	27	34	201,8	80,9	34	47	53-63	M10	1	3,02		
	16	E3471 5803 16100	100	27	34	201,8	90,9	38	50	50-60	M10	1	3,00		
	16	E3471 5803 16160	160	27	34	261,8	140,9	38	50	110-120	M10	1	3,37		
	18	E3471 5803 18100	100	33	42	201,8	80,9	38	50	50-60	M10	1	3,28		
	20	E3471 5803 20100	100	33	42	201,8	80,9	42	52	48-58	M10	1	3,20		
	20	E3471 5803 20160	160	33	42	261,8	140,9	42	52	108-118	M10	1	3,79		
	25	E3471 5803 25100	100	44	53	201,8	80,9	44	58	42-52	M10	1	3,60		
	25	E3471 5803 25160	160	44	53	261,8	140,9	44	58	102-112	M10	1	4,57		
32	E3471 5803 32110	110	44	53	211,8	90,9	52	62	48-58	M10	1	3,60			

For Shrinkfit extensions, see chapter Additional equipment.

Accessories

Stop end screw			
For d		S ₁	∅
6-10	19LS0820T	3	3
12-32	19LS1020A	5	5

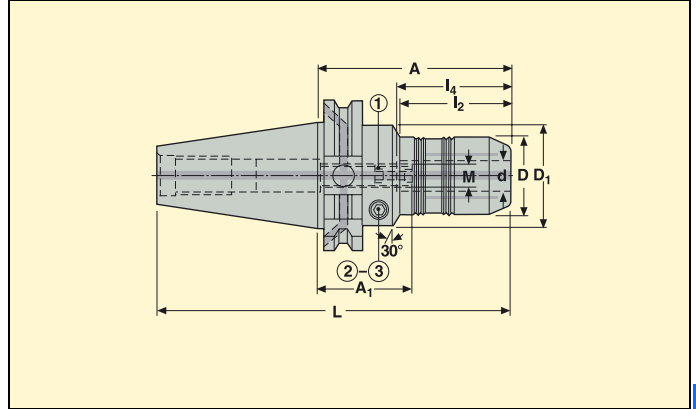
Please check availability in current price and stock-list.
For stop screws setting adapters, see chapter Shrinkfit devices.

Type 5834 - Hydraulic chucks

DIN 69871-ADB



- Run-out 3 μm maximum at 3xd.



Taper	d mm	Part No.	Dimensions in mm							M mm	Balancing	KG
			A	D	D ₁	L	l ₂	l ₄	A ₁ min-max			
DIN40 ADB	6	E3469 5834 0680	80	26	50	148,4	23	38	42-52	M5	1	1,40
	8	E3469 5834 0880	80	28	50	148,4	24	38	42-52	M5	1	1,40
	10	E3469 5834 1080	80	30	50	148,4	34	42	38-48	M8	1	1,30
	12	E3469 5834 1280	80	32	50	148,4	40	47	33-43	M10	1	1,30
	14	E3469 5834 1480	80	34	50	148,4	40	47	33-43	M10	1	1,30
	16	E3469 5834 1680	80	38	50	148,4	46	50	30-40	M10	1	1,40
	18	E3469 5834 1880	80	40	50	148,4	48	50	30-40	M10	1	1,40
DIN50 ADB	20	E3469 5834 2080	80	42	50	148,4	47	52	28-38	M10	1	1,40
	12	E3471 5834 1280	80	32	50	181,8	40	47	33-43	M10	1	5,00
	20	E3471 5834 2080	80	42	50	181,8	47	52	28-38	M10	1	5,40
	32	E3471 5834 3290	90	64	70	191,8	50	63	27-37	M10	1	5,70

For reduction sleeves and test bars, see chapter Additional equipment.

Accessories

For d ₁	Key for pressurizing (3)	
	S ₂	S ₂
6-8	H04-4	4
10	H04-4	4
12	H04-4	4
14-32	H04-4	4

Spare parts

Stop end screw (1)			Pressurizing screw (2)	
S ₁	∅	S ₁	S ₂	S ₂
19LS0520A	3	3	950AF0810008	4
19LS0820A	3	3	950AF0810008	4
19LS1020A	5	5	950AF0810008	4
19LS1020A	5	5	950AF1010010	4

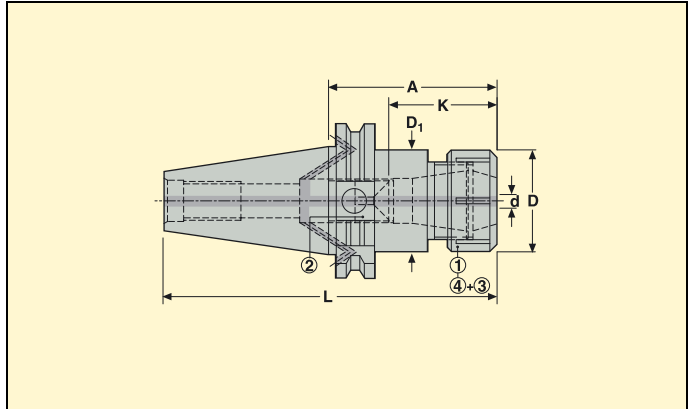
Please check availability in current price and stock-list.

Type 5875 - ER collet chucks - DIN 6499

DIN 69871-ADB



• Direct run-out 5 μm maximum.



Taper	Capacity d mm	Part No.	Size	Dimensions in mm					Balancing	KG
				A	D	D ₁	L	K min-max		
DIN40 ADB	0,5-10	E3469 5875 1670	ER 16	70	32	32	138,4	30-44	1	1,00
	0,5-10	E3469 5875 16120	ER 16	120	32	32	188,4	30-44	1	1,10
	1-16	E3469 5875 2570	ER 25	70	42	42	138,4	38-68	1	1,05
	1-16	E3469 5875 25120	ER 25	120	42	42	188,4	38-68	1	1,30
	2-20	E3469 5875 3270	ER 32	70	50	50	138,4	43-77	1	1,10
	2-20	E3469 5875 32120	ER 32	120	50	50	188,4	43-77	1	1,35
	3-26	E4469 5875 4070	ER 40*	70	63	50	138,4	50-69	1	1,25
DIN50 ADB	0,5-10	E3471 5875 1670	ER 16	70	32	32	171,7	30-44	2	3,05
	0,5-10	E3471 5875 16120	ER 16	120	32	32	221,7	30-44	2	3,15
	1-16	E3471 5875 2590	ER 25	90	42	42	191,7	38-69	2	3,15
	2-20	E3471 5875 3290	ER 32	90	50	50	191,7	43-117	2	3,20
	2-20	E3471 5875 32150	ER 32	150	50	50	251,7	43-121	2	3,60
	3-26	E3471 5875 40100	ER 40	100	63	63	201,7	50-81	2	3,55

For ER collets (16° taper, standard and precision types) and ER extensions, see chapter Additional equipment.

* Chuck ER40/A70 is type AD (E4469) without flange coolant through, instead type ADB (E3469).

Accessories

Spare parts

For Size	Spanner	Sealing nut (4)	Sealing ring (3)	Nut (1)	Stop end screw (2)			
		L ₁		L ₁	S			
ER 16	03B587516	08B587516IC	22,5	01B587516..*	08B587516X	18	19B58708R10	3/4
ER 25	03B587525	08B587525IC	25	01B587525..*	08B587525X	21	19B58718	3
ER 32	03B587532	08B587532IC	27,5	01B587532..*	08B587532X	23	19B58722	3
ER 40	03B587540	08B587540IC	30,5	01B587540..*	08B587540X	26	19B58730	3

Please check availability in current price and stock-list.

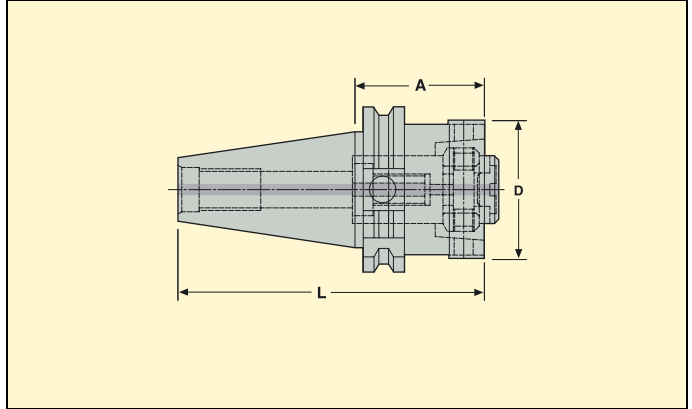
* For ER sealing rings Part No., see chapter Additional equipment.

Type 5095 - Taper adapters HSK

DIN 69871-AD



- Direct run-out 5 µm maximum.



Taper	For HSK-A/C	Part No.	Dimensions in mm			Equipped with TF unit ref.	Balancing	KG
			A	D	L			
DIN40 AD	63	E4469 5095 6375	75	70	143,4	24H509563	2	2,00
	100	E4471 5095 10100	100	110	201,7	24H509510	2	6,00
DIN50 AD	63	E4471 5095 6340	40	70	141,7	24H509563	2	2,80
	100	E4471 5095 10100	100	110	201,7	24H509510	2	6,00

Accessories

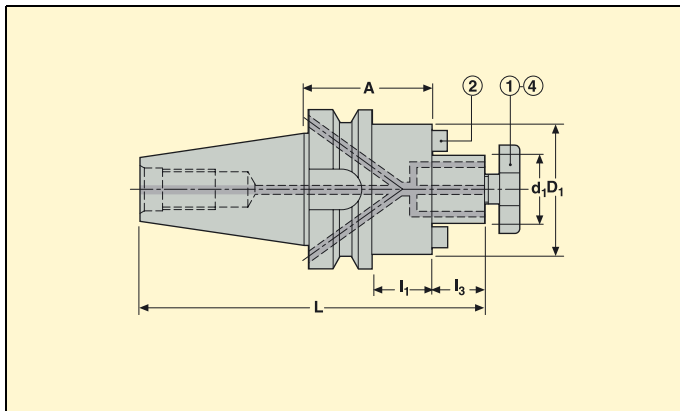
		Locking key	
For HSK			
			S
63	H05-4		5
100	03HL08		8

Please check availability in current price and stock-list.





- Direct run-out 5 μ m maximum.
- With coolant supply channels through the spigot.



Page 1 of 2		Dimensions in mm						Balancing	
Taper	d ₁ mm	Part No.	A	D ₁	L	I ₁	I ₃		
BT40 ADB	16	E3414 5525 1645	45	38	127,4	18	17	2	1,00
	16	E3414 5525 16100	100	38	182,4	73	17	2	1,50
	22	E3414 5525 2245	45	48	129,4	18	19	2	1,15
	22	E3414 5525 22100	100	48	184,4	73	19	2	2,00
	27	E3414 5525 2745	45	60*	131,4	18	21	2	1,35
	27	E3414 5525 27100	100	60	186,4	73	21	2	2,55
	32	E3414 5525 3250	50	78	139,4	23	24	2	1,60
	40	E3414 5525 4050	50	89	142,4	23	27	2	2,10
	27	E3414 5524 2745	45	48*	131,4	18	21	2	1,30

d₁ 40, includes 4 threaded holes on the bearing face according to DIN 6357.

* Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

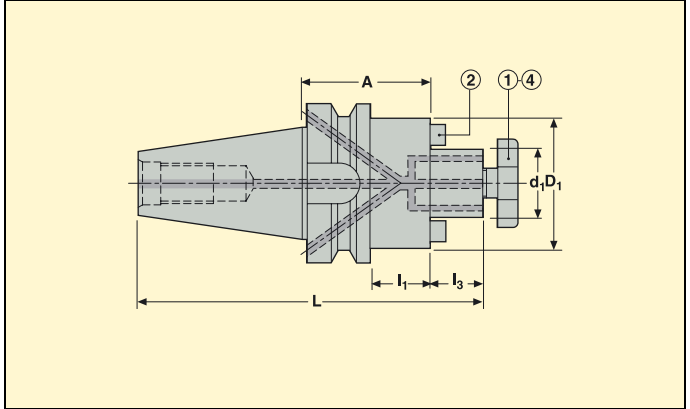
Spare parts

For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	950D0416
27/5525	5812712	5802712L	5802712	16C11214243	951D0512
27/5524	5812712	5802712L	5802712	16C127	951D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

Please check availability in current price and stock-list.

Type 5525/5524 - Shell mill holders, with through coolant channels

BT JIS B 6339-ADB



- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.

Page 2 of 2		Dimensions in mm						Balancing	
Taper	d_1	Part No.	A	D_1	L	l_1	l_3		
BT50 ADB	16	E3416 5525 16100	100	38	218,8	62	17	2	3,80
	22	E3416 5525 22100	100	48	220,8	62	19	2	4,70
	22	E3416 5525 22160	160	48	280,8	122	19	2	5,10
	22	E3416 5525 2255	55	48	175,8	17	19	2	3,95
	27	E3416 5525 2755	55	60*	177,8	17	21	2	4,15
	27	E3416 5525 27100	100	60	222,8	62	21	2	5,30
	27	E3416 5525 27160	160	60	282,8	122	21	2	6,30
	32	E3416 5525 32100	100	78	225,8	62	24	2	6,80
	32	E3416 5525 32160	160	78	285,8	122	24	2	8,80
	32	E3416 5525 3255	55	78	180,8	17	24	2	4,40
	40	E3416 5525 40100	100	89	228,8	62	27	2	7,10
	40	E3416 5525 40160	160	89	288,8	122	27	2	9,10
	40	E3416 5525 4055	55	89	183,8	17	27	2	4,70
	27	E3416 5524 2755	55	48*	131,4	28	21	2	4,05

d_1 40, includes 4 threaded holes on the bearing face according to DIN 6357.

* Diameter D_1 on type 5524 is smaller than on type 5525.

Accessories

Spare parts

For d_1	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608L	5801608	16C10810164	950D0312
22	5812210	5802210L	5802210	16C11012206	950D0416
27/5525	5812712	5802712L	5802712	16C11214243	951D0512
27/5524	5812712	5802712L	5802712	16C127	951D0512
32	5813216	5803216L	5803216	16C2141421	951D0516
40	5814020	5804020L	5804020	16C2161621	951D0616

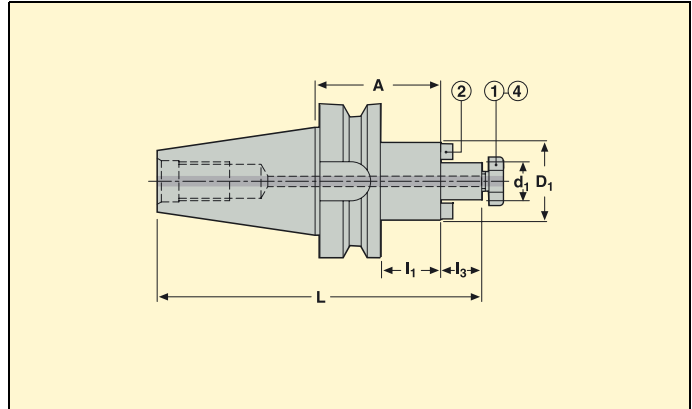
Please check availability in current price and stock-list.

Type 552 - Shell mill holders, small face - ISO 3937

BT JIS B 6339-AD



- Direct run-out 5 μm maximum.
- Small front face diameter D_1 according to ISO 3937.



Taper	d_1 mm	Part No.	Dimensions in mm					Balancing	KG
			A	D_1	L	I_1	I_3		
BT30 AD	16	E4040 552 1640	40	32	105,4	18	17	2	0,50
	22	E4040 552 2240	40	40	107,4	18	19	2	0,60
	27	E4040 552 2740	40	48	109,4	18	21	2	0,75
BT40 AD	16	E4041 552 1652	52	32	134,4	25	17	2	1,10
	22	E4041 552 2252	52	40	136,4	25	19	2	1,20
	27	E4041 552 2752	52	48	138,4	25	21	2	1,40
	32	E4041 552 3252	52	58	141,4	25	24	2	1,60
	40	E4041 552 4060	60	70	152,4	33	27	2	2,20
BT50 AD	22	E5766 552 2263	63	40	183,8	25	19	2	3,95
	27	E5766 552 2763	63	48	185,8	25	21	2	4,15
	32	E5766 552 3263	63	58	188,8	25	24	2	4,40
	40	E5766 552 4063	63	70	191,8	25	27	2	4,70
	50	E5766 5521 5060	60	120*	191,8	22	30	2	5,45

* BT50 AD with d_1 50 is type 5521 (large bearing face) instead type 552 (small bearing face).

Accessories

For d_1	Spanner for bolt	Bolt, through coolant type (4)
16	5811608	5801608L
22	5812210	5802210L
27	5812712	5802712L
32	5813216	5803216L
40	5814020	5804020L
50	5815024	5805024L

Spare parts

Bolt (1)	Tenon/ Screw (2)
5801608	16C116
5802210	16C122
5802712	16C127
5803216	16C132
5804020	16C140
5805024	16C2181831

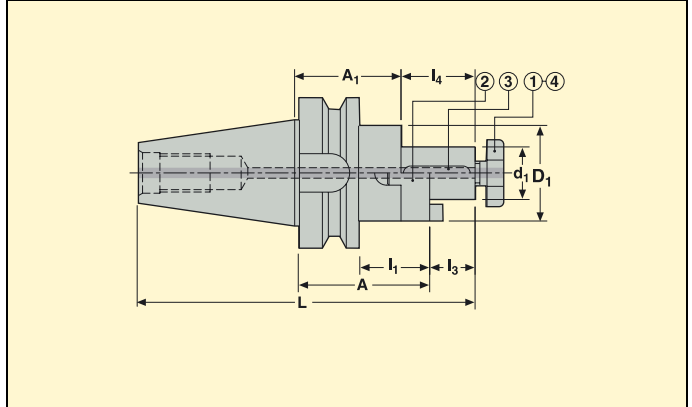
Please check availability in current price and stock-list.

Type 553 - Combi shell mill holders - DIN 6358

BT JIS B 6339-AD



- Direct run-out 5 μm maximum.
- With removable driving ring.



Taper	d ₁ mm	Part No.	Dimensions in mm							Balancing	
			A	D ₁	L	I ₁	I ₃	I ₄	A ₁		
BT40 AD	16	E4041 553 1655	55	32	137,4	28	17	27	45	-	1,10
	22	E4041 553 2255	55	40	139,4	28	19	31	43	-	1,25
	27	E4041 553 2755	55	48	141,4	28	21	33	43	-	1,45
	32	E4041 553 3260	60	58	149,4	33	24	38	46	-	1,75
	40	E4041 553 4060	60	70	152,4	33	27	41	46	-	2,05
BT50 AD	16	E5766 553 1670	70	32	188,8	32	17	27	60	-	3,80
	22	E5766 553 2270	70	40	190,8	32	19	31	58	-	4,00
	27	E5766 553 2770	70	48	192,8	32	21	33	58	-	4,20
	32	E5766 553 3270	70	58	195,8	32	24	38	56	-	4,55
	40	E5766 553 4070	70	70	198,8	32	27	41	56	-	4,90
	50	E5766 553 5070	70	90	201,8	32	30	46	54	-	5,70

Accessories

For d ₁	Spanner for bolt	Bolt, through coolant type (4)
16	5811608	5801608L
22	5812210	5802210L
27	5812712	5802712L
32	5813216	5803216L
40	5814020	5804020L
50	5815024	5805024L

Spare parts

Bolt (1)	Driving ring (2)	Flat key (3)
5801608	58316	04C216
5802210	58322	04C222
5802712	58327	04C227
5803216	58332	04C232
5804020	58340	04C240
5805024	58350	04C250

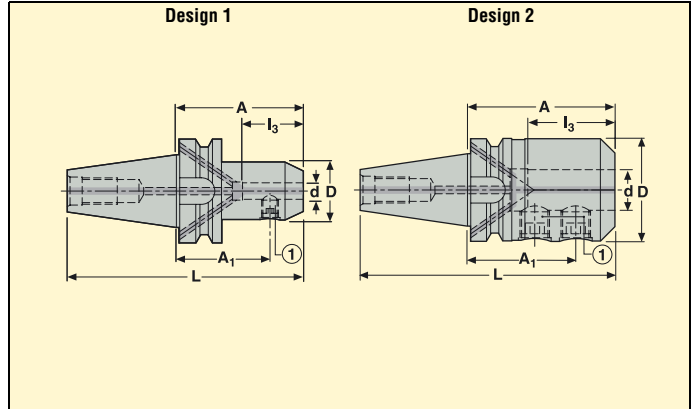
Please check availability in current price and stock-list.

Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

BT JIS B 6339-ADB



- Direct run-out 3 μm maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Page 2 of 5		Part No.	Dimensions in mm					Design	Balancing	
Taper	d mm		A	D	L	I ₃	A ₁			
BT40 ADB	6	E3414 584 0650	50	25	115,4	30	32,5	1	2	1,00
	6	E3414 584 06120	120	25	185,4	30	102,5	1	2	2,30
	8	E3414 584 0850	50	28	115,4	30	32,5	1	2	1,05
	8	E3414 584 08120	120	28	185,4	30	102,5	1	2	2,35
	10	E3414 584 1063	63	35	128,4	39	43,5	1	2	1,10
	10	E3414 584 10120	120	35	185,4	39	100,5	1	2	2,40
	12	E3414 584 1263	63	42	128,4	44	41	1	2	1,15
	12	E3414 584 12120	120	42	185,4	44	98	1	2	2,45
	14	E3414 584 1463	63	44	128,4	44	41	1	2	1,15
	16	E3414 584 1663	63	48	128,4	47	39,5	1	2	1,25
	16	E3414 584 16120	120	48	185,4	47	96,5	1	2	2,55
	18	E3414 584 1863	63	50	128,4	47	39,5	1	2	1,30
	20	E3414 584 2063	63	52	128,4	49	38,5	1	2	1,35
	20	E3414 584 20120	120	52	185,4	49	95,5	1	2	2,65
	25	E3414 584 2590	90	63	155,4	54	66,5	2	2	2,20
	32	E3414 584 32100	100	72	165,4	58	76,5	2	2	2,65

Spare parts

For d	Locking screw (1)		
		Qty	S
6	951C0610	1	3
8	951C0810	1	4
10	951C1012	1	5
12-14	951C1216	1	6
16-18	951C1416	1	6
20	951C1616	1	8
25	951C1820	2	10
32	951C2020	2	10

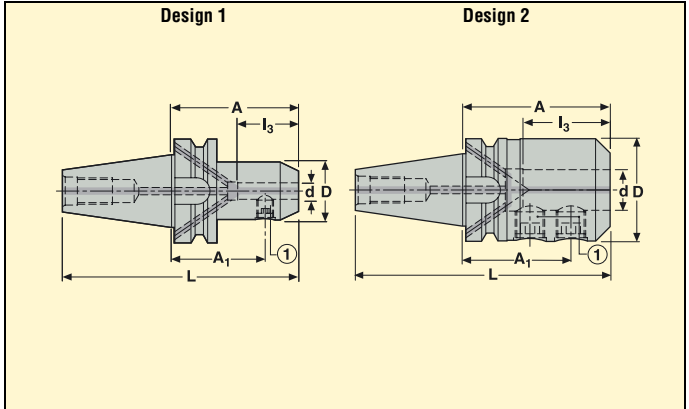
Please check availability in current price and stock-list.

EPB - Monobloc holders BT JIS



Type 584 - Side lock holders, Weldon - DIN 1835 Form B/ DIN 6535 Form HB

BT JIS B 6339-ADB



- Direct run-out 3 μm maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).

Page 3 of 5		Part No.	Dimensions in mm					Design	Balancing	KG
Taper	d mm		A	D	L	I ₃	A ₁			
BT50 ADB	6	E3416 584 0663	63	25	164,8	30	45,5	1	2	3,55
	6	E3416 584 06120	120	25	221,8	30	102,5	1	2	4,00
	6	E3416 584 06160	160	25	261,8	30	142,5	1	2	5,20
	8	E3416 584 0863	63	28	164,8	30	45,5	1	2	3,60
	8	E3416 584 08120	120	28	221,8	30	102,5	1	2	4,05
	8	E3416 584 08160	160	28	261,8	30	142,5	1	2	5,25
	10	E3416 584 1063	63	35	164,8	39	43,5	1	2	3,80
	10	E3416 584 10120	120	35	221,8	39	100,5	1	2	4,20
	10	E3416 584 10160	160	35	261,8	39	140,5	1	2	5,30
	12	E3416 584 1280	80	42	181,8	44	58	1	2	3,80
	12	E3416 584 12120	120	42	221,8	44	98	1	2	4,40
	12	E3416 584 12160	160	42	261,8	44	138	1	2	5,50
	14	E3416 584 1480	80	44	181,8	44	58	1	2	3,95
	16	E3416 584 1680	80	48	181,8	47	56,5	1	2	4,00
	16	E3416 584 16120	120	48	221,8	47	96,5	1	2	4,90
	16	E3416 584 16160	160	48	261,8	47	136,5	1	2	5,80
	18	E3416 584 1880	80	50	181,8	47	56,5	1	2	4,05

Spare parts

For d	Locking screw (1)		
	Part No.	Qty	S
6	951C0610	1	3
8	951C0810	1	4
10	951C1012	1	5
12-14	951C1216	1	6
16-18	951C1416	1	6

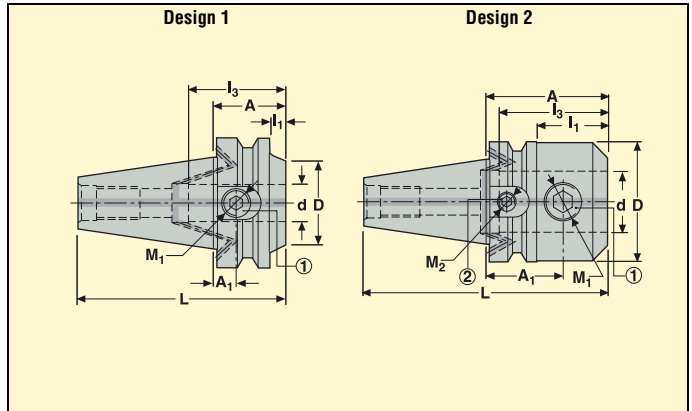
Please check availability in current price and stock-list.

Type 5842 - Side lock holders, Weldon short

BT JIS B 6339-ADB



- Direct run-out 5 μ m maximum.
- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Page 5 of 5		Dimensions in mm							M ₁ mm	M ₂ mm	Design	Balancing	KG
Taper	d mm	Part No.	A	D	L	I ₁	I ₃	A ₁					
BT40 ADB	16	E3414 5842 1635	35	48	100,4	8	47	11,5	M14	–	1	2	1,00
	20	E3414 5842 2035	35	50	100,4	8	49	10,5	M16	–	1	2	1,05
	25	E3414 5842 2560	60	62	125,4	33	54	36,5	M18x2	M14	2	2	1,65
	32	E3414 5842 3265	65	62	130,4	38	58	41,5	M20x2	M10	2	2	1,75
BT50 ADB	32	E3416 5842 3260	60	72	161,8	22	58	36	M20x2	M14	2	2	3,40

Spare parts

For d	Locking screw (1)			Locking screw, reduced (2)		
	Qty	S		Qty	S	
16	951C1416	1	6	–	–	–
20	951C1616	1	8	–	–	–
25	951C1820	1	10	950A1412	1	6
32/E3414	951C2014	1	10	950A1008	1	5
32/E3416	951C2020	1	10	950A1416	1	6

Please check availability in current price and stock-list.

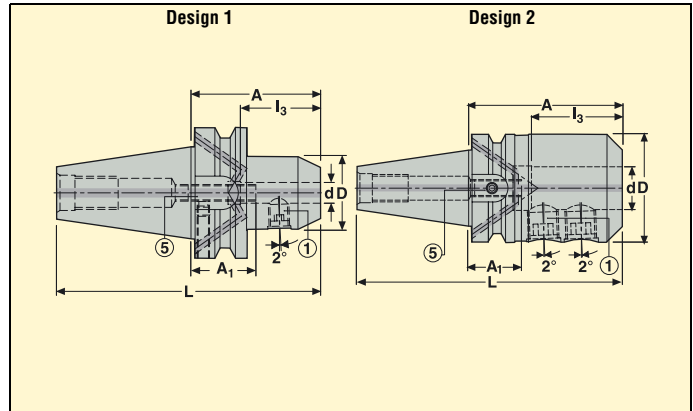
EPB - Monobloc holders BT JIS

Type 5843 - Side lock holders, Whistle Notch - DIN 1835 Form E/ DIN 6535 Form HE

BT JIS B 6339-ADB



- Direct run-out 3 μ m maximum.
- Whistle Notch d 16, 20, 25 and 32 with ground face.



Taper	d mm	Part No.	Dimensions in mm					Design	Balancing	KG
			A	D	L	I ₃	A ₁ min-max			
BT40 ADB	6	E3414 5843 0650	50	25	115,4	30	10-20	1	2	1,00
	8	E3414 5843 0850	50	28	115,4	30	10-20	1	2	1,05
	10	E3414 5843 1063	63	35	128,4	39	18-30	1	2	1,10
	12	E3414 5843 1263	63	42	128,4	44	11-21	1	2	1,15
	14	E3414 5843 1463	63	44	128,4	44	11-21	1	2	1,15
	16	E3414 5843 1663	63	48	128,4	47	8-18	1	2	1,25
	18	E3414 5843 1863	63	50	128,4	47	8-18	1	2	1,30
	20	E3414 5843 2063	63	52	128,4	49	6-16	1	2	1,35
	25	E3414 5843 2590	90	63	155,4	54	26-36	2	2	2,20
32	E3414 5843 32100	100	72	165,4	58	32-42	2	2	2,65	
BT50 ADB	6	E3416 5843 0663	63	25	164,8	30	23-33	1	2	3,55
	8	E3416 5843 0863	63	28	164,8	30	23-33	1	2	3,60
	10	E3416 5843 1063	63	35	164,8	39	18-30	1	2	3,80
	12	E3416 5843 1280	80	42	181,8	44	28-38	1	2	3,80
	14	E3416 5843 1480	80	44	181,8	44	28-38	1	2	3,95
	16	E3416 5843 1680	80	48	181,8	47	25-35	1	2	4,00
	18	E3416 5843 1880	80	50	181,8	47	25-35	1	2	4,05
	20	E3416 5843 2080	80	52	181,8	49	23-33	1	2	4,10
	25	E3416 5843 25100	100	65	201,8	54	36-46	2	2	4,80
32	E3416 5843 32105	105	72	206,8	58	37-47	2	2	5,15	

Spare parts

For d	Locking screw (1)			Stop end screw (5)		
	Qty	S	S	S	S	
6	951C0610	1	3	19TLR0830	4	
8	951C0810	1	4	19TLR1030	5	
10	951C1012	1	5	19TLR0830	4	
12-14	951C1216	1	6	19TLR1030	5	
16-18	951C1416	1	6	19TLR1030	5	
20	951C1616	1	8	19TLR1030	5	
25	951C1820	2	10	19TLR1030	5	
32	951C2020	2	10	19TLR1030	5	

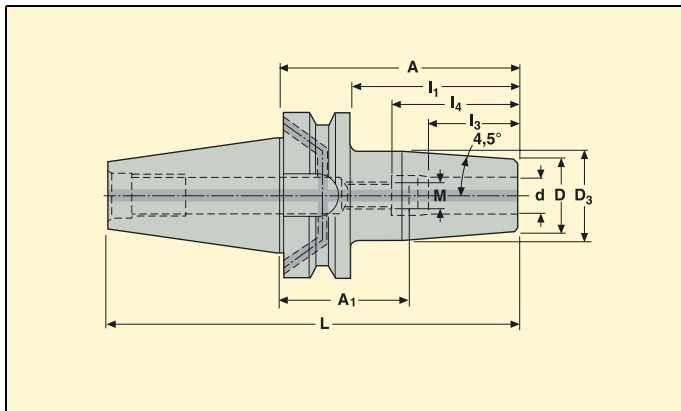
Please check availability in current price and stock-list.

Type 5803 - Shrinkfit holders, DIN type

BT JIS B 6339-ADB



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 2 of 4		Dimensions in mm										Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max	M mm		
BT40 ADB	6	E3414 5803 0690	90	21	27	155,4	63	26	36	54-64	M8	1	1,17
	6	E3414 5803 06120	120	21	27	185,4	93	26	36	84-94	M8	1	1,27
	6	E3414 5803 06160	160	21	27	225,4	133	26	36	124-134	M8	1	1,41
	8	E3414 5803 0890	90	21	27	155,4	63	26	36	54-64	M8	1	1,16
	8	E3414 5803 08120	120	21	27	185,4	93	26	36	84-94	M8	1	1,26
	8	E3414 5803 08160	160	21	27	225,4	133	26	36	124-134	M8	1	1,40
	10	E3414 5803 1090	90	24	32	155,4	63	31	41	49-59	M8	1	1,23
	10	E3414 5803 10120	120	24	32	185,4	93	31	41	79-89	M8	1	1,38
	10	E3414 5803 10160	160	24	32	225,4	133	31	41	119-129	M8	1	1,60

For Shrinkfit extension, see chapter Additional equipment.

Accessories

		Stop end screw	
For d		S ₁	Ø
6-10	19LS0820T	3	3

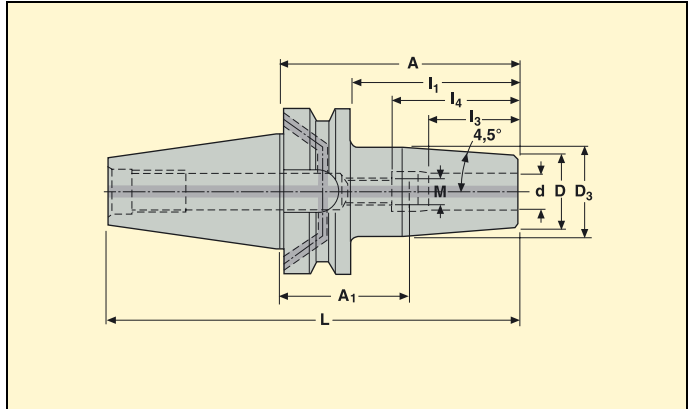
Please check availability in current price and stock-list.
For stop screws setting adapters, see chapter Shrinkfit devices.

Type 5803 - Shrinkfit holders, DIN type

BT JIS B 6339-ADB



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 3 of 4		Dimensions in mm										M mm	Balancing	KG
Taper	d	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max				
BT40 ADB	12	E3414 5803 1290	90	24	32	155,4	63	34	47	43-53	M10	1	1,21	
	12	E3414 5803 12120	120	24	32	185,4	93	34	47	73-83	M10	1	1,37	
	12	E3414 5803 12160	160	24	32	225,4	133	34	47	113-123	M10	1	1,58	
	14	E3414 5803 1490	90	27	34	155,4	63	34	47	43-53	M10	1	1,26	
	14	E3414 5803 14120	120	27	34	185,4	93	34	47	73-83	M10	1	1,44	
	16	E3414 5803 1690	90	27	34	155,4	63	38	50	40-50	M10	1	1,24	
	16	E3414 5803 16120	120	27	34	185,4	93	38	50	70-80	M10	1	1,43	
	16	E3414 5803 16160	160	27	34	225,4	133	38	50	110-120	M10	1	1,66	
	18	E3414 5803 1890	90	33	42	155,4	63	38	50	40-50	M10	1	1,39	
	18	E3414 5803 18120	120	33	42	185,4	93	38	50	70-80	M10	1	1,69	
	20	E3414 5803 2090	90	33	42	155,4	63	42	52	38-48	M10	1	1,37	
	20	E3414 5803 20120	120	33	42	185,4	93	42	52	68-78	M10	1	1,67	
	20	E3414 5803 20160	160	33	42	225,4	133	42	52	108-118	M10	1	2,00	
	25	E3414 5803 25100	100	44	53	165,4	73	44	58	42-52	M10	1	1,81	

For Shrinkfit extension, see chapter Additional equipment.

Accessories

Stop end screw			
For d		S ₁	∅
12-25	19LS1020A	5	5

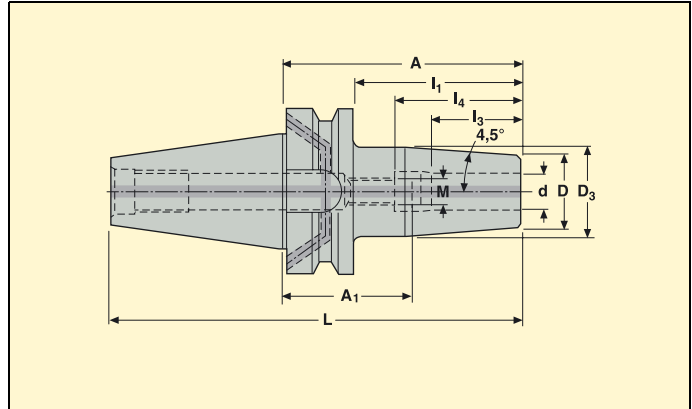
Please check availability in current price and stock-list.
For stop screws setting adapters, see chapter Shrinkfit devices.

Type 5803 - Shrinkfit holders, DIN type

BT JIS B 6339-ADB



- Direct run-out 3 μm (3 μm at 3xd) maximum.



Page 4 of 4		Dimensions in mm										Balancing	KG
Taper	d mm	Part No.	A	D	D ₃	L	I ₁	I ₃	I ₄	A ₁ min-max	M mm		
BT50 ADB	6	E3416 5803 06100	100	21	27	201,8	62	26	36	64-74	M8	1	3,72
	6	E3416 5803 06160	160	21	27	261,8	122	26	36	124-134	M8	1	3,90
	8	E3416 5803 08100	100	21	27	201,8	62	26	36	64-74	M8	1	3,71
	8	E3416 5803 08160	160	21	27	261,8	122	26	36	124-134	M8	1	3,90
	10	E3416 5803 10100	100	24	32	201,8	62	31	41	59-69	M8	1	3,78
	10	E3416 5803 10160	160	24	32	261,8	122	31	41	119-129	M8	1	4,06
	12	E3416 5803 12100	100	24	32	201,8	62	34	47	53-63	M10	1	3,76
	12	E3416 5803 12160	160	24	32	261,8	122	34	47	113-123	M10	1	4,04
	14	E3416 5803 14100	100	27	34	201,8	62	34	47	53-63	M10	1	3,81
	16	E3416 5803 16100	100	27	34	201,8	62	38	50	50-60	M10	1	3,76
	16	E3416 5803 16160	160	27	34	261,8	122	38	50	110-120	M10	1	4,10
	18	E3416 5803 18100	100	33	42	201,8	62	38	50	50-60	M10	1	3,95
	20	E3416 5803 20100	100	33	42	201,8	62	42	52	48-58	M10	1	3,90
	20	E3416 5803 20160	160	33	42	261,8	122	42	52	108-118	M10	1	4,43
	25	E3416 5803 25110	110	44	53	211,8	72	44	58	52-62	M10	1	4,35
	25	E3416 5803 25160	160	44	53	261,8	122	44	58	102-112	M10	1	5,10
32	E3416 5803 32110	110	44	53	211,8	72	52	62	48-58	M10	1	4,19	

For Shrinkfit extensions, see chapter Additional equipment.

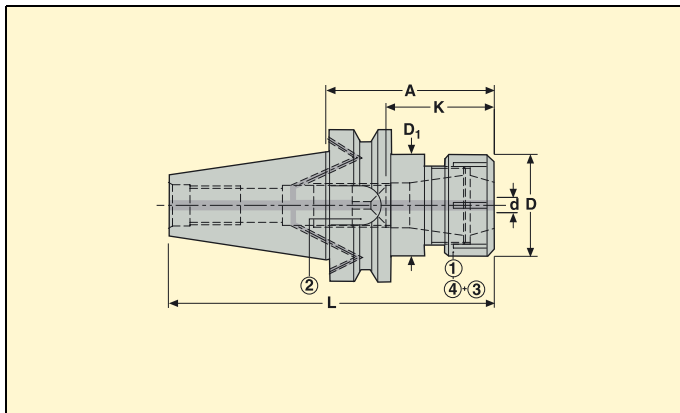
Accessories

Stop end screw			
For d		S ₁	∅
6-10	19LS0820T	3	3
12-32	19LS1020A	5	5

Please check availability in current price and stock-list.
For stop screws setting adapters, see chapter Shrinkfit devices.



- Direct run-out 5 μm maximum.



Page 2 of 2		Capacity d mm	Part No.	Size	Dimensions in mm					Balancing	KG
Taper	A				D	D ₁	L	K min-max			
BT40 ADB	0,5-10	E3414 5875 1670	ER 16	70	32	32	135,4	30-45	1	1,10	
	0,5-10	E3414 5875 16120	ER 16	120	32	32	185,4	30-45	1	1,15	
	1-16	E3414 5875 2570	ER 25	70	42	42	135,4	38-68	1	1,20	
	1-16	E3414 5875 25120	ER 25	120	42	42	185,4	38-68	1	1,30	
	2-20	E3414 5875 3270	ER 32	70	50	50	135,4	43-77	1	1,25	
	2-20	E3414 5875 32120	ER 32	120	50	50	185,4	43-77	1	1,40	
	3-26	E3414 5875 40100	ER 40	100	63	63	165,4	50-73	1	1,90	
	3-26	E4041 5875 4075	ER 40*	75	63	63	140,4	50-72	1	1,65	
BT50 ADB	0,5-10	E3416 5875 16120	ER 16	120	32	32	221,8	30-44	2	3,20	
	1-16	E3416 5875 2590	ER 25	90	42	42	191,8	38-68	2	3,30	
	2-20	E3416 5875 3290	ER 32	90	50	50	191,8	43-117	2	3,35	
	2-20	E3416 5875 32150	ER 32	150	50	50	251,8	43-121	2	3,70	
	3-26	E3416 5875 40100	ER 40	100	63	63	201,8	50-84	2	3,90	

For ER collets (16° taper, standard and precision types) and ER extensions, see chapter Additional equipment.

* Chuck ER40/A75 is type AD (E4041) without flange coolant through, instead type ADB (E3414).

Accessories

For Size	Spanner	Sealing nut (4)	Sealing ring (3)
		L ₁	d ₁
ER 16	03B587516	08B5875161C	01B587516..*
ER 25	03B587525	08B5875251C	01B587525..*
ER 32	03B587532	08B5875321C	01B587532..*
ER 40	03B587540	08B5875401C	01B587540..*

Spare parts

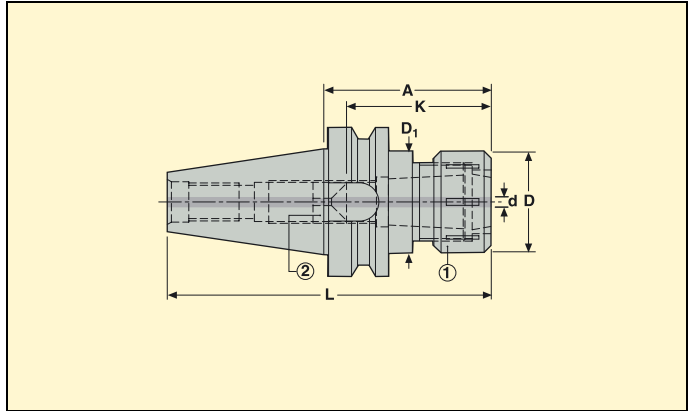
For Size	Nut (1)	Stop end screw (2)
	L ₁	S
	08B587516X	19B58708R10
	08B587525X	19B58718
	08B587532X	19B58722
	08B587540X	19B58730

Please check availability in current price and stock-list.

* For ER sealing rings Part No., see chapter Additional equipment.



- Direct run-out 5 μ m maximum.



Page 1 of 2		Dimensions in mm								
Taper	Capacity d mm	Part No.	Size	A	D	D ₁	L	K min-max	Balancing	KG
BT30 AD	2-25	E4040 5873 2580	OZ 25	80	60	46	128,4	55-68	2	0,90

For OZ collets (1/10 taper), see chapter Additional equipment.

Accessories

For Capacity	Spanner	Nut (1)	Stop end screw (2)	
2-25	03B587325	08B587325	L ₁ 30	S 3

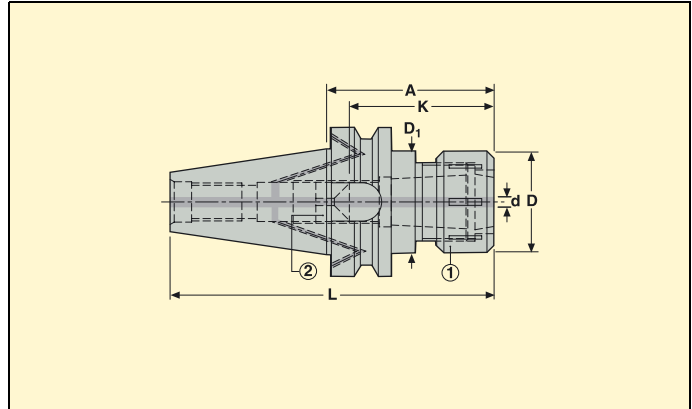
Please check availability in current price and stock-list.

Type 5873 - OZ collet chucks - DIN 6388

BT JIS B 6339-ADB



- Direct run-out 5 μ m maximum.



Page 2 of 2				Dimensions in mm							
Taper	Capacity d mm	Part No.	Size	A	D	D ₁	L	K min-max	Balancing	KG	
BT40 ADB	2-25	E3414 5873 2570	OZ 25	70	60	60	135,4	55-78	2	1,25	
	2-25	E3414 5873 25120	OZ 25	120	60	60	185,4	55-78	2	1,80	
	4-32	E3414 5873 3290	OZ 32	90	72	63	155,4	65-75	2	1,75	
BT50 ADB	2-25	E3416 5873 2585	OZ 25	85	60	60	186,8	55-98	2	3,15	
	4-32	E3416 5873 3290	OZ 32	90	72	72	191,8	65-86	2	3,30	

For OZ collets (1/10 taper), see chapter Additional equipment.

Accessories

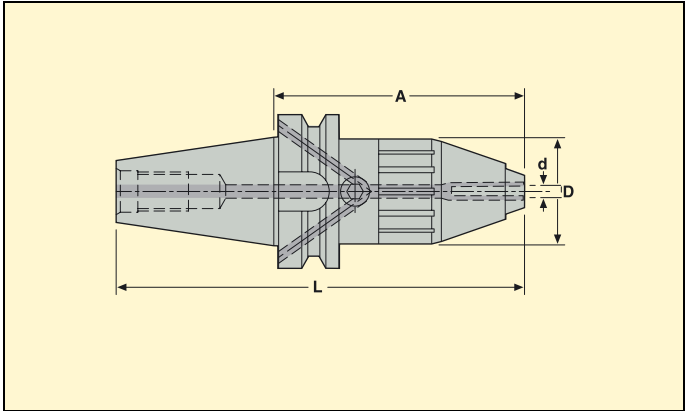
Spare parts

For Capacity	Spanner	Nut (1)	Stop end screw (2)		
			L ₁	S	
40/2-25	03B587325	08B587325	30	19B58727	3
40/4-32	03B587332	08B587332	33,5	19B58727	3
50/2-25	03B587325	08B587325	30	19B58727	3
50/4-32	03B587332	08B587332	33,5	19B58735	3


Please check availability in current price and stock-list.

Type 5085 - Universal drill chucks

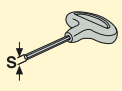
BT JIS B 6339-ADB



- Run-out 40 µm at 2,5xd maximum.

Taper	Capacity d mm	Part No.	Dimensions in mm			Balancing	
			A	D	L		
BT40 ADB	1-13	E3414 5085 13	104	43	169,4	2	1,45
	2,5-16	E3416 5085 16	131	56	232,8	2	5,00

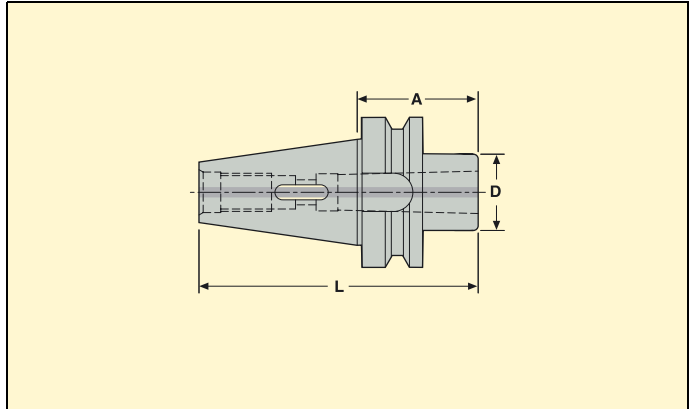
Accessories

		Locking key	
			
For Capacity d		S	
1-13	H06-4	6	
2,5-16	H06-4	6	

Please check availability in current price and stock-list.



- Direct run-out 5 μm maximum.
- Designed to fit a pull-back screw shown in Accessories.



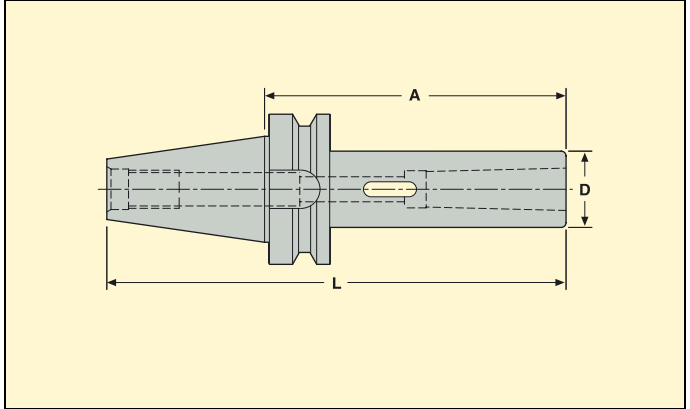
Page 1 of 2		Dimensions in mm				Balancing	
Taper	MT	Part No.	A	D	L		
BT40 AD	1	E4041 536 150	50	25	115,4	2	0,95
	2	E4041 536 250	50	32	115,4	2	1,00
	3	E4041 536 370	70	40	135,4	2	1,10
	4	E4041 536 495	95	48	160,4	2	1,30
BT50 AD	1	E5766 536 145	45	25	146,8	2	3,50
	2	E5766 536 260	60	32	161,8	2	3,65
	3	E5766 536 365	65	40	166,8	2	3,65
	4	E5766 536 495	95	48	196,8	2	3,80
	5	E5766 536 5105	105	63	206,8	2	3,80

For Morse Taper reducers, see chapter Additional equipment.

Accessories

		Pull-back screw	
For Taper/MT		S	
40/1	950D0640	5	
40/2	19B5371035	8	
40/3	-	-	
40/4	-	-	
50/1	950D0640	5	
50/2	950D1060	8	
50/3	950D1250	10	
50/4	19B5371660	14	
50/5	-	-	

Please check availability in current price and stock-list.



- Direct run-out 5 µm maximum.
- Designed to fit a pull-back screw shown in Accessories.

Page 2 of 2		Part No.	Dimensions in mm			Balancing	KG
Taper	MT		A	D	L		
BT40 A	1	E4041 536 1115	115	25	180,4	2	1,15
	2	E4041 536 2125	125	32	190,4	2	1,25
	3	E4041 536 3145	145	40	210,4	2	1,65
	4	E4041 536 4170	170	48	235,4	2	2,25
BT50 A	1	E5766 536 1120	120	25	221,8	2	3,50
	2	E5766 536 2135	135	32	236,8	2	4,00
	3	E5766 536 3155	155	40	256,8	2	4,50
	4	E5766 536 4180	180	48	281,8	2	4,85

For Morse Taper reducers, see chapter Additional equipment.

Accessories

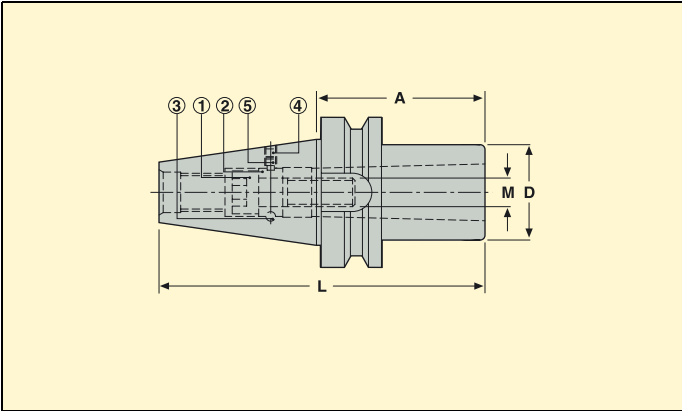
For Taper/MT	Pull-back screw	
		S
40/1	950D0660	5
40/2	19B5371070	8
40/3	-	-
40/4	-	-
50/1	950D0680	5
50/2	950D10100	8
50/3	950D12100	10
50/4	19B53716110	14

Please check availability in current price and stock-list.

EPB - Monobloc holders BT JIS

Type 533 - Holders for Morse Taper with thread - DIN 6364 Form B/ DIN 228-2 Form C

BT JIS B 6339-A



- Direct run-out 5 µm maximum.

Taper	MT	Part No.	Dimensions in mm			M mm	Balancing	KG
			A	D	L			
BT40 A	3	E4041 533 370	70	40	135,4	M12	2	1,10
	4	E4041 533 495	95	48	160,4	M16	2	1,35
BT50 A	4	E5766 533 470	70	48	171,8	M16	2	3,50
	5	E5766 533 5100	100	63	201,8	M20	2	4,15

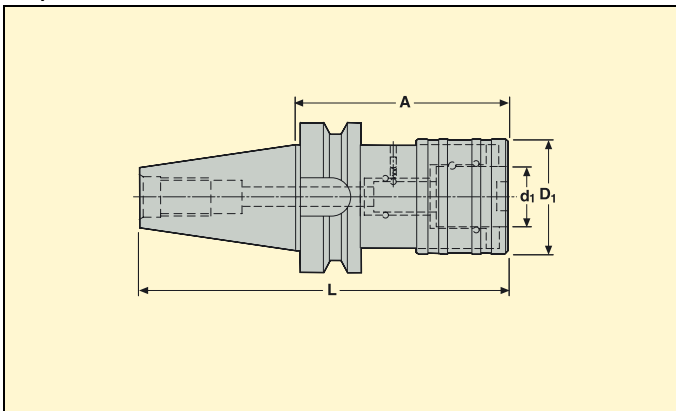
Spare parts

For Taper/MT	Screw (1)		Ring (2)	Ball (3)	Screw (4)		Screw (5)
		S				Qty	
40/3	950D1240	10	02B53303	901B04	15	-	950T0508
40/4	19B5331635	12	02B53304	901B04	20	-	950T0508
50/4	19B5331635	12	02B53304	901B04	20	950A0504	950T0508
50/5	19B5332040	12	02B53305	901B04	29	950A0504	950T0508

Please check availability in current price and stock-list.



- With extension and compression.



Taper	Tapping range	Part No.	For tap adapter		Dimensions in mm					Balancing	KG
			Size	d ₁ mm	Compression	Extension	A	D ₁	L		
BT30 A	M3-M12	ET4040 5283 2	2	19	7,5	7,5	65	39	113,4	-	0,60
	M3-M12	ET4041 5283 2	2	19	7,5	7,5	70	39	135,4	-	1,10
BT40 A	M8-M20	ET4041 5283 3	3	31	12,5	12,5	100	59	165,4	-	1,85
	M3-M12	ET5766 5283 2	2	19	7,5	7,5	80	39	181,8	-	4,00
BT50 A	M8-M20	ET5766 5283 3	3	31	12,5	12,5	105	59	206,8	-	4,50
	M14-M33	ET5766 5283 4	4	48	20	20	140	84	241,8	-	6,10

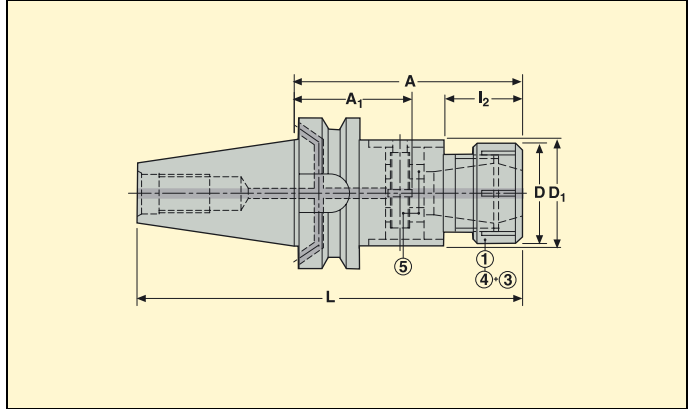
Please check availability in current price and stock-list.
 For quick change tap adapters, see chapter Additional equipment.

Type 5865 - ER tapping chucks for synchronized tapping - DIN 6499

BT JIS B 6339-ADB



- No compensation.
- Direct run-out 5 μm maximum.



Taper	Tapping range	Part No.	D type size	Dimensions in mm						Balancing	KG
				A	D	D ₁	L	l ₂	A ₁		
BT40 ADB	M5-M20	E3414 5865 2595	ER 25	95	42	42	160,4	–	49	2	2,00
	M5-M30	E3414 5865 32110	ER 32	110	50	63	175,4	37	53,5	2	2,15
BT50 ADB	M5-M30	E3416 5865 32120	ER 32	120	50	63	221,8	37	63,5	2	3,35
	M12-M33	E3416 5865 40130	ER 40	130	63	63	231,8	–	67,5	2	3,80

For ER collets (16° taper), see chapter Additional equipment.

Accessories

For Size	Spanner	Sealing nut (4)	Sealing ring (3)
		L ₁	d ₁
ER 25	03B587525	08B587525IC	01B587525..*
ER 32	03B587532	08B587532IC	01B587532..*
ER 40	03B587540	08B587540IC	01B587540..*

Spare parts

Nut (1)	Driving system (5)
L ₁	S
08B587525X	90T586525
08B587532X	90T586532
08B587540X	90T586532

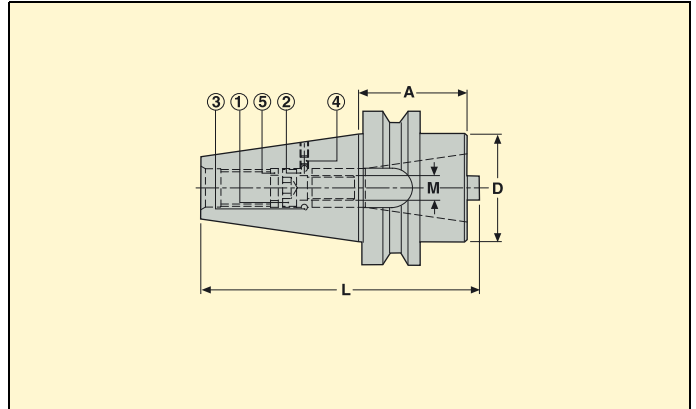
Please check availability in current price and stock-list.
 * For ER sealing rings Part No., see chapter Additional equipment.

Type 543 - Taper adapters SA - DIN 2080-DIN 69871-BT-CAT

BT JIS B 6339-A



- Direct run-out 5 μm maximum.



Taper	For taper	Part No.	Dimensions in mm			M mm	Balancing	KG
			A	D	L			
BT50 A	40 DIN 69871/BT/CAT	E5766 543 4070T	70	70	179,8	M16	2	4,30
	50 DIN69871/BT/CAT	E5766 543 50120T	120	100	234,2	M24	2	6,75

Spare parts

For	Screw (1)		Ring (2)	Ball (3)		Screw (4)	Washer (5)
		S			Qty		
..4070T	950E1670	12	02B54240	901B04	20	950A0505	15B54240
..50120T	19B172490	17	02B54250	901B05	24	950A0806	-

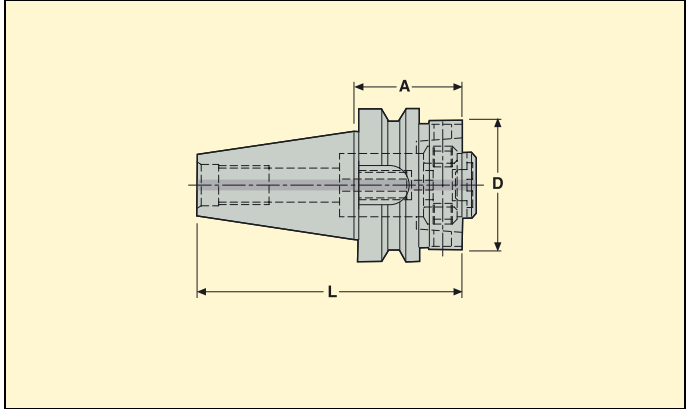
Please check availability in current price and stock-list.

Type 5095 - Taper adapters HSK - DIN 69893

BT JIS B 6339-AD



- Direct run-out 5 µm maximum.



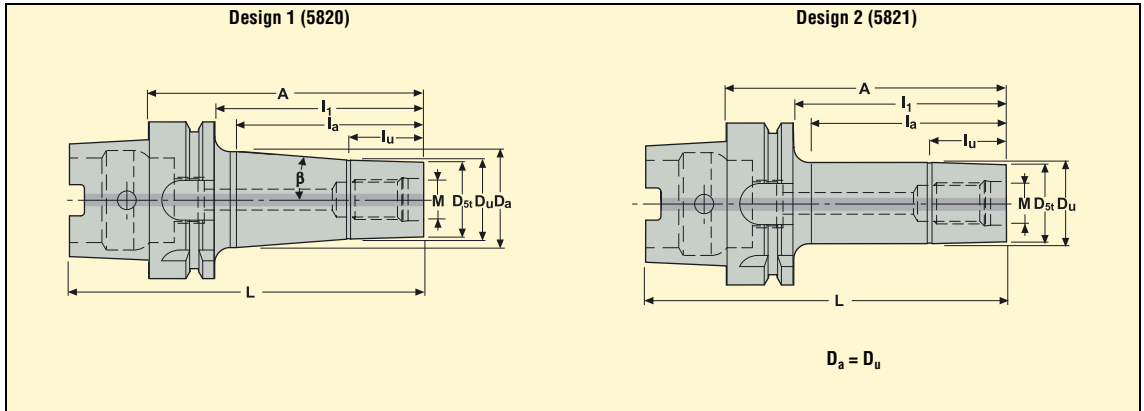
Taper	HSK-A/C	Part No.	Dimensions in mm			Equipped with TF unit ref.	Balancing	
			A	D	L			
BT40 AD	63	E4041 5095 6370	70	70	135,4	24H509563	2	2,00
	100	E5766 5095 10100	100	110	201,8	24H509510	2	1,05
BT50 AD	63	E5766 5095 6360	60	70	161,8	24H509563	2	2,90
	100	E5766 5095 10100	100	110	201,8	24H509510	2	1,05

Accessories

		Locking key	
For HSK			
		S	
63	H05-4	5	
100	03HL08	8	

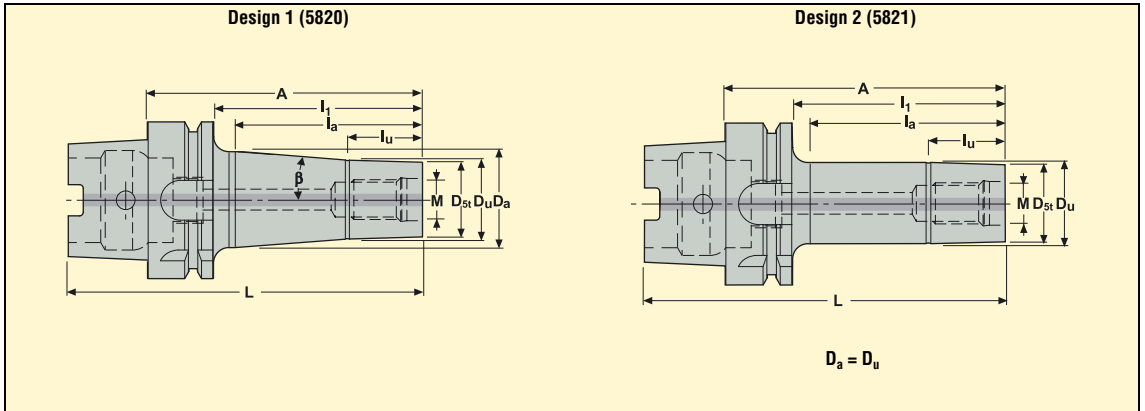
Please check availability in current price and stock-list.





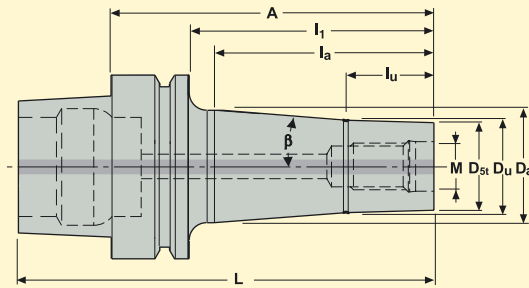
Page 1 of 2		Combimaster bore size	Part No.	Dimensions in mm										β°	Design	Balancing	KG
Taper				A	L	I ₁	I _a	D _a	I _u	D _u	M	D _{st}					
HSK-A40	M10	E9302 5820 1050	50	70	30	25	23	10	19,7	10	18,5	6,3	1	1	0,26		
	M10	E9302 5820 1075	75	95	55	50	24,5	15	19,7	10	18,5	3,9	1	1	0,34		
HSK-A50	M8	E9303 5820 0855	55	80	29	25	18,5	10	15,7	8	13,5	5,3	1	1	0,42		
	M8	E9303 5820 0880	80	105	54	50	20	15	15,7	8	13,5	3,5	1	1	0,49		
	M8	E9303 5820 08105	105	130	79	75	21,5	20	15,7	8	13,5	3	1	1	0,54		
	M10	E9303 5820 1055	55	80	29	25	23	10	19,7	10	18,5	6,3	1	1	0,45		
	M10	E9303 5820 1080	80	105	54	50	24,5	15	19,7	10	18,5	3,9	1	1	0,52		
	M10	E9303 5820 10130	130	155	104	100	27,5	20	19,7	10	18,5	2,8	1	1	0,94		
	M12	E9303 5820 1255	55	80	29	25	28,5	10	24,7	12	23	7,2	1	1	0,52		
	M12	E9303 5820 1280	80	105	54	50	30	20	24,7	12	23	5	1	1	0,60		
	M12	E9303 5820 12130	130	155	104	100	33	30	24,7	12	23	3,4	1	1	1,08		
	M16	E9303 5820 1655	55	80	29	25	35,5	10	31,7	16	30	7,2	1	1	0,54		
	M16	E9303 5820 1680	80	105	54	50	37	20	31,7	16	30	5	1	1	0,67		
M16	E9303 5820 16130	130	155	104	100	40,5	30	31,7	16	30	3,6	1	1	1,12			
HSK-A63	M8	E9304 5820 0860	60	92	34	25	18,5	10	15,7	8	13,5	5,3	1	1	0,69		
	M8	E9304 5820 0885	85	117	59	50	20	15	15,7	8	13,5	3,5	1	1	0,75		
	M8	E9304 5820 08110	110	142	84	75	21,5	20	15,7	8	13,5	3	1	1	0,83		
	M8	E9304 5821 0860	60	92	34	25	14,5	10	14,5	8	13,5	-	2	1	0,65		
	M10	E9304 5820 1060	60	92	34	25	23	10	19,7	10	18,5	6,3	1	1	0,72		
	M10	E9304 5820 1085	85	117	59	50	24,5	15	19,7	10	18,5	3,9	1	1	0,75		
	M10	E9304 5820 10135	135	167	109	100	27,5	20	19,7	10	18,5	2,8	1	1	0,97		
	M10	E9304 5820 10185	185	217	159	150	37	20	19,7	10	18,5	3,8	1	1	1,39		
	M10	E9304 5821 1060	60	92	34	25	18,5	10	18,5	10	18,5	-	2	1	0,67		
	M12	E9304 5820 1260	60	92	34	25	28,5	10	24,7	12	23	7,2	1	1	0,77		
	M12	E9304 5820 1285	85	117	59	50	30	20	24,7	12	23	5	1	1	0,87		
	M12	E9304 5820 12110	110	142	84	75	31,5	25	24,7	12	23	3,9	1	1	0,99		
	M12	E9304 5820 12135	135	167	109	100	33	30	24,7	12	23	3,4	1	1	1,12		
	M12	E9304 5820 12185	185	217	159	150	42,5	30	24,7	12	23	4,2	1	1	1,66		
	M12	E9304 5821 1260	60	92	34	25	23,5	10	23,5	12	23	-	2	1	0,70		
	M12	E9304 5821 1285	85	117	59	50	23,5	20	23,5	12	23	-	2	1	0,80		
	M16	E9304 5820 1660	60	92	34	25	35,5	10	31,7	16	30	6,9	1	1	0,93		
	M16	E9304 5820 1685	85	117	59	50	37	20	31,7	16	30	5	1	1	1,00		
	M16	E9304 5820 16110	110	142	84	75	38,5	25	31,7	16	30	3,9	1	1	1,19		
	M16	E9304 5820 16135	135	167	109	100	40	30	31,7	16	30	3,4	1	1	1,39		
	M16	E9304 5820 16185	185	217	159	150	50	35	31,7	16	30	4,5	1	1	2,11		
M16	E9304 5820 16235	235	267	209	200	53	35	31,7	16	30	3,7	1	1	2,79			
M16	E9304 5821 1685	85	117	59	50	30,5	20	30,5	16	30	-	2	1	0,93			
M16	E9304 5821 16110	110	142	84	75	30,5	25	30,5	16	30	-	2	1	1,12			
M16	E9304 5821 16135	135	167	109	100	30,5	30	30,5	16	30	-	2	1	1,32			

Please check availability in current price and stock-list.



Page 2 of 2		Combimaster bore size	Part No.	Dimensions in mm								β°	Design	Balancing	KG
Taper	A			L	I ₁	I _a	D _a	I _u	D _u	M	D _{St}				
HSK-A80	M8	E9305 5820 0885	85	125	59	50	24,5	15	15,7	8	13,5	7,2	1	1	1,22
	M8	E9305 5820 08110	110	150	84	75	27,5	20	15,7	8	13,5	6,1	1	1	1,36
	M10	E9305 5820 1085	85	125	59	50	29	15	19,7	10	18,5	7,6	1	1	1,15
	M10	E9305 5820 10110	110	150	84	75	32,5	20	19,7	10	18,5	6,6	1	1	1,41
	M10	E9305 5820 10135	135	175	109	100	35,5	20	19,7	10	18,5	5,6	1	1	1,68
	M12	E9305 5820 1285	85	125	59	50	35	20	24,7	12	23	9,7	1	1	1,40
	M12	E9305 5820 12110	110	150	84	75	38	25	24,7	12	23	7,6	1	1	1,54
	M12	E9305 5820 12135	135	175	109	100	41	30	24,7	12	23	6,6	1	1	1,80
	M12	E9305 5820 12185	185	225	159	150	42,5	30	24,7	12	23	4,2	1	1	2,32
	M16	E9305 5820 1685	85	125	59	50	42,5	20	31,7	16	30	10,2	1	1	1,52
	M16	E9305 5820 16110	110	150	84	75	46	25	31,7	16	30	8,1	1	1	1,75
	M16	E9305 5820 16135	135	175	109	100	49	30	31,7	16	30	7	1	1	2,12
M16	E9305 5820 16185	185	225	159	150	50	35	31,7	16	30	4,5	1	1	2,59	
HSK-A100	M8	E9306 5820 0885	85	135	56	50	24,5	15	15,7	8	13,5	7,2	1	1	2,12
	M10	E9306 5820 1085	85	135	56	50	29	15	19,7	10	18,5	7,6	1	1	2,18
	M10	E9306 5820 10110	110	160	81	75	32,5	20	19,7	10	18,5	6,6	1	1	2,32
	M12	E9306 5820 1285	85	135	56	50	35	20	24,7	12	23	9,7	1	1	2,26
	M12	E9306 5820 12110	110	160	81	75	38	25	24,7	12	23	7,6	1	1	2,40
	M12	E9306 5820 12135	135	185	106	100	41	30	24,7	12	23	6,6	1	1	2,66
	M12	E9306 5820 12185	185	235	156	150	42,5	30	24,7	12	23	4,2	1	1	3,00
	M16	E9306 5820 1685	85	135	56	50	42,5	20	31,7	16	30	10,2	1	1	2,45
	M16	E9306 5820 16135	135	185	106	100	49	30	31,7	16	30	7	1	1	2,93
	M16	E9306 5820 16185	185	235	156	150	50	35	31,7	16	30	4,5	1	1	3,41
	M16	E9306 5820 16235	235	285	206	200	55	35	31,7	16	30	4	1	1	4,23

Please check availability in current price and stock-list.

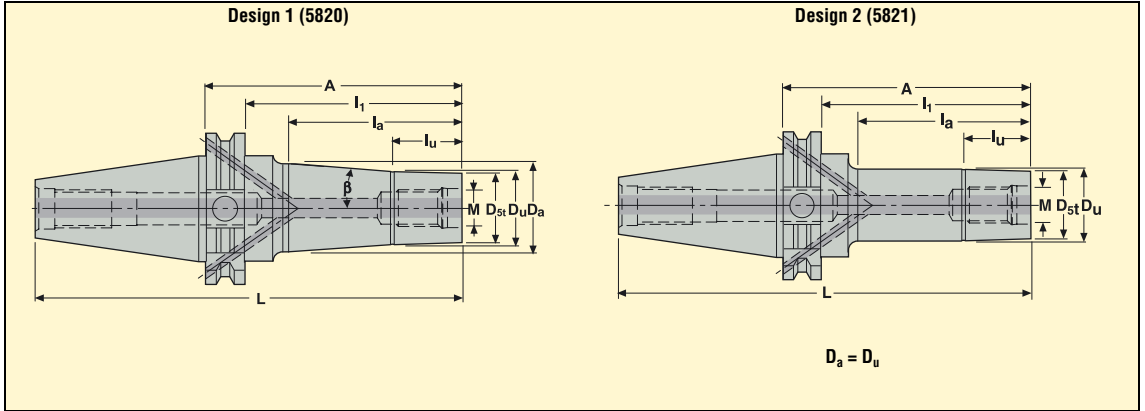


Taper	Combimaster bore size	Part No.	Dimensions in mm										β°	Balancing	KG
			A	L	I ₁	I _a	D _a	I _u	D _u	M	D _{st}				
HSK-E32	M8	E9341 5820 0850	50	66	30	25	18,5	10	15,7	8	13,5	5,3	1	0,18	
	M8	E9341 5820 0875	75	91	55	50	20	15	15,7	8	13,5	3,5	1	0,26	
	M8	E9341 5820 08100	100	116	80	75	21,5	20	15,7	8	13,5	3	1	0,38	
HSK-E40	M8	E9342 5820 0850	50	70	30	25	18,5	10	15,7	8	13,5	5,3	1	0,23	
	M8	E9342 5820 0875	75	95	55	50	20	15	15,7	8	13,5	3,5	1	0,31	
	M8	E9342 5820 08100	100	120	80	75	21,5	20	15,7	8	13,5	3	1	0,43	
	M10	E9342 5820 1050	50	70	30	25	23	10	19,7	10	18,5	6,3	1	0,26	
	M10	E9342 5820 1075	75	95	55	50	24,5	15	19,7	10	18,5	3,9	1	0,34	
	M10	E9342 5820 10100	100	120	80	75	26	20	19,7	10	18,5	3,3	1	0,46	
HSK-E50	M8	E9343 5820 0855	55	80	29	25	18,5	10	15,7	8	13,5	5,3	1	0,42	
	M8	E9343 5820 0880	80	105	54	50	20	15	15,7	8	13,5	3,5	1	0,49	
	M10	E9343 5820 1055	55	80	29	25	23	10	19,7	10	18,5	6,3	1	0,45	
	M10	E9343 5820 1080	80	105	54	50	24,5	15	19,7	10	18,5	3,9	1	0,52	
	M10	E9343 5820 10105	105	130	79	75	26	20	19,7	10	18,5	3,3	1	0,73	
	M12	E9343 5820 1255	55	80	29	25	28,5	10	24,7	12	23	7,2	1	0,52	
	M12	E9343 5820 1280	80	105	54	50	30	20	24,7	12	23	5	1	0,60	
	M16	E9343 5820 1655	55	80	29	25	35,5	10	31,7	16	30	7,2	1	0,54	
	M16	E9343 5820 1680	80	105	54	50	37	20	31,7	16	30	5	1	0,67	

Please check availability in current price and stock-list.

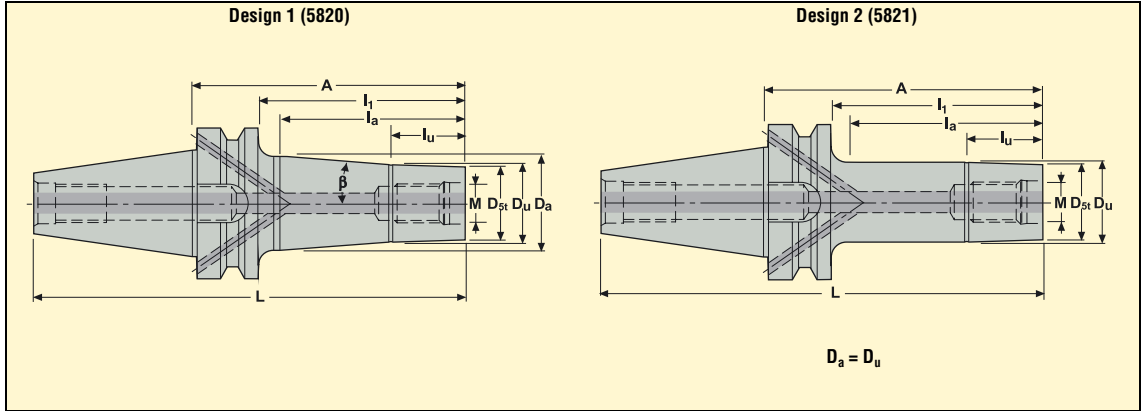
Types 5820-5821 - Arbors DIN 69871

DIN 69871-ADB/ CAT Combined



Taper	Combimaster bore size	Part No.	Dimensions in mm										β°	Design	Balancing	KG
			A	L	I ₁	I _a	D _a	I _u	D _u	M	D _{st}					
DIN40 ADB/ CAT40	M8	E3476 5820 0860	60	128,4	41	25	18,5	10	15,7	8	13,5	5,3	1	1	1,01	
	M8	E3476 5820 0885	85	153,4	66	50	20	15,7	8	13,5	3	1	1	1,05		
	M8	E3476 5820 08110	110	178,4	91	75	21,5	20	15,7	8	13,5	3	1	1	1,11	
	M8	E3476 5821 0860	60	128,4	41	25	14,5	10	14,5	8	13,5	-	2	1	0,92	
	M10	E3476 5820 1040	40	108,4	21	5	19,7	5	19,7	10	18,5	0	1	1	0,96	
	M10	E3476 5820 1060	60	128,4	41	25	23	10	19,7	10	18,5	6,3	1	1	1,00	
	M10	E3476 5820 1085	85	153,4	66	50	24,5	15	19,7	10	18,5	3,9	1	1	1,08	
	M10	E3476 5820 10135	135	203,4	116	100	27,5	20	19,7	10	18,5	2,8	1	1	1,20	
	M10	E3476 5820 10185	185	253,4	166	150	37	20	19,7	10	18,5	3,8	1	1	1,32	
	M10	E3476 5821 1060	60	128,4	41	25	18,5	10	18,5	10	18,5	-	2	1	0,96	
	M12	E3476 5820 1240	40	108,4	21	5	24,7	5	24,7	12	23	0	1	1	0,96	
	M12	E3476 5820 1260	60	128,4	41	25	28,5	10	24,7	12	23	7,2	1	1	1,02	
	M12	E3476 5820 1285	85	153,4	66	50	30	20	24,7	12	23	5	1	1	1,12	
	M12	E3476 5820 12110	110	178,4	91	75	31,5	25	24,7	12	23	3,9	1	1	1,22	
	M12	E3476 5820 12135	135	203,4	116	100	33	30	24,7	12	23	3,4	1	1	1,34	
	M12	E3476 5820 12185	185	253,4	166	150	42,5	30	24,7	12	23	4,2	1	1	1,58	
	M12	E3476 5821 1260	60	128,4	41	25	23,5	10	23,5	12	23	-	2	1	0,98	
	M12	E3476 5821 1285	85	153,4	66	50	23,5	20	23,5	12	23	-	2	1	1,05	
	M16	E3476 5820 1640	40	108,4	21	5	31,7	5	31,7	16	30	0	1	1	0,94	
	M16	E3476 5820 1660	60	128,4	41	25	35,5	10	31,7	16	30	7,2	1	1	1,19	
M16	E3476 5820 1685	85	153,4	66	50	37	20	31,7	16	30	5	1	1	1,24		
M16	E3476 5820 16110	110	178,4	91	75	38,5	25	31,7	16	30	3,9	1	1	1,42		
M16	E3476 5820 16135	135	203,4	116	100	40,5	30	31,7	16	30	3,6	1	1	1,62		
M16	E3476 5820 16185	185	253,4	166	150	43,5	35	31,7	16	30	2,9	1	1	2,06		
M16	E3476 5821 1685	85	153,4	66	50	30,5	20	30,5	16	30	-	2	1	1,18		
M16	E3476 5821 16110	110	178,4	91	75	30,5	25	30,5	16	30	-	2	1	1,38		
M16	E3476 5821 16135	135	203,4	116	100	30,5	30	30,5	16	30	-	2	1	1,56		
DIN50 ADB/ CAT50	M12	E3478 5820 1295	95	196,8	76	50	35	20	24,7	12	23	9,7	1	1	3,26	
	M12	E3478 5820 12145	145	246,8	126	100	41	30	24,7	12	23	6,6	1	1	3,58	
	M12	E3478 5820 12195	195	296,8	176	150	42,5	30	24,7	12	23	4,2	1	1	3,78	
	M12	E3478 5820 12245	245	346,8	226	200	47,5	30	24,7	12	23	3,8	1	1	3,98	
	M16	E3478 5820 1695	95	196,8	76	50	42,5	20	31,7	16	30	10,2	1	1	3,38	
	M16	E3478 5820 16145	145	246,8	126	100	49	30	31,7	16	30	7	1	1	3,84	
	M16	E3478 5820 16195	195	296,8	176	150	50	35	31,7	16	30	4,5	1	1	4,32	
	M16	E3478 5820 16245	245	346,8	226	200	55	35	31,7	16	30	4	1	1	4,90	
	M16	E3478 5820 16295	295	396,8	276	250	59,5	35	31,7	16	30	3,7	1	1	5,98	

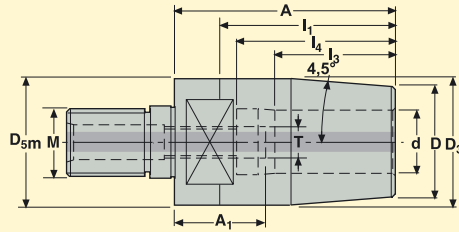
Please check availability in current price and stock-list.



Taper	Combimaster bore size	Part No.	Dimensions in mm										β°	Design	Balancing	KG
			A	L	I ₁	I _a	D _a	I _u	D _u	M	D _{st}					
BT40 ADB	M8	E3414 5820 0860	60	125,4	33	25	18,5	10	15,7	8	13,5	5,3	1	1	1,02	
	M8	E3414 5820 0885	85	150,4	58	50	20	15	15,7	8	13,5	3,5	1	1	1,07	
	M8	E3414 5820 08110	110	175,4	83	75	21,5	20	15,7	8	13,5	3	1	1	1,14	
	M8	E3414 5821 0860	60	125,4	33	25	14,5	10	14,5	8	13,5	-	2	1	0,94	
	M10	E3414 5820 1040	40	105,4	13	5	19,7	5	19,7	10	18,5	0	1	1	0,96	
	M10	E3414 5820 1060	60	125,4	33	25	23	10	19,7	10	18,5	6,3	1	1	1,04	
	M10	E3414 5820 1085	85	150,4	58	50	24,5	15	19,7	10	18,5	3,9	1	1	1,10	
	M10	E3414 5820 10135	135	200,4	108	100	27,5	20	19,7	10	18,5	2,8	1	1	1,22	
	M10	E3414 5820 10185	185	250,4	158	150	37	20	19,7	10	18,5	3,8	1	1	1,34	
	M10	E3414 5821 1060	60	125,4	33	25	18,5	10	18,5	10	18,5	-	2	1	0,98	
	M12	E3414 5820 1240	40	105,4	13	5	24,7	5	24,7	12	23	0	1	1	0,98	
	M12	E3414 5820 1260	60	125,4	33	25	28,5	10	24,7	12	23	7,2	1	1	1,06	
	M12	E3414 5820 1285	85	150,4	58	50	30	20	24,7	12	23	5	1	1	1,16	
	M12	E3414 5820 12110	110	175,4	83	75	31,5	25	24,7	12	23	3,9	1	1	1,26	
	M12	E3414 5820 12135	135	200,4	108	100	33	30	24,7	12	23	3,4	1	1	1,38	
	M12	E3414 5821 1260	60	125,4	33	25	23,5	10	23,5	12	23	-	2	1	1,00	
	M12	E3414 5821 1285	85	150,4	58	50	23,5	20	23,5	12	23	-	2	1	1,08	
	M16	E3414 5820 1640	40	105,4	13	5	31,7	5	31,7	16	30	0	1	1	1,18	
M16	E3414 5820 1660	60	125,4	33	25	35,5	10	31,7	16	30	7,2	1	1	1,23		
M16	E3414 5820 1685	85	150,4	58	50	37	20	31,7	16	30	5	1	1	1,30		
M16	E3414 5820 16110	110	175,4	83	75	38,5	25	31,7	16	30	3,9	1	1	1,46		
M16	E3414 5820 16135	135	200,4	108	100	40,5	30	31,7	16	30	3,6	1	1	1,68		
M16	E3414 5820 16185	185	250,4	158	150	50	35	31,7	16	30	4,5	1	1	2,12		
BT50 ADB	M12	E3416 5820 1295	95	196,8	57	50	35	20	24,7	12	23	9,7	1	1	3,76	
	M12	E3416 5820 12145	145	246,8	107	100	41	30	24,7	12	23	6,6	1	1	4,08	
	M12	E3416 5820 12195	195	296,8	157	150	42,5	30	24,7	12	23	4,2	1	1	4,28	
	M12	E3416 5820 12245	245	346,8	207	200	47,5	30	24,7	12	23	3,8	1	1	4,48	
	M16	E3416 5820 1695	95	196,8	57	50	42,5	20	31,7	16	30	10,2	1	1	3,88	
	M16	E3416 5820 16145	145	246,8	107	100	49	30	31,7	16	30	7	1	1	4,34	
	M16	E3416 5820 16195	195	296,9	157	150	50	35	31,7	16	30	4,5	1	1	4,98	
	M16	E3416 5820 16245	245	346,8	207	200	55	35	31,7	16	30	4	1	1	5,42	
	M16	E3416 5820 16295	295	396,8	257	250	59,5	35	31,7	16	30	3,7	1	1	6,11	

Please check availability in current price and stock-list.

Type BS/5803 - Combimaster Shrinkfit adapters



Combimaster shank size	Shrink-fit d mm	Part No.	Dimensions in mm										Balancing	
			A	I ₁	I ₃	I ₄	D	D ₃	D _{5m}	M	T	A ₁ min-max		
12	6	BS012 5803 0660	60	60	26	36	19	23	23	12	M5	24-34	2	0,17
12	8	BS012 5803 0860	60	60	26	36	19	23	23	12	M5	24-34	2	0,17
16	6	BS016 5803 0665	65	54	26	36	21	27	30	16	M5	29-39	2	0,27
16	8	BS016 5803 0865	65	54	26	36	21	27	30	16	M6	29-39	2	0,27
16	10	BS016 5803 1070	70	70	31	41	24	30	30	16	M6	28-38	2	0,34
16	12	BS016 5803 1270	70	70	34	47	24	30	30	16	M6	23-33	2	0,34

Accessories

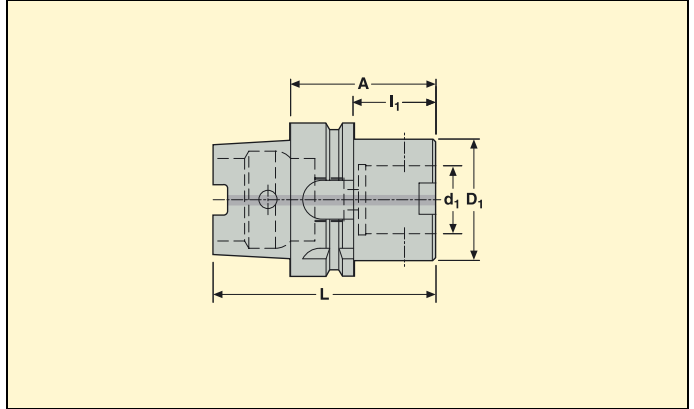
For Size/ d	Stop end screw		
		S ₁	∅
M12/6-8	19LS0520A	3	3
M16/6	19LS0520A	3	3
M16/8-12	19LS0620A	3	3

Please check availability in current price and stock-list.
For stop screw setting adapters, see chapter Shrinkfit devices.



Type EM - Arbors HSK-A

HSK-A/ ISO 12164-1-A

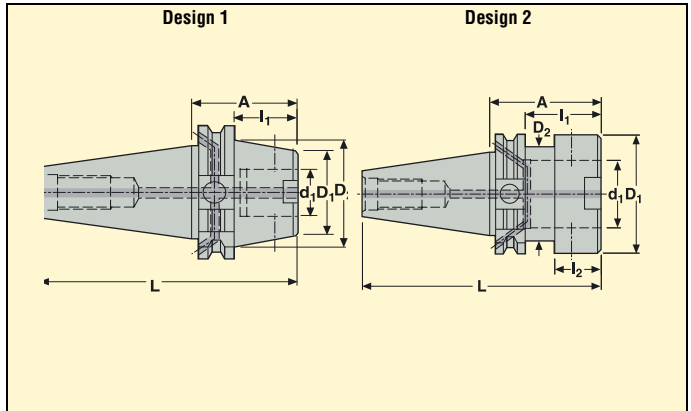


Taper	Graflex bore		Part No.	Dimensions in mm				Balancing	KG	
	Size	d ₁		A	L	I ₁	D ₁			
HSK-A32	2	14	EM9301 401 1440	40	56	20	25	1	0,20	
HSK-A40	2	14	EM9302 401 1440	40	60	20	25	1	0,25	
HSK-A50	3	18	EM9303 401 1850	50	75	24	32	1	0,40	
	5	28	EM9303 401 2870	70	95	44	50	1	0,85	
HSK-A63	2	14	EM9304 401 1445	45	77	19	25	1	0,69	
	3	18	EM9304 401 1850	50	82	24	32	1	0,80	
	4	22	EM9304 401 2255	55	87	29	40	1	0,90	
	5	28	EM9304 401 2860	60	92	34	50	1	1,00	
	5	28	EM9304 401 28100	100	132	74	50	1	1,60	
	5	28	EM9304 401 28140	140	172	114	50	1	2,25	
	6	36	EM9304 401 3670	70	102	44	63	1	1,25	
	6	36	EM9304 401 36120	120	152	94	63	1	2,25	
HSK-A80	5	28	EM9305 401 2860	60	100	74	50	1	1,45	
	6	36	EM9305 401 3675	75	160	94	63	1	1,95	
	7	46	EM9305 401 4685	85	125	59	90	2	2,95	
HSK-A100	3	18	EM9306 401 1855	55	105	26	32	1	1,90	
	4	22	EM9306 401 2260	60	110	31	40	1	2,10	
	5	28	EM9306 401 2865	65	115	36	50	1	2,30	
	5	28	EM9306 401 28110	110	160	81	50	1	3,00	
	5	28	EM9306 401 28150	150	200	121	50	1	3,60	
	6	36	EM9306 401 3675	75	125	46	63	1	2,60	
	6	36	EM9306 401 36120	120	170	91	63	1	4,50	
	6	36	EM9306 401 36160	160	210	131	63	1	4,90	
	7	46	EM9306 401 4685	85	135	56	90	2	4,20	
	7	46	EM9306 401 46160	160	210	131	90	2	6,00	
	7	46	EM9306 401 46240	240	290	211	90	2	8,00	

Please check availability in current price and stock-list.
 For HSK-A sealing plugs, coolant tubes and tube spanners, see chapter Additional equipment.

Type EM - Arbors DIN 69871-ADB

DIN 69871-ADB

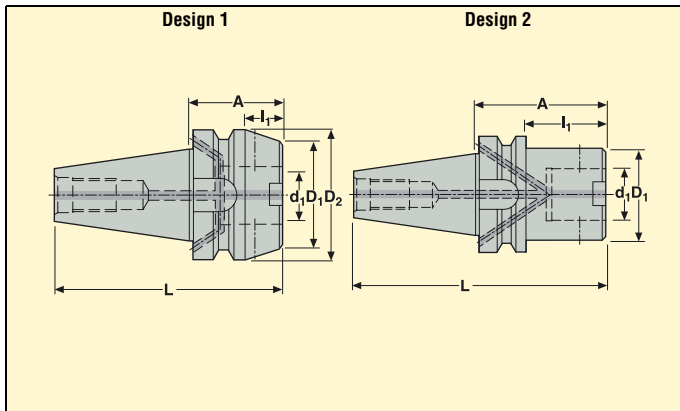


Taper	Graflex bore		Part No.	Dimensions in mm						Design	Balancing	KG
	Size	d ₁ mm		A	I ₁	I ₂	D ₁	D ₂	L			
DIN40 ADB	1	11	EM3469 401 1190	90	70,9	–	20	20	158,4	2	1	0,90
	2	14	EM3469 401 1435	35	15,9	–	25	–	103,4	2	1	0,83
	2	14	EM3469 401 1490	90	70,9	–	25	25	158,4	2	1	0,95
	3	18	EM3469 401 1835	35	15,9	–	32	50	103,4	1	1	0,80
	3	18	EM3469 401 18100	100	80,9	–	32	32	168,4	2	1	0,95
	4	22	EM3469 401 2235	35	15,9	–	40	50	103,4	1	1	0,80
	4	22	EM3469 401 22100	100	80,9	–	40	40	168,4	2	1	1,05
	5	28	EM3469 401 2840	40	20,9	–	50	50	108,4	2	1	0,80
	5	28	EM3469 401 2880	80	60,9	–	50	50	148,4	2	1	1,55
	5	28	EM3469 401 28120	120	100,9	–	50	50	188,4	2	1	2,10
	6	36	EM3469 401 3660	60	40,9	25	63	50	128,4	2	1	1,35
	6	36	EM3469 401 36120	120	100,9	85	63	50	128,4	2	1	2,85
DIN50 ADB	2	14	EM3471 401 14100	100	80,9	–	25	25	201,7	2	1	2,85
	3	18	EM3471 401 1835	35	15,9	–	32	80	136,7	1	1	2,80
	3	18	EM3471 401 18110	110	90,9	–	32	32	211,7	2	1	2,90
	4	22	EM3471 401 2235	35	15,9	–	40	80	136,7	1	1	2,80
	4	22	EM3471 401 22120	120	100,9	–	40	40	221,7	2	1	2,95
	5	28	EM3471 401 2840	40	20,9	–	50	80	141,7	1	1	2,85
	5	28	EM3471 401 28100	100	80,9	–	50	50	201,7	2	1	3,80
	5	28	EM3471 401 28140	140	120,9	–	50	50	241,7	2	1	4,25
	6	36	EM3471 401 3645	45	25,9	–	63	80	146,7	1	1	3,10
	6	36	EM3471 401 36100	100	80,9	–	63	63	201,7	2	1	4,10
	6	36	EM3471 401 36140	140	120,9	–	63	63	241,7	2	1	5,15
	7	46	EM3471 401 4650	50	30,9	15	90	80	151,7	2	2	4,25
	7	46	EM3471 401 46120	120	100,9	85	90	80	221,7	2	2	6,60
	7	46	EM3471 401 46200	200	180,9	165	90	80	301,7	2	2	10,50

Please check availability in current price and stock-list.

Type EM - Arbors BT JIS-ADB

BT JIS B 6339-ADB

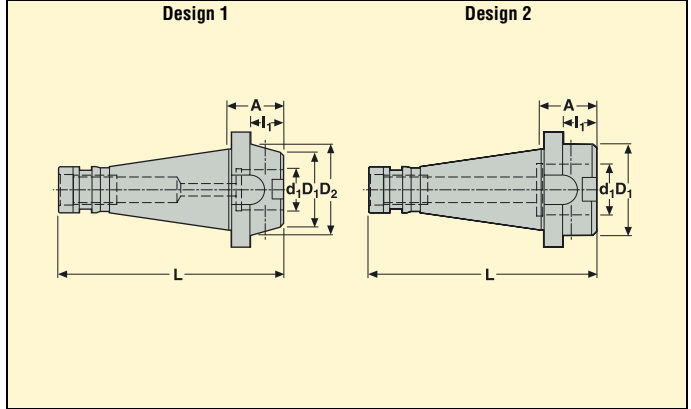


Taper	Graflex bore		Part No.	Dimensions in mm					Design	Balancing	KG
	Size	d ₁ mm		A	I ₁	D ₁	D ₂	L			
BT40 ADB	1	11	EM3414 401 1190	90	63	20	-	155,4	2	1	1,00
	2	14	EM3414 401 1440	40	13	25	-	105,4	2	1	0,98
	2	14	EM3414 401 1490	90	63	25	-	155,4	2	1	1,10
	3	18	EM3414 401 1840	40	13	32	63	105,4	1	1	1,00
	3	18	EM3414 401 18100	100	73	32	-	165,4	2	1	1,40
	4	22	EM3414 401 2245	45	18	40	63	110,4	1	1	1,10
	4	22	EM3414 401 22100	100	73	40	-	165,4	2	1	1,45
	5	28	EM3414 401 2845	45	18	50	63	110,4	1	1	1,10
	5	28	EM3414 401 2880	80	53	50	-	145,4	2	1	1,55
	5	28	EM3414 401 28120	120	93	50	-	185,4	2	1	2,10
	6	36	EM3414 401 3650	50	-	63	-	115,4	2	1	1,10
	6	36	EM3414 401 36120	120	-	63	-	185,4	2	1	2,80
BT50 ADB	2	14	EM3416 401 14110	110	72	25	-	211,8	2	1	3,80
	3	18	EM3416 401 1845	45	7	32	70	146,8	1	1	4,00
	3	18	EM3416 401 18120	120	82	32	-	221,8	2	1	4,10
	4	22	EM3416 401 2250	50	12	40	70	151,8	1	1	3,85
	4	22	EM3416 401 22140	140	102	40	-	241,8	2	1	4,20
	5	28	EM3416 401 2855	55	17	50	100	156,8	1	1	3,75
	5	28	EM3416 401 28100	100	62	50	-	201,8	2	1	4,10
	5	28	EM3416 401 28140	140	102	50	-	241,8	2	1	4,70
	6	36	EM3416 401 3663	63	25	63	100	164,8	1	1	3,80
	6	36	EM3416 401 36100	100	62	63	-	201,8	2	1	4,50
	6	36	EM3416 401 36140	140	102	63	-	241,8	2	1	5,45
	7	46	EM3416 401 4665	65	27	90	100	166,8	1	2	4,15
	7	46	EM3416 401 46120	120	82	90	-	221,8	2	2	6,75
	7	46	EM3416 401 46200	200	162	90	-	301,8	2	2	10,75

Please check availability in current price and stock-list.

Type EM - Arbors DIN 2080

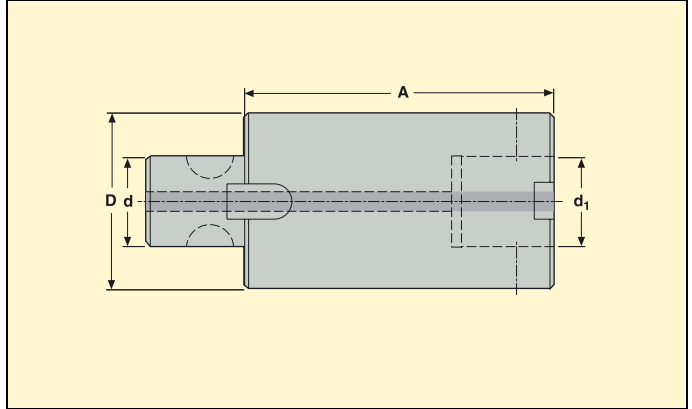
DIN 2080



Taper	Graflex bore		Part No.	Dimensions in mm					Design	Balancing	KG	
	Size	d ₁ mm		A	I ₁	D ₁	D ₂	L				
DIN(2080)40	3	18	EM0040 401 1825	25	13,4	32	50	118,4	1	2	0,65	
	4	22	EM0040 401 2230	30	18,4	40	50	123,4	1	2	0,75	
	5	28	EM0040 401 2830	30	18,4	50	-	123,4	2	2	0,70	
	5	28	EM0040 401 2880	80	68,4	50	-	173,4	2	2	1,50	
	6	36	EM0040 401 3650	50	-	63	-	143,4	2	2	1,00	
DIN(2080)50	4	22	EM0050 401 2230	30	14,8	40	78	156,8	1	2	2,75	
	5	28	EM0050 401 2835	35	19,8	50	78	161,8	1	2	2,90	
	5	28	EM0050 401 2880	80	64,8	50	-	206,8	2	2	3,35	
	5	28	EM0050 401 28120	120	104,8	50	-	246,8	2	2	3,95	
	6	36	EM0050 401 3640	40	24,8	63	78	166,8	1	2	3,25	
	6	36	EM0050 401 3680	80	64,8	63	-	206,8	2	2	3,85	
	6	36	EM0050 401 36120	120	104,8	63	-	246,8	2	2	4,80	
	7	46	EM0050 401 4645	45	29,8	90	-	171,8	2	2	3,30	
	7	46	EM0050 401 46120	120	104,8	90	-	246,8	2	2	7,00	
	7	46	EM0050 401 46200	200	184,8	90	-	326,8	2	2	10,60	

Please check availability in current price and stock-list.

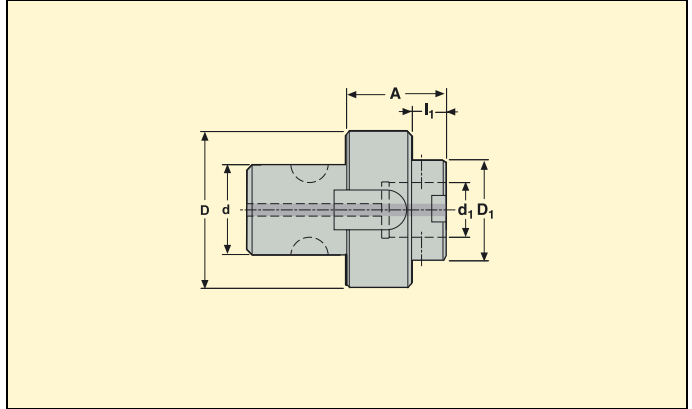
Type M402 - Extensions



Graflex shank		Graflex bore		Part No.	Dimensions in mm		Balancing	KG
Size	d	Size	d ₁		A	D		
0	8	0	8	M402 000	30	16	2	0,05
0	8	0	8	M402 001	50	16	2	0,10
1	11	1	11	M402 110	30	20	2	0,05
1	11	1	11	M402 111	50	20	2	0,10
2	14	2	14	M402 220	30	25	2	0,10
2	14	2	14	M402 221	50	25	2	0,20
3	18	3	18	M402 330	40	32	2	0,25
3	18	3	18	M402 331	60	32	2	0,40
4	22	4	22	M402 440	40	40	2	0,40
4	22	4	22	M402 441	60	40	2	0,60
5	28	5	28	M402 550	50	50	2	0,75
5	28	5	28	M402 551	75	50	2	1,15
5	28	5	28	M402 552	100	50	2	1,55
6	36	6	36	M402 660	60	63	2	1,95
6	36	6	36	M402 661	90	63	2	2,20
6	36	6	36	M402 662	120	63	2	2,90
7	46	7	46	M402 770	60	90	-	2,90
7	46	7	46	M402 771	90	90	-	4,50
7	46	7	46	M402 772	120	90	-	5,80

Please check availability in current price and stock-list.

Type M403 - Reducers



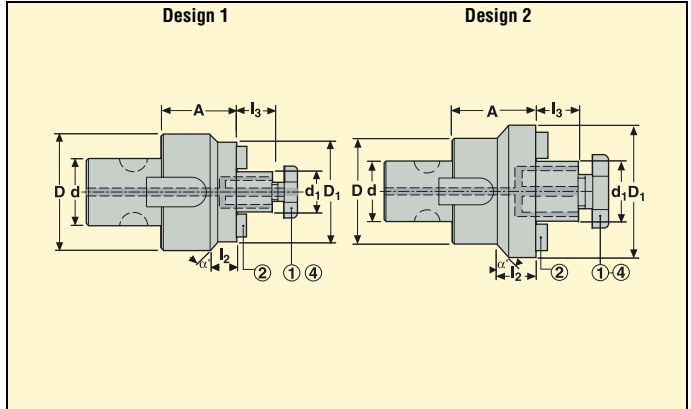
Graflex shank		Graflex bore		Part No.	Dimensions in mm				Balancing	
Size	d mm	Size	d ₁ mm		A	I ₁	D	D ₁		
1	11	0	8	M403 10	30	22	20	16	2	0,10
2	14	0	8	M403 20	30	19	25	16	2	0,10
2	14	1	11	M403 21	30	19	25	20	2	0,10
3	18	0	8	M403 30	30	16	32	16	2	0,15
3	18	1	11	M403 31	30	16	32	20	2	0,15
3	18	2	14	M403 32	30	16	32	25	2	0,20
4	22	0	8	M403 40	30	13	40	16	2	0,25
4	22	1	11	M403 41	30	13	40	20	2	0,25
4	22	2	14	M403 42	30	13	40	25	2	0,25
4	22	3	18	M403 43	30	13	40	32	2	0,20
5	28	0	8	M403 50	40	20	50	16	2	0,45
5	28	1	11	M403 51	40	20	50	20	2	0,50
5	28	2	14	M403 52	40	20	50	25	2	0,50
5	28	3	18	M403 53	40	20	50	32	2	0,55
5	28	4	22	M403 54	40	20	50	40	2	0,55
6	36	0	8	M403 60	40	14	63	16	2	0,95
6	36	1	11	M403 61	40	14	63	20	2	1,00
6	36	2	14	M403 62	40	14	63	25	2	1,00
6	36	3	18	M403 63	40	14	63	32	2	1,00
6	36	4	22	M403 64	40	14	63	40	2	1,05
6	36	5	28	M403 65	45	19	63	50	2	1,10
7	46	5	28	M403 75	50	24	90	50	-	2,15
7	46	6	36	M403 76	55	29	90	63	-	2,35

Please check availability in current price and stock-list.

Type M5525/5524 - Shell mill holders, with through coolant channels



- With coolant supply channels through the spigot.



Graflex shank		d ₁ mm	Part No.	Dimensions in mm						Design	*	Balancing	KG
Size	d mm			A	I ₂	α°	I ₃	Graflex D	Front D ₁				
3	18	16	M5525 18 16	20	–	–	17	32	32	1	*	2	0,35
4	22	16	M5525 22 16R	25	–	–	17	38 (R)	38	1		2	0,40
4	22	22	M5525 22 22	25	19	45	19	40	48	2	*	2	0,40
5	28	16	M5525 28 16	32	6	45	17	50	38	1		2	0,59
5	28	16	M5525 28 16120	120	90	30	17	50	38	1	*	2	1,37
5	28	22	M5525 28 22R	32	–	–	19	48 (R)	48	1	*	2	0,60
5	28	27	M5525 28 27	32	24	45	21	50	60**	2	*	2	0,98
5	28	27	M5524 28 27R	32	–	30	21	48 (R)	48**	1	*	2	0,70
6	36	22	M5525 36 22	40	6,5	45	19	63	48	1		2	1,60
6	36	22	M5525 36 22120	120	81	30	19	63	48	1		2	2,36
6	36	27	M5525 36 27R	40	–	–	21	60 (R)	60	1	*	2	1,49
6	36	27	M5525 36 27120R	120	–	–	21	60 (R)	60	1	*	2	3,00
6	36	32	M5525 36 32	40	14	30	24	63	78	2	*	2	1,60
7	46	27	M5525 46 27R	40	5	45	21	78 (R)	60	1		2	2,27
7	46	32	M5525 46 32	40	8	45	24	90	78	1		2	2,60
7	46	32	M5525 46 32R	40	–	–	24	78 (R)	78	1	*	2	2,25

* Suitable for long wall milling and plunging. (R) = D reduced compared to the standard Graflex D.

**Diameter D₁ on type 5524 is smaller than on type 5525.

Accessories

Spare parts

For d ₁ /shank	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Tenon/ Screw for tenon (2)	
16/3	5811608	5801608L	5801608	16C116	950D0308
16/4, 16/5	5811608	5801608L	5801608	16C10810164	950D0312
22/4, 22/5, 22/6	5812210	5802210L	5802210	16C11012206	950D0416
27/5/5525	5812712	5802712L	5802712	16C11214243	951D0516
27/5/5524	5812712	5802712L	5802712	16C127	951D0512
27/6, 27/7	5812712	5802712L	5802712	16C11214243	951D0516
32/6, 32/7	5813216	5803216L	5803216	16C2141421	951D0516

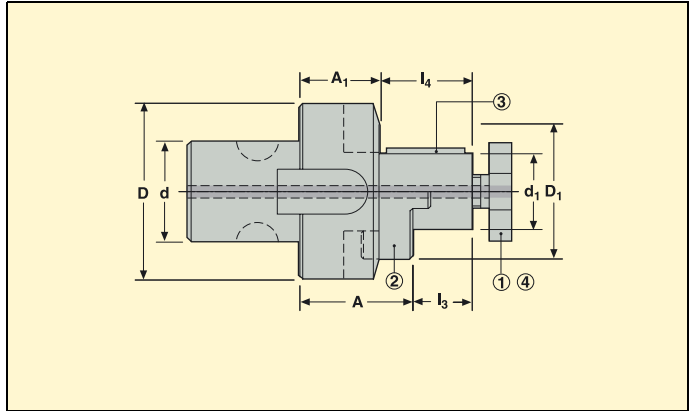
Please check availability in current price and stock-list.

Type M553 - Combi shell mill holders

DIN 6358



- With removable driving ring.



Graflex shank			Part No.	Dimensions in mm						Balancing	
Size	d mm	d ₁ mm		A	A ₁	I ₃	I ₄	D	D ₁		
5	28	16	M553 28 16	32	22	17	27	50	32	-	0,60
5	28	22	M553 28 22	32	20	19	31	50	40	-	0,70
5	28	27	M553 28 27	32	20	21	33	50	48	-	0,80
6	36	22	M553 36 22	40	28	19	31	63	40	-	1,25
6	36	27	M553 36 27	40	28	21	33	63	48	-	1,35
6	36	32	M553 36 32	40	26	24	38	63	58	-	1,52

Accessories

Spare parts

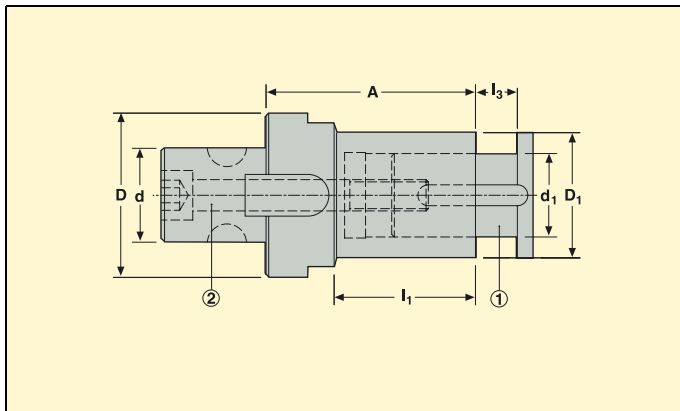
For d ₁	Spanner for bolt	Bolt, through coolant type (4)	Bolt (1)	Driving ring (2)	Flat key (3)	
16	5811608	5801608L	5801608	58316	04C216	
22	5812210	5802210L	5802210	58322	04C222	
27	5812712	5802712L	5802712	58327	04C227	
32	5813216	5803216L	5803216	58332	04C232	

Please check availability in current price and stock-list.

Type M5656 - Disc mill holders



- With adjustable sliding shaft arbor.



Graflex shank			Part No.	Dimensions in mm					Balancing	
Size	d mm	d ₁ mm		A	I ₁	I ₃	D	D ₁		
3	18	16	M5656 18 16	50	36	0-10	32	28	2	0,30
4	22	22	M5656 22 22	60	43	0-12	40	35	2	0,55
5	28	27	M5656 28 27	65	45	0-14	50	42	2	0,94
5	28	32	M5656 28 3212	80	60	0-24	50	48	2	1,24
6	36	32	M5656 36 3212	85	59	0-24	63	48	2	2,45
6	36	40	M5656 36 40	110	84	0-30	63	58	2	2,65
7	46	40	M5656 46 40	100	74	0-25	90	58	-	3,50
7	46	50	M5656 46 50	130	104	0-32	90	72	-	5,20
7	46	60	M5656 46 60	150	124	0-40	90	90	-	7,90

Spare parts

For	Shaft arbor with key (1)	Screw (2)	
			S
M56561816	565616	950D0650	5
M56562222	565622	950D0860	6
M56562827	565627	950D1070	8
M5656283212	56563202	950D1290	10
M5656363212	56563202	950D12100	10
M56563640	565640	950D16110	14
M56564640	565640	950D16110	14
M56564650	565650	950D16120	14
M56564660	565660	950D16120	14

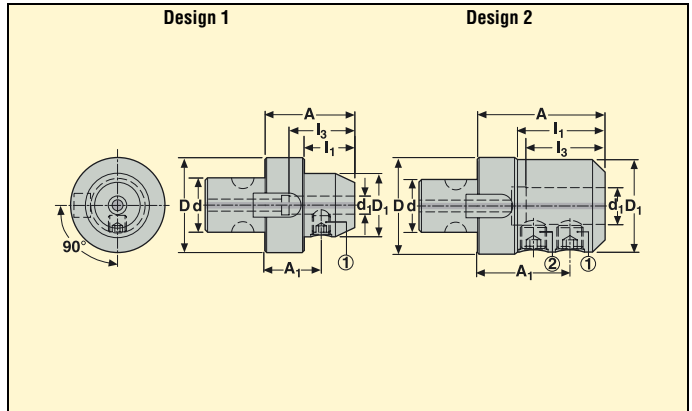
Please check availability in current price and stock-list.

Type M584 - Side lock holders, Weldon

DIN 1835 Form B/ DIN 6535 Form HB



- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Graflex shank		d ₁ mm	Part No.	Dimensions in mm						Design	Balancing	KG
Size	d mm			A	I ₁	I ₃	D	D ₁	A ₁			
5	28	6	M584 28 06	45	25	27	50	25	27	1	2	0,55
5	28	8	M584 28 08	45	25	30	50	28	27	1	2	0,55
5	28	10	M584 28 10	55	35	39	50	35	35	1	2	0,70
5	28	12	M584 28 12	60	40	44	50	42	37,5	1	2	0,80
5	28	14	M584 28 14	60	40	44	50	44	37,5	1	2	0,80
5	28	16	M584 28 16	65	45	47	50	48	41	1	2	1,00
5	28	18	M584 28 18	65	45	47	50	50	41	1	2	1,00
5	28	20	M584 28 20	65	45	49	50	52	40	1	2	1,20
6	36	6	M584 36 06	45	19	27	63	25	27	1	2	1,05
6	36	8	M584 36 08	45	19	30	63	28	27	1	2	1,00
6	36	10	M584 36 10	55	29	39	63	35	35	1	2	1,15
6	36	12	M584 36 12	60	34	44	63	42	37,5	1	2	1,20
6	36	14	M584 36 14	60	34	44	63	44	37,5	1	2	1,20
6	36	16	M584 36 16	65	39	47	63	48	41	1	2	1,40
6	36	18	M584 36 18	65	39	47	63	50	41	1	2	1,40
6	36	20	M584 36 20	65	39	49	63	52	40	1	2	1,45
6	36	25	M584 36 25	80	-	54	63	63	56	2	2	2,05
6	36	32	M584 36 32	80	54	58	63	72	56	2	2	2,30

Spare parts

For d ₁	Locking screw (1)		Locking screw (2)	
		S		S
6	951C0610	3	-	-
8	951C0810	4	-	-
10	951C1012	5	-	-
12-14	951C1216	6	-	-
16-18	951C1416	6	-	-
20	951C1616	8	-	-
25	951C1820	10	951C1820	10
32	951C2020	10	951C2017	8

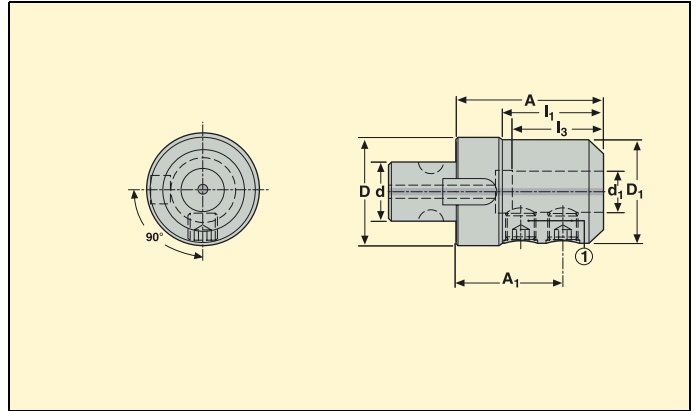
Please check availability in current price and stock-list.

Type M584 - Side lock holders, Weldon

DIN 1835 Form B/ DIN 6535 Form HB



- Weldon d 16, 20, 25, 32 and 40 with ground face (Seco-Weldon compatible).



Graflex shank			Part No.	Dimensions in mm						Design	Balancing	
Size	d mm	d ₁ mm		A	I ₁	I ₃	D	D ₁	A ₁			
7	46	32	M584 46 32	80	54	58	90	72	56	–	–	3,20
7	46	40	M584 46 40	100	–	68	90	90	70	–	–	4,80

Spare parts

For d ₁	Locking screw (1)		
	Qty	S	
32	2	951C2020 10	
40	2	951C2025 10	

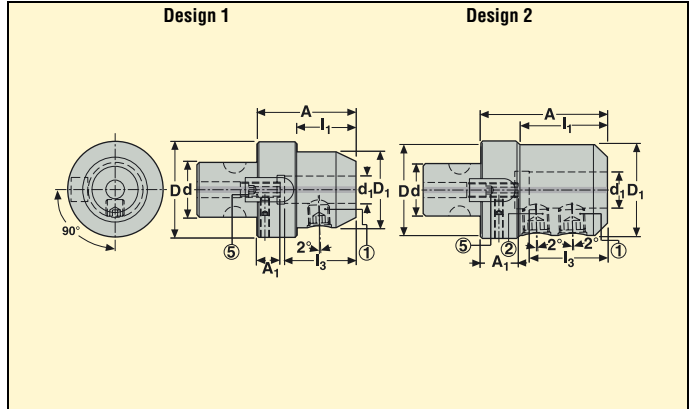
Please check availability in current price and stock-list.

Type M5843 - Side lock holders, Whistle Notch

DIN 1835 Form E/ DIN 6535 Form HE



- Whistle Notch d 16, 20, 25 and 32 with ground face.



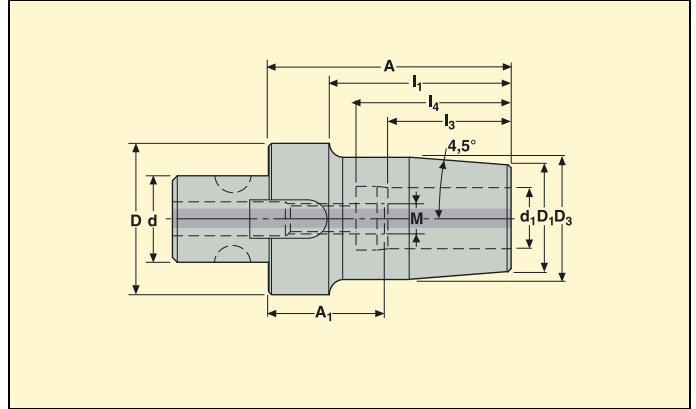
Graflex shank		d ₁ mm	Part No.	Dimensions in mm					Design	Balancing	KG	
Size	d mm			A	l ₁	l ₃	D	D ₁				A ₁ min-max
5	28	6	M5843 28 06	45	25	27	50	25	9-17	1	2	0,55
5	28	8	M5843 28 08	45	25	30	50	28	9-13	1	2	0,55
5	28	10	M5843 28 10	55	35	39	50	35	11-25	1	2	0,70
5	28	12	M5843 28 12	60	40	44	50	42	11-25	1	2	0,80
5	28	14	M5843 28 14	60	40	44	50	44	11-25	1	2	0,80
5	28	16	M5843 28 16	65	45	47	50	48	13-25	1	2	1,00
5	28	18	M5843 28 18	65	45	47	50	50	13-25	1	2	1,00
5	28	20	M5843 28 20	65	45	49	50	52	11-25	1	2	1,20
6	36	8	M5843 36 08	45	19	30	63	28	9-13	1	2	1,00
6	36	10	M5843 36 10	55	29	39	63	35	11-25	1	2	1,15
6	36	12	M5843 36 12	60	34	44	63	42	11-25	1	2	1,20
6	36	14	M5843 36 14	60	34	44	63	44	11-25	1	2	1,20
6	36	16	M5843 36 16	65	39	47	63	48	13-25	1	2	1,40
6	36	18	M5843 36 18	65	39	47	63	50	13-25	1	2	1,40
6	36	20	M5843 36 20	65	39	49	63	52	11-25	1	2	1,45
6	36	25	M5843 36 25	80	-	54	63	63	16-24	2	2	2,05
6	36	32	M5843 36 32	80	54	58	63	72	17-22	2	2	2,30

Spare parts

For d ₁	Locking screw (1)		Locking screw (2)		Stop end screw (5)	
		S		S		S
6	951C0610	3	-	-	19L0830	4
8	951C0810	4	-	-	19L1030	5
10	951C1012	5	-	-	19TLR0830	4
12-14	951C1216	6	-	-	19TLR1030	5
16-18	951C1416	6	-	-	19TLR1030	5
20	951C1616	8	-	-	19TLR1030	5
25	951C1820	10	951C1820	10	19TLR1030	5
32	951C2017	10	951C2020	8	19TLR1030	5

Please check availability in current price and stock-list.

Type BM5803 - Shrinkfit holders, DIN type



Graflex shank			Part No.	Dimensions in mm									Balancing	
Size	d	d ₁		A	A ₁	I ₁	I ₃	I ₄	D	D ₁	D ₃	M		
5	28	6	BM050 5803 06100	100	64-74	80	26	36	50	21	27	M8	2	0,85
5	28	8	BM050 5803 08100	100	64-74	80	26	36	50	21	27	M8	2	0,80
5	28	10	BM050 5803 10110	110	69-79	90	31	41	50	24	32	M8	2	0,90
5	28	12	BM050 5803 12115	115	68-81	95	34	47	50	24	32	M10	2	0,85
5	28	14	BM050 5803 14115	115	68-81	95	34	47	50	27	34	M10	2	1,00
5	28	16	BM050 5803 16120	120	70-82	100	38	50	50	27	34	M10	2	1,00
5	28	18	BM050 5803 18120	120	70-82	100	38	50	50	33	42	M10	2	1,30
5	28	20	BM050 5803 20120	120	68-78	100	42	52	50	33	42	M10	2	1,25
5	28	25	BM050 5803 25120	120	62-76	100	44	58	50	44	53	M10	2	1,80
5	28	32	BM050 5803 32120	120	58-68	100	52	62	50	44	53	M10	2	1,60
6	36	16	BM060 5803 16125	125	49-61	99	38	50	63	27	34	M10	2	1,50
6	36	18	BM060 5803 18125	125	49-61	99	38	50	63	33	42	M10	2	1,75
6	36	20	BM060 5803 20125	125	47-57	99	42	52	63	33	42	M10	2	1,70
6	36	25	BM060 5803 25125	125	41-55	99	44	58	63	44	53	M10	2	2,30
6	36	32	BM060 5803 32125	125	37-47	99	52	62	63	44	53	M10	2	2,10

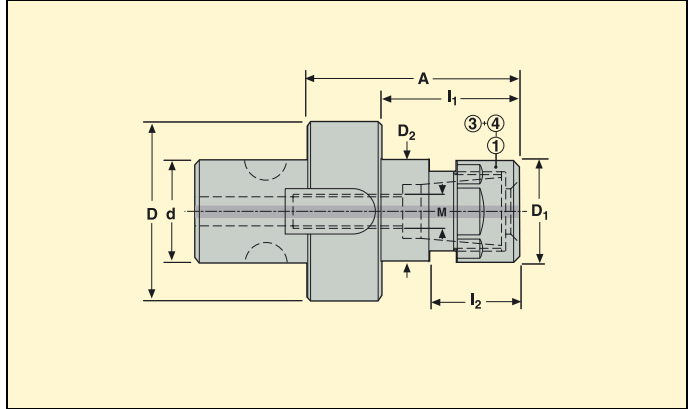
For Shrinkfit extensions, see chapter Additional equipment.

Accessories

Stop end screw			
For d ₁		S ₁	Ø
6-8	19LS0820T	3	3
10	19LS0820A	3	3
12-32	19LS1020A	5	5

Please check availability in current price and stock-list.
For stop screw setting adapters, see chapter Shrinkfit devices.

Type M5872 - D type precision collet chucks



Graflex shank		D type size	Capacity mm	Part No.	Dimensions in mm							Balancing	
Size	d mm				A	I ₁	I ₂	D	D ₁	D ₂	M		
5	28	D 16	1-10	M5872 28 16	50	30	23,3	50	27	27	M8	2	0,50
5	28	D 24	1-16	M5872 28 24	60	40	26,3	50	36	36	M8	2	0,60
6	36	D 29	2-20	M5872 36 29	70	44	29,7	63	42	42	M12	2	1,25

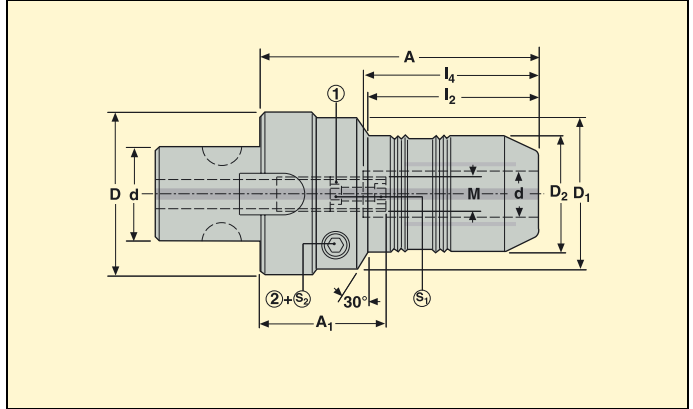
For D type collets (10° taper), see chapter Additional equipment.

Accessories

For D type size	Compression ring	Sealing nut (4)		Sealing ring (3)	Nut (1)			
		L ₁	S		L ₁	S		
D 16	03D587216A	08B587216BE	25	24	01B587216..*	08B587216	19	24
D 24	03D587224A	08B587224BE	28	32	01B587224..*	08B587224	22	32
D 29	03D587229A	08B587229BE	31	38	01B587229..*	08B587229	25	38

Please check availability in current price and stock-list.
 * For D type sealing rings Part No., see chapter Additional equipment.

Type M5834 - Hydraulic chucks



Graflex shank			Part No.	Max transmiss. torque N.m	Dimensions in mm								Balancing	
Size	d mm	d ₁ mm			A	I ₂	I ₄	D	D ₁	D ₂	M	A ₁ min-max		
5	28	20	M5834 28 20	170	90	47	52	50	50	42	M10	42-52	2	1,30
6	36	32	M5834 36 32	250	100	-	63	63	64	-	M10	52-62	2	2,30

For reduction sleeves and control gauges, see chapter Additional equipment.

Accessories

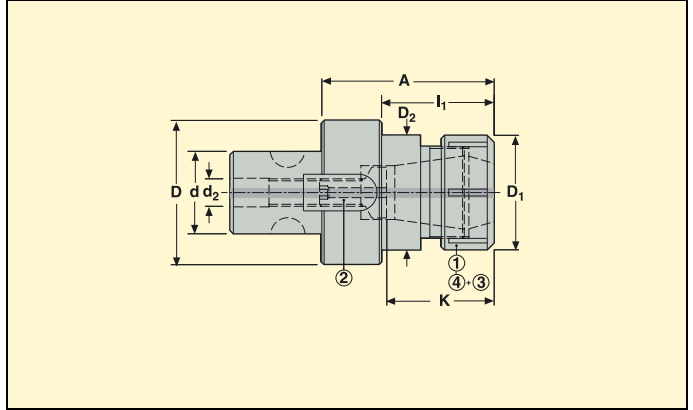
Spare parts

For d ₁	Key for pressurizing (S ₂)		Stop end screw (1)			Pressurizing screw (2)	
		S ₂		S ₁	∅		S
20	H04-4	4	19LS1020A	5	5	950AF1010010	4
32	H04-4	4	19LS1020A	5	5	950AF1010010	4

Please check availability in current price and stock-list.

Type M5875 - ER collet chucks

DIN 6499



Graflex shank		Size	Capacity mm	Part No.	Dimensions in mm							Balancing	
Size	d mm				A	I ₁	D	D ₁	D ₂	d ₂	K min-max		
3	18	ER 25	1-16	M5875 18 25R	70	56	32	35	32	6,5	38-43	2	0,30
5	28	ER 25	1-16	M5875 28 25	60	40	50	42	42	M12	38-43	2	0,70
5	28	ER 32	2-20	M5875 28 32	75	55	50	50	50	M12	43-50	2	0,90
6	36	ER 25	1-16	M5875 36 25	60	34	63	42	42	M12	38-43	2	1,15
6	36	ER 32	2-20	M5875 36 32	75	49	63	50	50	M12	43-48	2	1,65
6	36	ER 40	3-26	M5875 36 40	85	59	63	63	63	M12	50-57	2	1,80

For ER collets (16° taper, standard and precision types) and ER extensions, see chapter Additional equipment.

Accessories

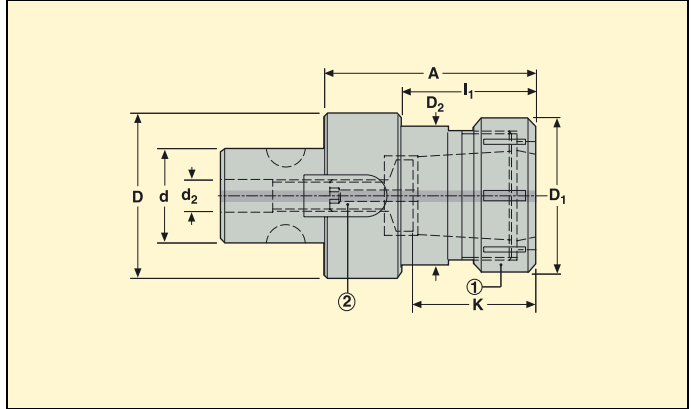
Spare parts

For d/Size	Spanner	Sealing nut (4)	Sealing ring (3)	Nut (1)	Stop end screw (2)			
		L ₁		L ₁	S			
18/ ER 25	03B545025	-	-	-	-			
28/ ER 25	03B587525	08B587525IC	25	01B587525.*	08B587525M	20	19PM1016	5
28/ ER 32	03B587532	08B587532IC	27,5	01B587532.*	08B587525X	21	19PM1216	6
36/ ER 25	03B587525	08B587525IC	25	01B587525.*	08B587532X	23	19PM1220	6
36/ ER 32	03B587532	08B587532IC	27,5	01B587532.*	08B587525X	21	19PM1216	6
36/ ER 40	03B587540	08B587540IC	30,5	01B587540.*	08B587532X	23	19PM1220	6
					08B587540X	26	19PM1225	6

Please check availability in current price and stock-list.
* For ER sealing rings Part No., see chapter Additional equipment.

Type M5873 - OZ collet chucks

DIN 6388



Graflex shank				Part No.	Dimensions in mm								Balancing	KG
Size	d mm	Size	Capacity mm		A	I ₁	D	D ₁	D ₂	d ₂	K min-max			
5	28	OZ 25	2-25	M5873 28 25	80	60	50	60	50	M12	55-58	2	1,15	
6	36	OZ 25	2-25	M5873 36 25	80	54	63	60	60	M12	50-58	2	1,55	
6	36	OZ 32	4-32	M5873 36 32	90	64	63	72	63	M12	65-/	2	2,00	

For OZ collets (1/10 taper), see chapter Additional equipment.

Accessories

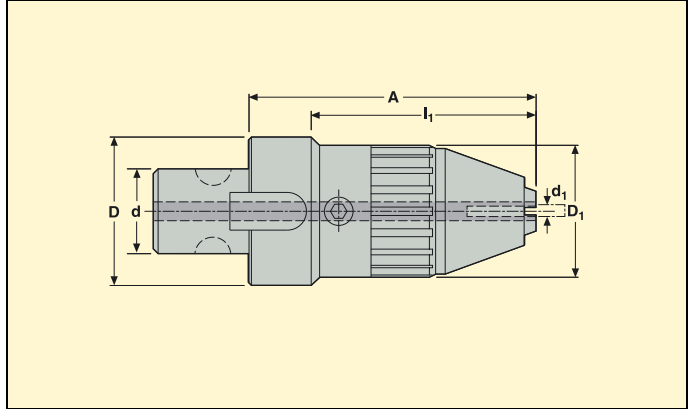
Spanner
For Size
OZ 25
OZ 32

Spare parts

Nut (1)	Stop end screw (2)
L ₁	S
OZ 25	
OZ 32	

Please check availability in current price and stock-list.

Type M5085 - Universal drill chucks



Graflex shank		Capacity d_1 mm	Part No.	Dimensions in mm				Balancing	KG
Size	d mm			A	I_1	D	D_1		
5	28	1-13	M5085 28 13L	100	80	50	43	2	1,50
6	36	2,5-16	M5085 36 16L	120	94	63	56	2	2,50

Accessories

For d		Locking key	
			S
28	H06-4	6	
36	H06-4	6	

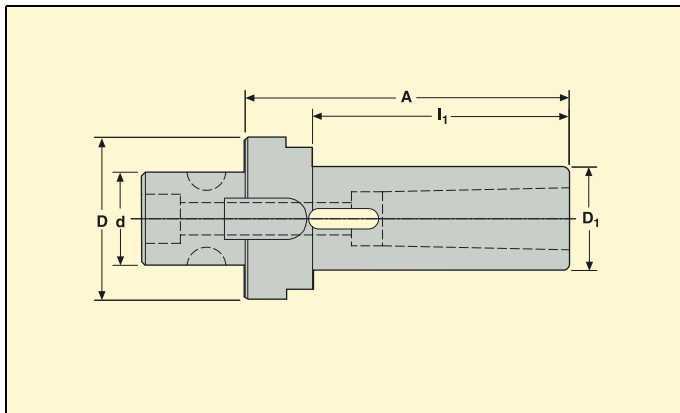
Please check availability in current price and stock-list.

Type M536 - Holders for Morse Taper with tang

DIN 228-2 Form D



- Designed to fit a pull-back screw and a pull-back sleeve shown in Accessories.



Graflex shank		MT	Part No.	Dimensions in mm				Balancing	KG
Size	d mm			A	I ₁	D	D ₁		
5	28	1	M536 28 1	90	70	50	25	2	0,70
5	28	2	M536 28 2	105	85	50	32	2	0,90
5	28	3	M536 28 3	125	105	50	40	2	1,20
5	28	4	M536 28 4	150	130	50	48	2	1,65
6	36	1	M536 36 1	100	74	63	25	2	1,20
6	36	2	M536 36 2	105	79	63	32	2	1,30
6	36	3	M536 36 3	125	99	63	40	2	1,60
6	36	4	M536 36 4	150	124	63	48	2	2,15
6	36	5	M536 36 5	185	159	63	63	2	3,45

For Morse Taper reducers, see chapter Additional equipment.

Accessories

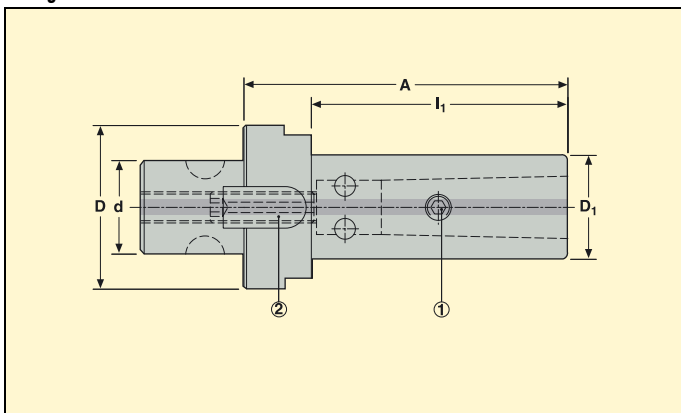
For d/MT	Pull-back screw		Pull-back sleeve
		S	
28/1	950D0675	5	—
28/2	950D1080	8	—
28/3	950D0880	6	05B530403
28/4	950D1080	8	05B530404
36/1	950D0675	5	—
36/2	950D1080	8	—
36/3	950D1290	10	—
36/4	950D1080	8	05B530404
36/5	950D12100	10	05B530505

Please check availability in current price and stock-list.

Type M536 - Holders for Morse Taper with tang, for through coolant





- With a securing screw (1) and an ejecting screw (2).



Graflex shank		MT	Part No.	Dimensions in mm				Balancing	KG
Size	d mm			A	I ₁	D	D ₁		
6	36	1	M536 36 1L	100	74	63	25	2	1,20
6	36	2	M536 36 2L	105	79	63	32	2	1,30
6	36	3	M536 36 3L	125	99	63	40	2	1,60
6	36	4	M536 36 4L	150	124	63	48	2	2,15

For Morse Taper reducers, see chapter Additional equipment.

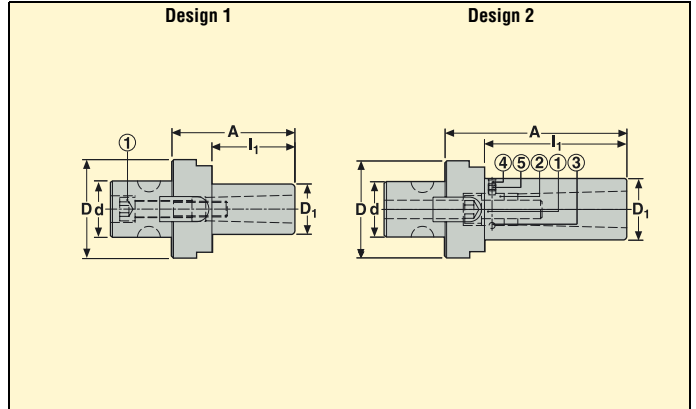
Spare parts

For d/MT	Screw (1)		Screw (2)	
		S		S
36/1	950A0608	3	19L0840	4
36/2	950A0808	4	19L1240	6
36/3	950A1008	5	19L1240	6
36/4	950A1008	5	19L1240	6

Please check availability in current price and stock-list.

Type M533 - Holders for Morse Taper with thread

DIN 6364 Form B/ DIN 228-2 Form C



Graflex shank		MT	Part No.	Dimensions in mm				Design	Balancing	KG
Size	d mm			A	l ₁	D	D ₁			
5	28	2	M533 28 2	65	45	50	32	1	2	0,70
5	28	3	M533 28 3	120	100	50	40	2	2	1,20
6	36	2	M533 36 2	80	54	63	32	1	2	1,20
6	36	3	M533 36 3	120	94	63	40	2	2	1,60
6	36	4	M533 36 4	145	119	63	48	2	2	2,10
7	46	4	M533 46 4	145	119	90	48	2	2	3,00

Spare parts

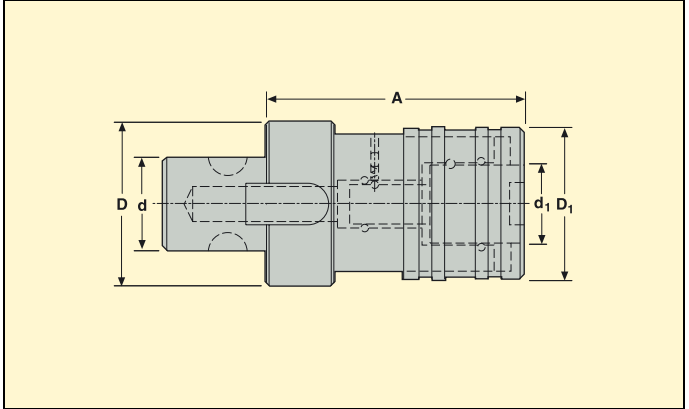
For d/MT	Screw (1)		Ring (2)	Ball (3)	Screw (4)		Screw (5)
		S				Qty	
28/2	950D1040	8	-	-	-	-	-
28/3	950D1240	10	02B53303	901B04	15	950A0504	950T0508
36/2	950D1060	8	-	-	-	-	-
36/3	950D1240	10	02B53303	901B04	15	950A0504	950T0508
36/4	19B5331635	12	02B53304	901B04	20	950A0504	950T0508
46/4	19B5331635	12	02B53304	901B04	20	950A0504	950T0508


Please check availability in current price and stock-list.

Type M5283 - Quick change tapping chucks with axial compensation



- With extension and compression.
- Without through coolant (for through coolant, see following page).

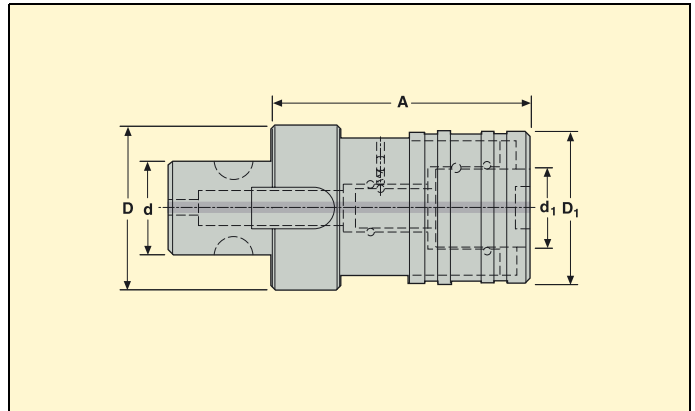


Graflex shank		For tap adapter		Tapping range	Part No.	Dimensions in mm					Balancing	
Size	d mm	Size	d ₁ mm			Compression	Extension	A	D	D ₁		
4	22	2	19	M3-M12	M5283 2 22	7,5	7,5	80	40	39	-	0,25
5	28	2	19	M3-M12	M5283 2 28	7,5	7,5	70	50	39	-	0,75
6	36	2	19	M3-M12	M5283 2 36	7,5	7,5	65	63	39	-	0,51
6	36	3	31	M8-M20	M5283 3 36	12,5	12,5	100	63	59	-	1,72
7	46	4	48	M14-M33	M5283 4 46	20	20	165	90	84	-	6,00

Please check availability in current price and stock-list.
For quick change tap adapters, see chapter Additional equipment.

Type M5283 - Quick change tapping chucks with axial compensation, for through coolant

- With extension and compression.
- Maximum coolant pressure 15 bar.



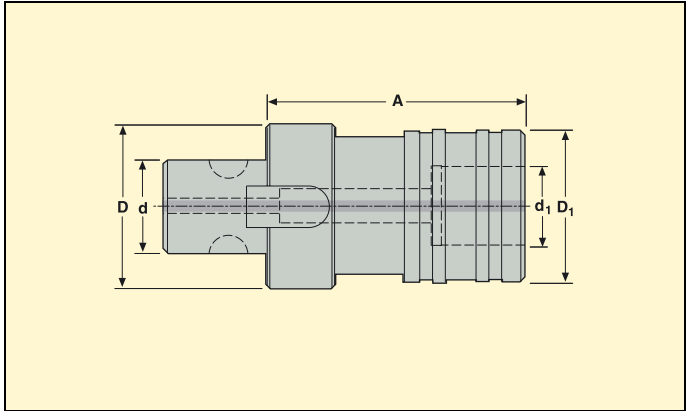
Graflex shank		For tap adapter		Tapping range	Part No.	Dimensions in mm					Balancing	
Size	d mm	Size	d ₁ mm			Compression	Extension	A	D	D ₁		
4	22	2	19	M3-M12	M5283 2 22L	7,5	7,5	80	40	39	—	0,25
5	28	2	19	M3-M12	M5283 2 28L	7,5	7,5	70	50	39	—	0,75
6	36	2	19	M3-M12	M5283 2 36L	7,5	7,5	65	63	39	—	0,51
6	36	3	31	M8-M20	M5283 3 36L	12,5	12,5	100	63	59	—	1,72
7	46	4	48	M14-M33	M5283 4 46L	20	20	165	90	84	—	6,00

Please check availability in current price and stock-list.
For quick change tap adapters, see chapter Additional equipment.

Type M5260 - Quick change tapping chucks for synchronized tapping



- No compensation.
- Maximum coolant pressure 50 bar.



Graflex shank		For tap adapter		Tapping range	Part No.	Dimensions in mm			Balancing	KG
Size	d mm	Size	d ₁ mm			A	D	D ₁		
3	18	2	19	M3-M12	M5260 2 18	40	32	32	2	0,25
5	28	3	31	M8-M20	M5260 3 28	55	50	52	2	0,80
6	36	4	48	M14-M34	M5260 4 36	80	63	73	2	1,90

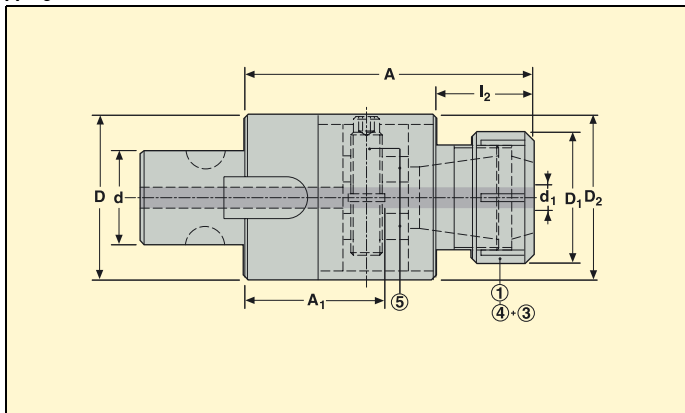
Please check availability in current price and stock-list.

Type M5865 - ER tapping chucks for synchronized tapping

DIN 6499



- No compensation.



Graflex shank		Size	Tapping range	Capacity d ₁ mm	Part No.	Dimensions in mm						Balancing	
Size	d mm					A	I ₂	A ₁	D	D ₁	D ₂		
5	28	ER 25	M5-M20	1-16	M5865 28 25	85	33	39	50	42	42	2	1,00
6	36	ER 32	M5-M30	2-20	M5865 36 32	110	37	53,5	63	50	63	2	1,10
6	36	ER 40	M12-M33	3-26	M5865 36 40	115	43	52,5	63	63	63	2	1,10

For ER collets (16° taper, standard and precision types), see chapter Additional equipment.

Accessories

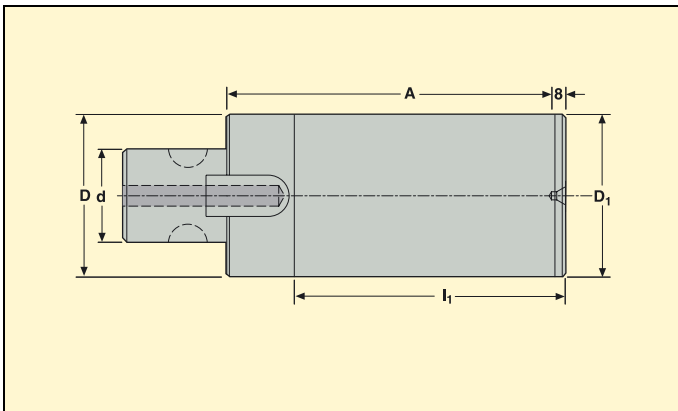
For Size	Spanner	Sealing nut (4)	L ₁	Sealing ring (3)
ER 25	03B587525	08B587525IC	25	01B587525..*
ER 32	03B587532	08B587532IC	27,5	01B587532..*
ER 40	03B587540	08B587540IC	30,5	01B587540..*

Spare parts

For Size	Nut (1)	L ₁	Driving system (5)
ER 25	08B587525X	21	90T586525
ER 32	08B587532X	23	90T586532
ER 40	08B587540X	26	90T586532

Please check availability in current price and stock-list.
 * For ER sealing rings Part No., see chapter Additional equipment.

Type M5023 - Greenstock blanks



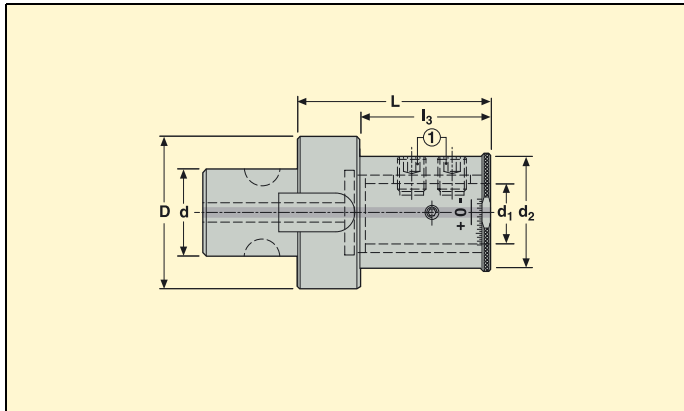
Graflex shank		Part No.	Dimensions in mm				Balancing	KG
Size	d mm		A	l ₁	D	D ₁		
4	22	M5023 22 401	100	83	40	40	-	1,10
5	28	M5023 28 501	100	80	50	50	-	1,65
6	36	M5023 36 632	160	134	63	63	-	4,45
7	46	M5023 46 903	200	174	90	90	-	10,50

Please check availability in current price and stock-list.

Type BM/6100-6101 - Adjustable drill holders, for type 7 drill shanks



- For PerfoMax® drills.
- Adjustable from -0,3 mm to +0,8 mm on diameter.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm				Balancing	
Size	d mm					L	D	d ₂	l ₃		
mm-version											
6	36	7	25	–	BM061 6100 25	70	63	49	54	–	1,20
6	36	7	32	–	BM061 6100 32	85	63	71	69	–	2,10
6	36	7	40	–	BM061 6100 40	85	63	81	69	–	2,60
inch-version											
6	36	7	–	1	BM061 6101 25	70	63	49	54	–	1,20
6	36	7	–	1,25	BM061 6101 31	85	63	71	69	–	2,20
6	36	7	–	1,5	BM061 6101 38	85	63	81	69	–	2,70

Accessories

For d ₁ mm/inch	Reducing sleeve		Locking key		Locking screw (1)	
	D	d	S	S	S	S
mm-version						
25	–	–	H06-4	6	950AF1210014	6
32	05B61003225	32 25	H06-4	6	950AF1210020	6
40	05B61004025	40 25	H06-4	6	950AF1210020	6
40	05B61004032	40 32	H06-4	6	950AF1210020	6
inch-version						
1,0	–	–	H06-4	6	950AF1210014	6
1,25	05B61013125	1,25 1,0	H06-4	6	950AF1210020	6
1,5	05B61013825	1,5 1,0	H06-4	6	950AF1210020	6
1,5	05B61013831	1,5 1,25	H06-4	6	950AF1210020	6

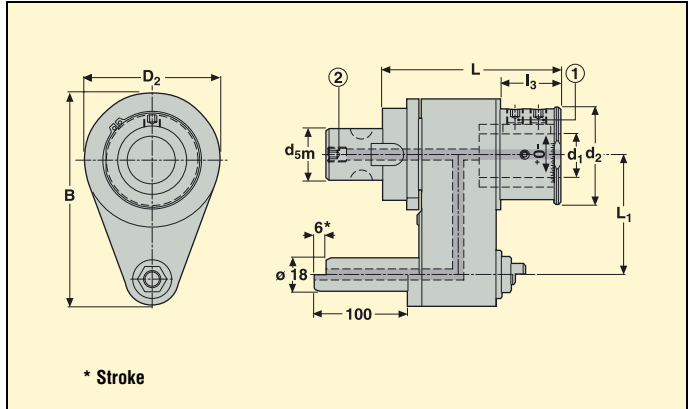
Please check availability in current price and stock-list.

Type BSM/6100-6101/A0 - Rotary coolant inducers, automatic tool change, for type 7 drill shanks, adjustable

ISO 9766



- For Performax® drills.
- Adjustable from -0,3 mm to +0,8 mm on diameter.
- Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm						Max pressure in bar	Max rpm	Balancing	KG
Size	d _{5m} mm					L	B	D ₂	d ₂	L ₁	l ₃				
mm-version															
6	36	7	25	-	BSM061 6100 254A0	110	127,5	90	49	65	42	20	4 000	-	2,2
6	36	7	32	-	BSM061 6100 324A0	110	127,5	90	71	65	42	20	4 000	-	2,3
6	36	7	40	-	BSM061 6100 404A0	110	127,5	90	78	65	42	20	4 000	-	2,3
6	36	7	25	-	BSM061 6100 256A0	110	142,5	90	49	80	42	20	4 000	-	2,4
6	36	7	32	-	BSM061 6100 326A0	110	142,5	90	71	80	42	20	4 000	-	2,5
6	36	7	40	-	BSM061 6100 406A0	110	142,5	90	78	80	42	20	4 000	-	2,5
inch-version															
6	36	7	-	1,0	BSM061 6101 254A0	110	127,5	90	49	65	42	20	4 000	-	2,2
6	36	7	-	1,25	BSM061 6101 314A0	110	127,5	90	71	65	42	20	4 000	-	2,3
6	36	7	-	1,5	BSM061 6101 384A0	110	127,5	90	78	65	42	20	4 000	-	2,5
6	36	7	-	1,0	BSM061 6101 256A0	110	142,5	90	49	80	42	20	4 000	-	2,3
6	36	7	-	1,25	BSM061 6101 316A0	110	142,5	90	71	80	42	20	4 000	-	2,4
6	36	7	-	1,5	BSM061 6101 386A0	110	142,5	90	78	80	42	20	4 000	-	2,5

Accessories

For d ₁ mm/inch	Socket	Reducing sleeve		Locking key	
		D	d	S	S
mm-version					
25	E99000	-	-	-	H06-4 6
32	E99000	05B61003225	32	25	H06-4 6
40	E99000	05B61004025	40	25	H06-4 6
40	E99000	05B61004032	40	32	H06-4 6
inch-version					
1,0	E99000	-	-	-	H06-4 6
1,25	E99000	05B61003125	1,25	1,00	H06-4 6
1,5	E99000	05B61003825	1,50	1,00	H06-4 6
1,5	E99000	05B61003831	1,50	1,25	H06-4 6

Spare parts

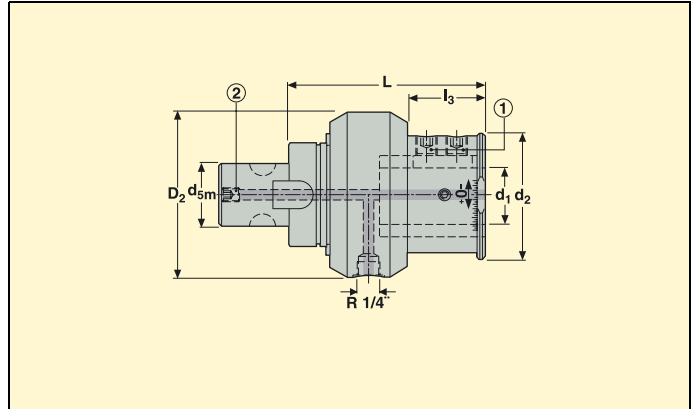
Locking screw (1)		Plug (2)	
S	S		
950AF1210014	6	950A1012	
950AF1210020	6	950A1012	
950AF1210020	6	950A1012	
950AF1210020	6	950A1012	
950AF1210014	6	950A1012	
950AF1210020	6	950A1012	
950AF1210020	6	950A1012	
950AF1210020	6	950A1012	

Please check availability in current price and stock-list.

Type BSM/6100-6101/00 - Rotary coolant inducers, manual tool change, for type 7 drill shanks, adjustable



- For Performax® drills.
- Adjustable from -0,3 mm to +0,8 mm on diameter.
- Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm				Max pressure bar	Max rpm	Balancing	
Size	d _{5m} mm					L	D ₂	d ₂	l ₃				
mm-version													
6	36	7	25	–	BSM061 6100 25200	110	95	49	42	20	4 000	–	1,9
6	36	7	32	–	BSM061 6100 32200	110	95	71	42	20	4 000	–	2,0
6	36	7	40	–	BSM061 6100 40200	110	95	78	42	20	4 000	–	2,0
inch-version													
6	36	7	–	1,0	BSM061 6101 25200	110	95	49	42	20	4 000	–	1,9
6	36	7	–	1,25	BSM061 6101 31200	110	95	71	42	20	4 000	–	2,0
6	36	7	–	1,5	BSM061 6101 38200	110	95	78	42	20	4 000	–	2,0

Accessories

For d ₁ mm/inch	Reducing sleeve			Locking key	
		D	d	S	S
mm-version					
25	–	–	–	H06-4	6
32	05B61003225	32	25	H06-4	6
40	05B61004025	40	25	H06-4	6
40	05B61004032	40	32	H06-4	6
inch-version					
1,0	–	–	–	H06-4	6
1,25	05B61013125	1,25	1,0	H06-4	6
1,5	05B61013825	1,5	1,0	H06-4	6
1,5	05B61013831	1,5	1,25	H06-4	6

Spare parts

Locking screw (1)		Plug (2)
	S	
950AF1210014	6	950A1012
950AF1210020	6	950A1012
950AF1210020	6	950A1012
950AF1210020	6	950A1012
950AF1210014	6	950A1012
950AF1210020	6	950A1012
950AF1210020	6	950A1012
950AF1210020	6	950A1012

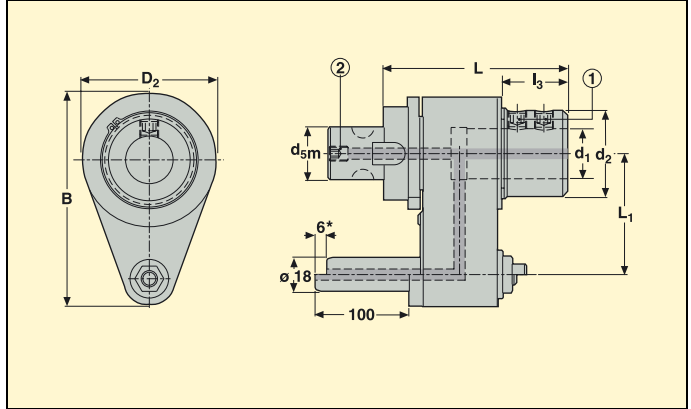
Please check availability in current price and stock-list.

Type BSM/6181-6183/A0 - Rotary coolant inducers, automatic tool change, for type 7 drill shanks

ISO 9766



• Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm						Max pressure bar	Max rpm	Balancing	KG
Size	d _{sm} mm					L	B	D ₂	d ₂	L ₁	I ₃				
mm-version															
5	28	7	25	–	BSM051 6181 253A0	105	112,5	60	39,5	65	42	20	6 000	–	2,2
5	28	7	25	–	BSM051 6181 255A0	105	127,5	60	39,5	80	42	20	6 000	–	2,4
6	36	7	32	–	BSM061 6181 324A0	110	127,5	90	55	65	42	20	4 000	–	2,3
6	36	7	32	–	BSM061 6181 326A0	110	142,5	90	55	80	42	20	4 000	–	2,5
6	36	7	40	–	BSM061 6181 404A0	115	127,5	90	63	65	47	20	4 000	–	2,3
6	36	7	40	–	BSM061 6181 406A0	115	142,5	90	63	80	47	20	4 000	–	2,5
inch-version															
5	28	7	–	1,0	BSM051 6183 253A0	105,4	112,5	60	39,5	65	42,4	20	6 000	–	2,2
5	28	7	–	1,0	BSM051 6183 255A0	105,4	127,5	60	39,5	80	42,4	20	6 000	–	2,4
6	36	7	–	1,25	BSM061 6183 314A0	110,5	127,5	90	55	65	42,5	20	4 000	–	2,3
6	36	7	–	1,25	BSM061 6183 316A0	110,5	142,5	90	55	80	42,5	20	4 000	–	2,5
6	36	7	–	1,5	BSM061 6183 384A0	115,5	127,5	90	63	65	47,5	20	4 000	–	2,3
6	36	7	–	1,5	BSM061 6183 386A0	115,5	142,5	90	63	80	47,5	20	4 000	–	2,5

Accessories

For d ₁ mm/inch	Socket	Reducing sleeve		Locking key		
		D	d	S	S	
mm-version						
25	E99000	–	–	H06-4	6	
32	E99000	05B61003225	32	25	H06-4	6
40	E99000	05B61004025	40	25	H06-4	6
40	E99000	05B61004032	40	32	H06-4	6
inch-version						
1,0	E99000	–	–	H06-4	6	
1,25	E99000	05B61013125	1,25	1,00	H06-4	6
1,5	E99000	05B61013825	1,50	1,00	H06-4	6
1,5	E99000	05B61013831	1,50	1,25	H06-4	6

Spare parts

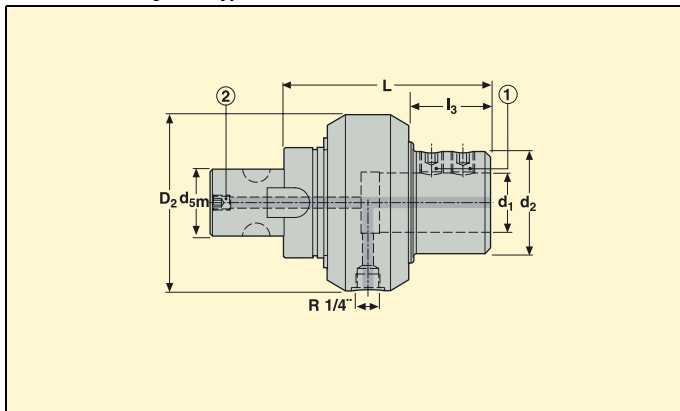
Locking screw (1)		Plug (2)
S	S	
19X60841208	6	950A0810
19X608412	6	950A1012
19X608412	6	950A1012
19X608412	6	950A1012
19X60841208	6	950A0810
19X608412	6	950A1012
19X608412	6	950A1012
19X608412	6	950A1012

Please check availability in current price and stock-list.

Type BSM/6181-6183/00 - Rotary coolant inducers, manual tool change, for type 7 drill shanks



- Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm				Max pressure bar	Max rpm	Balancing	
Size	d _{5m} mm					L	D ₂	d ₂	l ₃				
mm-version													
5	28	7	25	–	BSM051 6181 25100	105	75	39,5	42	20	6 000	–	1,8
6	36	7	32	–	BSM061 6181 32200	110	95	55	42	20	4 000	–	1,9
6	36	7	40	–	BSM061 6181 40200	115	95	63	47	20	4 000	–	2,0
inch-version													
5	28	7	–	1,0	BSM051 6183 25100	105,4	75	39,5	42,4	20	6 000	–	1,8
6	36	7	–	1,25	BSM061 6183 31200	110,5	95	55	42,5	20	4 000	–	1,9
6	36	7	–	1,5	BSM061 6183 38200	115,5	95	63	47,5	20	4 000	–	2,0

Accessories

For d ₁ mm/inch	Reducing sleeve		Locking key	
		D	d	S
mm-version				
25	–	–	–	H06-4 6
32	05B61003225	32	25	H06-4 6
40	05B61004025	40	25	H06-4 6
40	05B61004032	40	32	H06-4 6
inch-version				
1,0	–	–	–	H06-4 6
1,25	05B61013125	1,25	1,00	H06-4 6
1,5	05B61013825	1,50	1,00	H06-4 6
1,5	05B61013831	1,50	1,25	H06-4 6

Spare parts

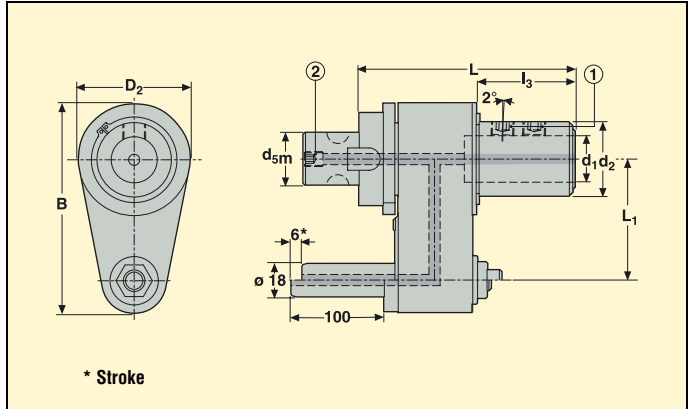
Locking screw (1)		Plug (2)
	S	
19X60841208	6	950A0810
19X608412	6	950A1012
19X608412	6	950A1012
19X608412	6	950A1012
19X60841208	6	950A0810
19X608412	6	950A1012
19X608412	6	950A1012
19X608412	6	950A1012

Please check availability in current price and stock-list.

Type BSM/6180-6182/A0 - Rotary coolant inducers, automatic tool change, for type 5 drill shanks



• Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm						Max pressure bar	Max rpm	Balancing	KG
Size	d _{5m} mm					L	B	D ₂	d ₂	L ₁	l ₃				
mm-version															
5	28	5	16	–	BSM051 6180 163A0	100	112,5	60	32	65	37	20	6 000	–	2,3
5	28	5	16	–	BSM051 6180 165A0	100	127,5	60	32	80	37	20	6 000	–	2,5
5	28	5	20	–	BSM051 6180 203A0	100	112,5	60	36	65	37	20	6 000	–	2,4
5	28	5	20	–	BSM051 6180 205A0	100	127,5	60	36	80	37	20	6 000	–	2,6
5	28	5	25	–	BSM051 6180 253A0	115	112,5	60	39,5	65	52	20	6 000	–	2,9
5	28	5	25	–	BSM051 6180 255A0	115	127,5	60	39,5	80	52	20	6 000	–	3,1
6	36	5	32	–	BSM061 6180 324A0	110	127,5	90	55	65	42	20	4 000	–	2,9
6	36	5	32	–	BSM061 6180 326A0	110	142,5	90	55	80	42	20	4 000	–	3,1
inch-version															
5	28	5	–	0,625	BSM051 6182 153A0	101,6	112,5	60	32	65	38,6	20	6 000	–	2,3
5	28	5	–	0,625	BSM051 6182 155A0	101,6	127,5	60	32	80	38,6	20	6 000	–	2,5
5	28	5	–	0,75	BSM051 6182 193A0	101,6	112,5	60	36	65	38,6	20	6 000	–	2,4
5	28	5	–	0,75	BSM051 6182 195A0	101,6	127,5	60	36	80	38,6	20	6 000	–	2,6
5	28	5	–	1,0	BSM051 6182 253A0	115,5	112,5	60	39,5	65	52,5	20	6 000	–	2,9
5	28	5	–	1,0	BSM051 6182 255A0	115,5	127,5	60	39,5	80	52,5	20	6 000	–	3,1
6	36	5	–	1,25	BSM061 6182 314A0	110,5	127,5	90	55	65	42,5	20	4 000	–	2,9
6	36	5	–	1,25	BSM061 6182 316A0	110,5	142,5	90	55	80	42,5	20	4 000	–	3,1

Accessories

For d ₁ mm/inch	Socket	Locking key	S
mm-version			
16	E99000	H05-4	5
20	E99000	H05-4	5
25	E99000	H06-4	6
32	E99000	H06-4	6
inch-version			
0,625	E99000	H05-4	5
0,75	E99000	H05-4	5
1,0	E99000	H06-4	6
1,25	E99000	H06-4	6

Spare parts

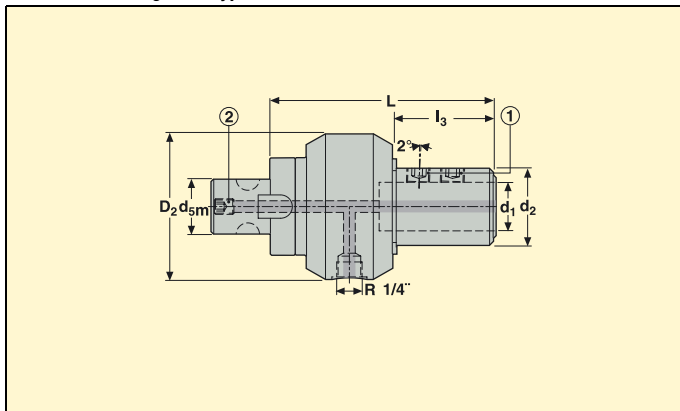
	Locking screw (1)			Plug (2)
	Qty	S		
19X608410	1	5	950A0810	
19X608410	1	5	950A0810	
19X60841208	2	6	950A0810	
19X608412	2	6	950A1012	
19X608410	1	5	950A0810	
19X608410	1	5	950A0810	
19X60841208	2	6	950A0810	
19X608412	2	6	950A1012	

Please check availability in current price and stock-list.

Type BSM/6180-6182/00 - Rotary coolant inducers, manual tool change, for type 5 drill shanks



- Filtration to 40 µm maximum required.



Graflex shank		For drill shank type	d ₁ mm	d ₁ inch	Part No.	Dimensions in mm				Max pressure bar	Max rpm	Balancing	
Size	d _{5m} mm					L	D ₂	d ₂	l ₃				
mm-version													
5	28	5	16	–	BSM051 6180 16100	100	75	32	37	20	6 000	–	1,8
5	28	5	20	–	BSM051 6180 20100	100	75	36	37	20	6 000	–	2,9
5	28	5	25	–	BSM051 6180 25100	115	75	39,5	52	20	6 000	–	2,4
6	36	5	32	–	BSM061 6180 32200	110	95	55	42	20	4 000	–	2,6
inch-version													
5	28	5	–	0,625	BSM051 6182 15100	101,6	75	32	38,6	20	6 000	–	1,8
5	28	5	–	0,75	BSM051 6182 19100	101,6	75	36	38,6	20	6 000	–	2,9
5	28	5	–	1,0	BSM051 6182 25100	115,5	75	39,5	52,5	20	6 000	–	2,4
6	36	5	–	1,25	BSM061 6182 31200	110,5	95	55	42,5	20	4 000	–	2,6

Accessories

For d ₁ mm/inch	Locking key	
		S
mm-version		
16	H05-4	5
20	H05-4	5
25	H06-4	6
32	H06-4	6
inch-version		
0,625	H05-4	5
0,75	H05-4	5
1,0	H06-4	6
1,25	H06-4	6

Spare parts

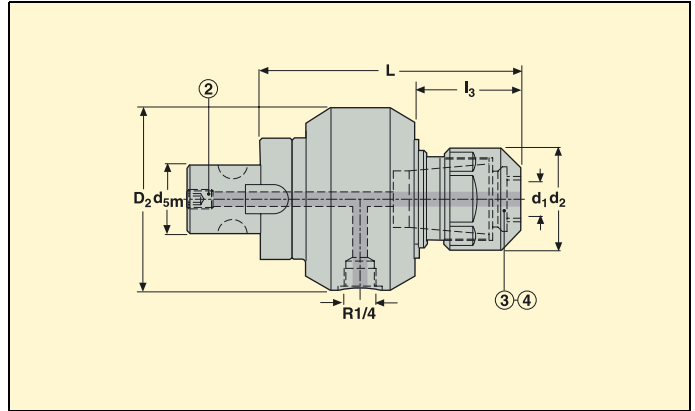
	Locking screw (1)		Plug (2)	
	Qty	S		
mm-version				
16	19X608410	1	5	950A0810
20	19X608410	1	5	950A0810
25	19X60841208	2	6	950A0810
32	19X608412	2	6	950A1012
inch-version				
0,625	19X608410	1	5	950A0810
0,75	19X608410	1	5	950A0810
1,0	19X60841208	2	6	950A0810
1,25	19X608412	2	6	950A1012

Please check availability in current price and stock-list.

Type BSM/5872/00 - Rotary coolant inducers, manual tool change, D type precision collet chuck



- Filtration to 40 µm maximum required.



Graflex shank		D type size	d ₁ mm	Part No.	Dimensions in mm				Max pressure bar	Max rpm	Balancing	
Size	d _{5m} mm				L	D ₂	d ₂	I ₃				
5	28	D 29	1-20	BSM051 5872 29100	106,3	75	42	43,3	20	6 000	–	1,8

D type 29 collets and sealing rings, see chapter Additional equipment.

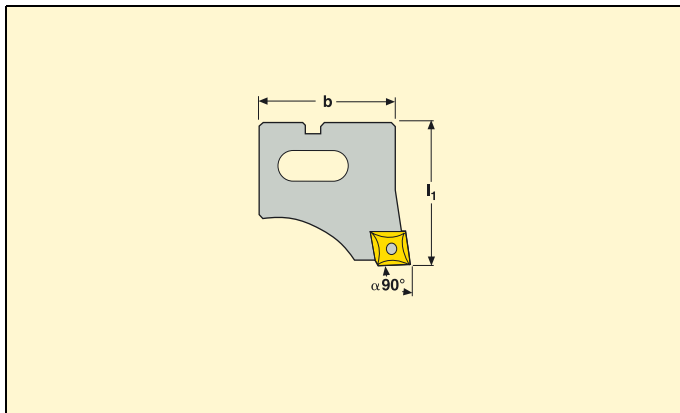
Accessories

Spare parts

For d ₁	Compression ring	Sealing ring (3)	Sealing nut (4)			Plug (2)
				L ₁	S	
1-20	03D587229A	01B587229.*	08B587229BE	31	38	950A0810

Please check availability in current price and stock-list.
 * For D type sealing rings Part No., see chapter Additional equipment.

Rough boring insert holders 90°, for heads type A750



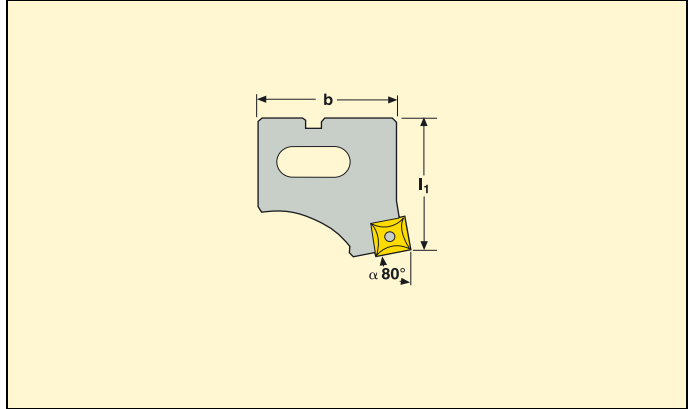
- For fitting on to type A750 heads.
- Symmetrical boring requires two standard type A insert holders.
- Staggered boring requires one standard type A and one extended type B insert holders.

Insert holders type	For head	Capacity \varnothing mm	Part No.	Lead angle α°	Dimensions in mm		Suitable insert size	
					l_1	b		
Standard type A	A75000	18-24	A750 00CP05 90	90°	22,5	16,5	CP...0502...	0,010
	A75010	23-31	A750 10CC06 90	90°	26,5	21,5	CC...0602...	0,018
	A75020	30-40	A750 20CC06 90	90°	30	27	CC...0602...	0,035
	A75030	39-51	A750 30CC09 90	90°	41	35	CC...09T3...	0,080
	A75040	50-65	A750 40CC12 90	90°	45	43	CC...1204...	0,140
	A75050	64-86	A750 50CC12 90	90°	52	54	CC...1204...	0,250
	A75060	85-115	A750 60CC12 90	90°	68	70	CC...1204...	0,550
	A75060	85-115	A750 60CC16 90	90°	68	70	CC...1605...	0,550
	A75060	114-144	A750 65CC12 90	90°	68	100	CC...1204...	0,950
	A75060	114-144	A750 65CC16 90	90°	68	100	CC...1605...	0,950
	A75070	114-160	A750 70CC12 90	90°	81	95	CC...1204...	1,200
	A75070	114-160	A750 70CC16 90	90°	81	95	CC...1605...	1,200
	A75070	159-205	A750 75CC12 90	90°	81	141	CC...1204...	2,000
A75070	159-205	A750 75CC16 90	90°	81	141	CC...1605...	2,000	
Extended type B	A75000	18-24	A750 01CP05 90	90°	22,8	16,5	CP...0502...	0,010
	A75010	23-31	A750 11CC06 90	90°	26,85	21,5	CC...0602...	0,018
	A75020	30-40	A750 21CC06 90	90°	30,35	27	CC...0602...	0,035
	A75030	39-51	A750 31CC09 90	90°	41,4	35	CC...09T3...	0,080
	A75040	50-65	A750 41CC12 90	90°	45,5	43	CC...1204...	0,140
	A75050	64-86	A750 51CC12 90	90°	52,6	54	CC...1204...	0,250
	A75060	85-115	A750 61CC12 90	90°	68,6	70	CC...1204...	0,550
	A75060	85-115	A750 61CC16 90	90°	68,6	70	CC...1605...	0,550
	A75060	114-144	A750 66CC12 90	90°	68,6	100	CC...1204...	0,950
	A75060	114-144	A750 66CC16 90	90°	68,6	100	CC...1605...	0,950
	A75070	114-160	A750 71CC12 90	90°	81,6	95	CC...1204...	1,200
	A75070	114-160	A750 71CC16 90	90°	81,6	95	CC...1605...	1,200
	A75070	159-205	A750 76CC12 90	90°	81,6	141	CC...1204...	2,000
	A75070	159-205	A750 76CC16 90	90°	81,6	141	CC...1605...	2,000

Please check availability in current price and stock-list.

For insert fixing spare screws and torx keys, see page Insert locking screws and keys.

Rough boring insert holders 80°, for heads type A750



- For fitting on to type A750 heads.
- Symmetrical boring requires two standard type A insert holders.
- Staggered boring requires one standard type A and one extended type B insert holders.

Insert holders type	For head	Capacity Ø mm	Part No.	Lead angle α°	Dimensions in mm		Suitable insert size	KG
					l ₁	b		
Standard type A	A75000	18-24	A750 00SC05 80	80°	22,5	16,5	SC...0502...	0,010
	A75010	23-31	A750 10SC06 80	80°	26,5	21,5	SC...0602...	0,018
	A75020	30-40	A750 20SC06 80	80°	30	27	SC...0602...	0,035
	A75030	39-51	A750 30SC09 80	80°	41	35	SC...09T3...	0,080
	A75040	50-65	A750 40SC12 80	80°	45	43	SC...1204...	0,140
	A75050	64-86	A750 50SC12 80	80°	52	54	SC...1204...	0,250
	A75060	85-115	A750 60SC12 80	80°	68	70	SC...1204...	0,550
	A75060	85-115	A750 60SC15 80	80°	68	70	SC...1505...	0,550
	A75060	114-144	A750 65SC12 80	80°	68	100	SC...1204...	0,950
	A75060	114-144	A750 65SC15 80	80°	68	100	SC...1505...	0,950
	A75070	114-160	A750 70SC12 80	80°	81	95	SC...1204...	1,250
	A75070	114-160	A750 70SC15 80	80°	81	95	SC...1505...	1,250
	A75070	159-205	A750 75SC12 80	80°	81	141	SC...1204...	2,080
A75070	159-205	A750 75SC15 80	80°	81	141	SC...1505...	2,080	
Extended type B	A75000	18-24	A750 01SC05 80	80°	23,2	16,5	SC...0502...	0,010
	A75010	23-31	A750 11SC06 80	80°	27,3	21,5	SC...0602...	0,018
	A75020	30-40	A750 21SC06 80	80°	30,9	27	SC...0602...	0,035
	A75030	39-51	A750 31SC09 80	80°	42,2	35	SC...09T3...	0,080
	A75040	50-65	A750 41SC12 80	80°	46,4	43	SC...1204...	0,140
	A75050	64-86	A750 51SC12 80	80°	53,7	54	SC...1204...	0,250
	A75060	85-115	A750 61SC12 80	80°	69,8	70	SC...1204...	0,550
	A75060	85-115	A750 61SC15 80	80°	70,3	70	SC...1505...	0,550
	A75060	114-144	A750 66SC12 80	80°	69,8	100	SC...1204...	0,950
	A75060	114-144	A750 66SC15 80	80°	70,3	100	SC...1505...	0,950
	A75070	114-160	A750 71SC12 80	80°	82,8	95	SC...1204...	1,250
	A75070	114-160	A750 71SC15 80	80°	83,3	95	SC...1505...	1,250
	A75070	159-205	A750 76SC12 80	80°	82,8	141	SC...1204...	2,080
	A75070	159-205	A750 76SC15 80	80°	83,3	141	SC...1505...	2,080

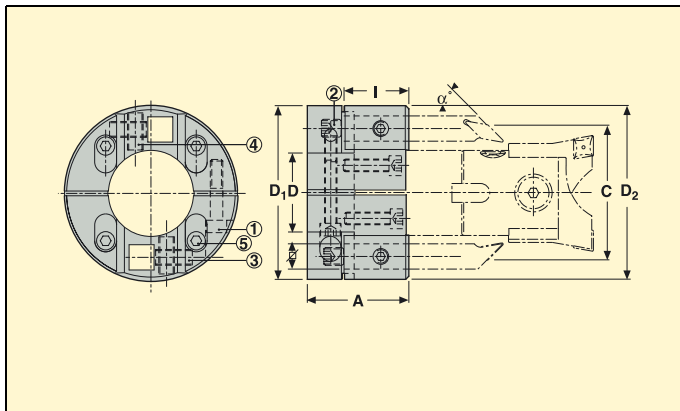
Please check availability in current price and stock-list.

For insert fixing spare screws and torx keys, see page Insert locking screws and keys.

Type A5162 - Chamfering rings



- One or two chamfering tools can be held.



Capacity C ∅ mm				Part No.	Graflex external diameter		For square shank tools mm	Dimensions in mm				KG
∅ Min mm	∅ Max α 15°	∅ Max α 30°	∅ Max α 45°		Size	D mm		D ₁	D ₂	A	I	
18	27	30	32	A5162 16	0	16	6	38	43	25	16,5	0,10
23	34	41	46	A5162 20	1	20	8	47	54	33	20,5	0,10
30	43	50	55	A5162 25	2	25	8	52	61	33	20,5	0,15
39	56	61	66	A5162 32	3	32	10	65	78	40	25	0,25
50	70	75	80	A5162 40	4	40	12	85	101	49	29,5	0,55
64	94	101	108	A5162 50	5	50	16	110	132	65	41,5	1,25
85	123	130	137	A5162 63	6	63	16	134	162	70	42,5	1,90
114	168	175	182	A5162 90	7	90	16	165	207	75	44,5	3,00

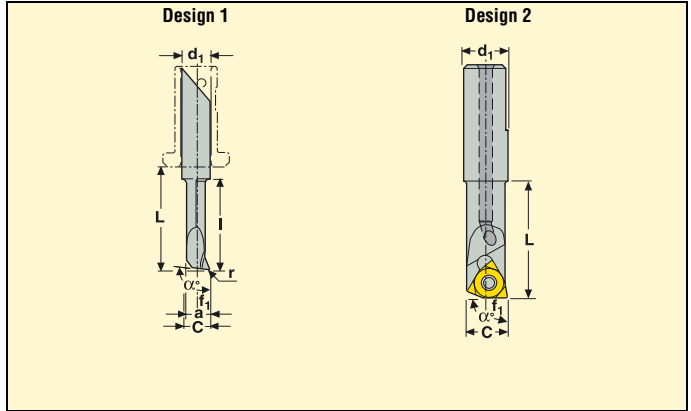
Chamfering tools, square shank type, have to be ordered separately, see next page.

Spare parts

	Back ring clamping screw (1)	Adjusting screw (2)	Tool locking screw (3)	Front ring adjusting screw (4)	Front ring locking screw (5)
For D					
16	950D0312	950A0408	950A0408	950A0408	950D0312
20-25	950D0416	950A0510	950A0510	950A0510	950D0416
32	950D0520	950A0612	950A0612	950A0612	950D0520
40	950D0625	950A0816	950A0820	950A0820	950D0625
50	950D0840	950A1020	950A1025	950A1025	950D0840
63	950D0850	950A1025	950A1030	950A1030	950D0840
90	950D1050	950A1030	950A1040	950A1030	950D1035

Please check availability in current price and stock-list.

Fine boring tools, for NanoBore™ head A76001



Tool material	Capacity C Ø mm	d ₁ mm	Part No.	Dimensions in mm					Lead angle	Suitable insert size	Recommended cutting data**		Design	KG
				L	l	a	f ₁	r			Depth of cut (mm)	Feed, f (mm/rev)		
Solid carbide*	0,3-0,6	4	A761 402	13	1,2	0,25	0,10	0	98°	-	0,02	0,01	1	0,004
	0,5-1,1	4	A761 412	13	2	0,45	0,20	0	98°	-	0,02	0,01	1	0,004
	1-2,1	4	A761 422	13	5	0,95	0,45	0,10	98°	-	0,03	0,02	1	0,004
	2-3,2	4	A761 432	13	8	1,80	0,88	0,10	98°	-	0,05	0,02	1	0,003
	3-4,7	4	A761 442	13	10	2,75	1,35	0,15	98°	-	0,06	0,03	1	0,004
4,5-6,2	4	A761 452	18	15	3,95	1,95	0,15	98°	-	0,08	0,03	1	0,005	
Steel, indexable insert type	6-8	6	A762 001	16	-	-	2,90	***	90°	WB..0301..	***	***	2	0,005
Carbide, indexable insert type	6-8	6	A762 201	26	-	-	2,90	***	90°	WB..0301..	***	***	2	0,012

*Tools with shank dia 4 mm require the use of a reduction bushing, see NanoBore™ head and kits pages.

For cutting speed, see Guide pages 'Graflex modular system, NanoBore™'. *See inserts.

Accessories

Spare parts

For insert size	Torx driver for insert locking screw*	Insert locking screw	
		Torx.	
WB..0301..	T06P-2	CO2035-T06P	T06P

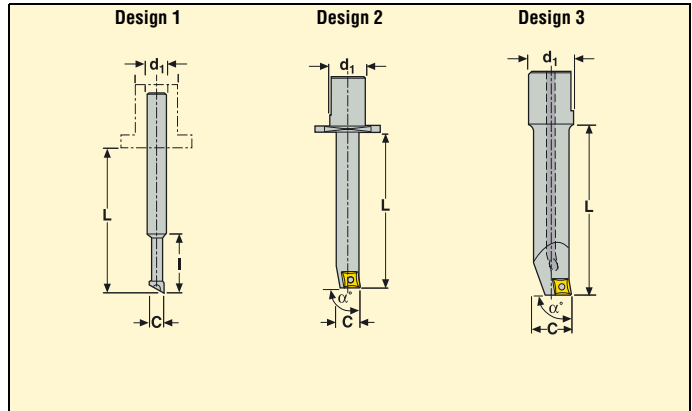
Please check availability in current price and stock-list.

* A torx driver is part of the NanoBore head and kits delivery content.

Fine boring tools, for heads A72002, A78000 and A79000



- For fitting on to axial type Fine boring heads A72002, A78000 and A79000.



Tool material	For head	Capacity C Ø mm	d ₁ mm	Lead angle α°	Part No.	Dimensions in mm		Suitable insert size	Design	KG
						L	I			
Solid carbide*	A72002/ A78000/ A79000	2-3	6	–	A721 012	16	10	–	1	0,01
	A72002/ A78000/ A79000	3-4,5	6	–	A721 032	34	10	–	1	0,015
	A72002/ A78000/ A79000	4,5-6	6	–	A721 042	34	14	–	1	0,015
Steel, indexable insert type	A72002	6-10	14	90°	A728 012	22	–	WB...0301...	2	0,03
	A72002	8-14	14	90°	A728 022	30	–	WB...0301...	2	0,04
	A72002	10-18	14	90°	A728 035	45	–	CC...0602...	2	0,05
	A72002	16-24	14	90°	A728 045	65	–	CC...0602...	2	0,09
Heavy metal, indexable insert type	A72002	6-10	14	90°	A728 112	32	–	WB...0301...	2	0,06
	A72002	8-14	14	90°	A728 122	45	–	WB...0301...	2	0,08
	A72002	10-18	14	90°	A728 135	60	–	CC...0602...	2	0,12
Steel, indexable insert type	A78000/ A79000	6-9	16	90°	A792 001	23	–	WB...0301...	3	0,04
	A78000/ A79000	8-11	16	90°	A792 002	30	–	WB...0301...	3	0,04
	A78000/ A79000	10-16	16	90°	A795 003	40	–	CC...0602...	3	0,05
	A78000/ A79000	15-20	16	90°	A795 004	60	–	CC...0602...	3	0,09
	A78000/ A79000	19-24	16	90°	A795 005	70	–	CC...0602...	3	0,11
	A78000/ A79000	23-28	16	90°	A795 006	70	–	CC...0602...	3	0,12
	A78000/ A79000	27-32	16	90°	A795 007	70	–	CC...0602...	3	0,12
Heavy metal, indexable insert type	A78000/ A79000	6-9	16	90°	A792 101	33	–	WB...0301...	3	0,09
	A78000/ A79000	8-11	16	90°	A792 102	45	–	WB...0301...	3	0,10
	A78000/ A79000	10-14	16	90°	A795 103A	55	–	CC...0602...	3	0,12
	A78000/ A79000	13-16	16	90°	A795 103B	70	–	CC...0602...	3	0,18
Carbide, indexable insert type	A78000/ A79000	6-9	16	90°	A792 201	42	–	WB...0301...	3	0,08
	A78000/ A79000	8-11	16	90°	A792 202	56	–	WB...0301...	3	0,10
	A78000/ A79000	10-14	16	90°	A795 203A	72	–	CC...0602...	3	0,10
	A78000/ A79000	13-16	16	90°	A795 203B	92	–	CC...0602...	3	0,16
	A78000/ A79000	15,5-18	16	90°	A795 204A	112	–	CC...0602...	3	0,18

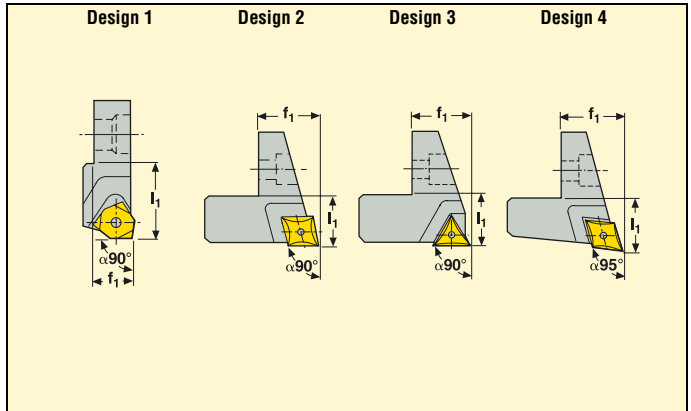
Please check availability in current price and stock-list.

* Tools with shank dia 6 mm require the use of a reducing bushing for fitting into the heads, see Head pages.
For insert fixing spare screws and torx keys, see page insert locking screws and keys.

Fine boring insert holders 90° and 95°, for radial type heads type A780 and A790.



• For fitting on to type A780 and A790 radial heads.

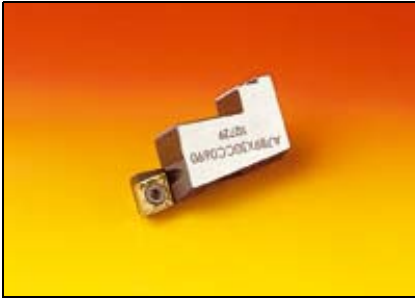


Lead angle α°	For A780... and A790...	Insert holder size	Capacity C \varnothing mm	Part No.	Dimensions in mm		Suitable insert size	Design	
					l_1	f_1			
90° for WB inserts	...08 / ...09	09	15-23,5	A782 09	7,2	4	WB...0301...	1	0,002
90° for CC inserts	...10	10	23-31	A725 10	10,3	4,5	CC...0602...	2	0,005
	...20	20	30-40	A725 20	8,3	5	CC...0602...	2	0,005
	...30	30	39-51	A725 30	10,3	8	CC...0602...	2	0,010
	...40	40	50-65	A725 40	10,3	9,5	CC...0602...	2	0,012
	...50	50	64-86	A725 50	10,3	12,5	CC...0602...	2	0,017
	...60	60	85-115*	A725 60	16,5	18,9	CC...09T3...	2	0,070
	...60**	65	114-144*	A725 65	16,5	33,7	CC...09T3...	2	0,090
	...70	70	114-160	A725 70	16,5	18,9	CC...09T3...	2	0,090
90° for TC inserts	...70	75	159-205	A725 75	16,5	41,7	CC...09T3...	2	0,120
	...30	30	39-51	A724 30	10,3	7,9	TC...1102...	3	0,010
	...40	40	50-65	A724 40	10,3	9,4	TC...1102...	3	0,012
	...50	50	64-86	A724 50	10,3	12,4	TC...1102...	3	0,017
	...60	60	85-115*	A724 60	16,3	18,9	TC...1102...	3	0,070
	...60**	65	114-144*	A724 65	16,5	33,7	TC...1102...	3	0,090
	...70	70	114-160	A724 70	16,3	18,9	TC...1102...	3	0,090
	...70	75	159-205	A724 75	16,5	41,7	TC...1102...	3	0,120
95° for CC inserts	...10	10	23-31	A726 10	10,3	4,5	CC...0602...	4	0,005
	...20	20	30-40	A726 20	8,3	5	CC...0602...	4	0,005
	...30	30	39-51	A726 30	10,3	8	CC...0602...	4	0,010
	...40	40	50-65	A726 40	10,3	9,5	CC...0602...	4	0,012
	...50	50	64-86	A726 50	10,3	12,5	CC...0602...	4	0,017
	...60	60	85-115*	A726 60	16,5	18,9	CC...09T3...	4	0,070
	...60**	65	114-144*	A726 65	16,5	33,7	CC...09T3...	4	0,090
	...70	70	144-160	A726 70	16,5	18,9	CC...09T3...	4	0,090
	...70	75	159-205	A726 75	16,5	41,7	CC...09T3...	4	0,120

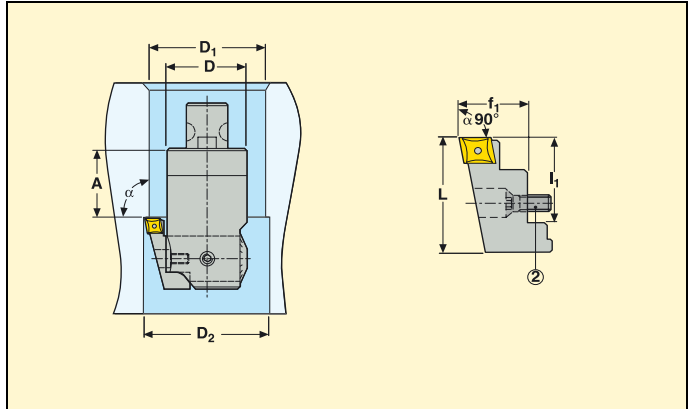
Please check availability in current price and stock-list.

* The insert holders size 60 also fit on to the fine boring sliding block for bridge bar boring heads. ** The precision balancing of type A790 heads is not possible when using the large insert holders. For insert fixing spare screws and torx keys, see page Insert locking screws and keys.

Fine back-boring insert holders



- For fitting on to type A780 and A790 radial heads.
- The precision balancing of type A790 heads is not possible when using back-boring insert holders.



Back-boring capacity D_2 related to head \varnothing mm	Lead angle α°	Part No.	Dimensions in mm					Suitable insert size	
			A	D	L	l_1	f_1		
A78008: 26,5-30 A78009: 29,5-35	90°	A789X08WB03 90	13/ 13	14/ 17	19	14,5	9,8	WB...0301...	0,008
A78010: 34-42	90°	A789X10WB03 90	16,5	21,5	22	16	10	WB...0301...	0,010
A78010: 39,5-47,5 A78020/ A79020: 46-56	90°	A789X10CC06 90	16,5/ 21,5	21,5/ 27	22	16	12,8	CC...0602...	0,015
A78030/ A79030: 53-65 A78040/ A79040: 61-76 A78050/ A79050: 69-91	90°	A789X30CC06 90	32/ 39/ 49	35/ 43/ 54	30	23	15	CC...0602...	0,025
A78060: 89-119	90°	A789X60CC06 90	50	70	50	38,5	21	CC...0602...	0,075
A78070: 118-164	90°	A789X70CC06 90	60	95	50	38,5	21	CC...0602...	0,090

For the minimum access diameter D_1 mini calculation, see Guide pages.

Spare parts

For	Dedicated back-boring insert holder locking screw (2)
A789X08WB0390	-
A789X10WB0390	950F0308
A789X10CC0690	950F0308
A789X30CC0690	950F0410
A789X60CC0690	950F0620
A789X70CC0690	950F0620

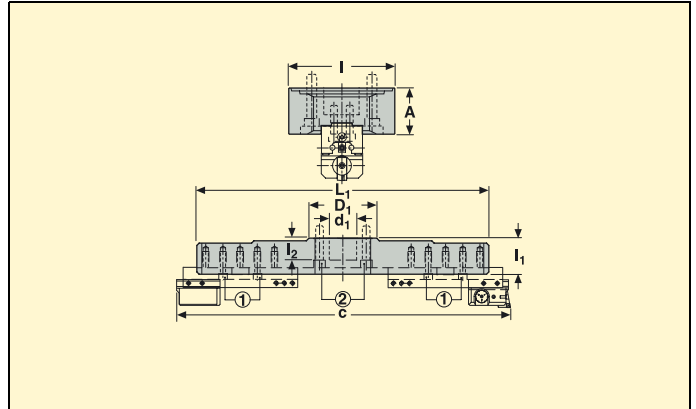
Please check availability in current price and stock-list.

For insert fixing spare screws and torx keys, see page insert locking screws and keys.

Jumbo Bridge bars



- Jumbo Bridge bars are designed to hold two classic Bridge bars in several positions.



Capacity \varnothing C mm	Part No.	Dimensions in mm							
		d ₁	A	l	I ₁	I ₂	L ₁	D ₁	
654-1105	A731 001	60	63	180	77	46	640	135	20,25
1104-1630	A731 002	60	50	200	80	46	1090	135	34,50
1629-2155	A731 003	60	50	200	80	46	1615	135	58,00

Spare parts

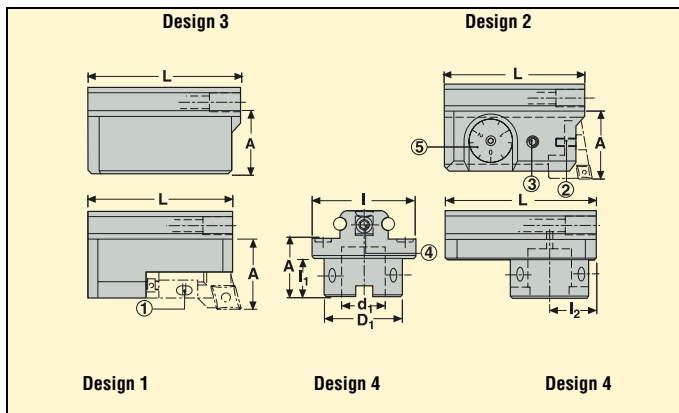
For	Bridge fixing screw (1)			Jumbo fixing screw (2)				
	S	Qty		S	I ₃	M	Qty	
A731 001/002/003	950D1240	10	8	950D1670	14	70	16	4

Please check availability in current price and stock-list.

Sliding blocks



- For fitting on to Bridge bars.



Type of sliding block	Part No.	Dimensions in mm							Design	KG
		A	L	I	I ₁	I ₂	D ₁	d ₁		
Rough boring*	A731 400	47	97	70	–	–	–	–	1	1,80
Fine boring**	A731 500	47	97	70	–	–	–	–	2	2,00
Counterweight	A731 600	–	97	70	–	–	–	–	3	2,00
Graflex size 5	A731 40128	38	97	70	25	50	50	28	4	1,30

* Cartridges to be ordered separately, see next page.

** Insert holders size 60 to be ordered separately, see product page Fine boring insert holders.

Accessories

Spare parts

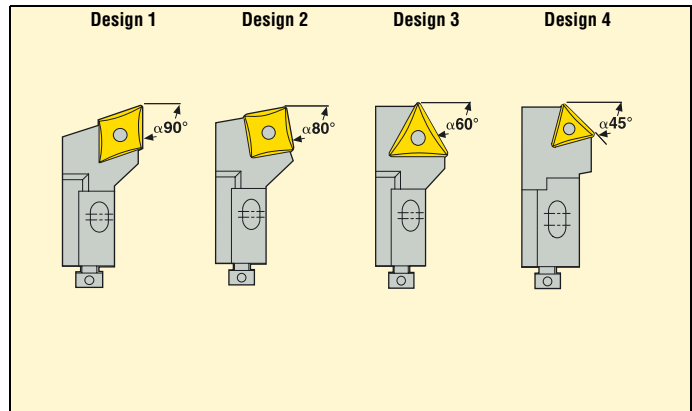
For	Key for (2) (3) (4) (5)		Cartridge fixing screw (1)	Insert holder fixing screw (2)	Key for (1)	Blocking screw (3)
	H	S			S	
A731400	H05-4	5	950D0830	–	03H06	6
A731500	H05-4	5	–	950D0612	–	950L1016
A731600	H05-4	5	–	–	–	–
A73140128	H05-4	5	–	–	–	–

Please check availability in current price and stock-list.

Cartridges, for the rough boring sliding block



- For fitting on to the rough boring sliding block.



Lead angle α°	Design	Part No.	ISO designation	Suitable insert size	
90°	1	SCGCL16CA-16	SCGCL16CA-16	CC...16	0,16
	1	STGCL16CA-16	STGCL16CA-16	TC...16	0,16
80°	2	SSRCL16CA-15	SSRCL16CA-15	SC...15	0,16
	3	STTCL16CA-16	STTCL16CA-16	TC...16	0,16
45°	4	STSCL16CA-16	STSCL16CA-16	TC...16	0,16

Spare parts

For	Anvil	Anvil screw	Key
SCGCL16CA-16	-	-	-
STGCL16CA-16	STN160312	CA3510	9/64SMS875
SSRCL16CA-15	-	-	-
STTCL16CA-16	STN160312	CA3510	9/64SMS875
STSCL16CA-16	STN160312	CA3510	9/64SMS875

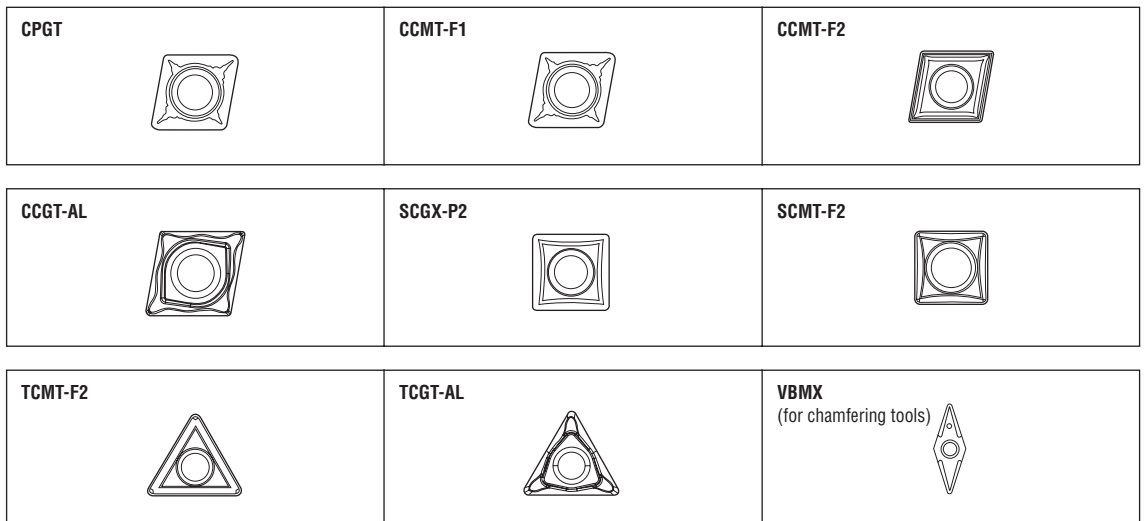
Please check availability in current price and stock-list.
For insert fixing spare screws and torx keys, see page insert locking screws and keys.

Inserts, recommended for rough boring

Part No	Uncoated carbide			Coated carbide								Cutting data *		
	Ground flank and pressed chipbreaker ..KX	Ground flank and pressed chipbreaker ..03D3	Ground flank and chipbreaker, right hand cutting (for chamfering tools) ..03H6	Pressed chipbreaker								Max. depth of cut a_p (mm)	Feed per cutting edge f (mm/rev)	
				..TP3000	..TP40	..T300D	..25C4	..TP200	..T200D	..TP400	..TK2000			
CPGT 050204..		■					■						2	0,05–0,2
CCMT 060204-F1..				■	■								2,5	0,05–0,25
CCMT 060204-F2..				■	■						■			
CCGT 060204F-AL..	■												4	0,1–0,3
CCMT 09T308-F1..				■	■									
CCMT 09T308-F2..				■	■						■		5	0,15–0,4
CCGT 09T308F-AL..	■													
CCMT 120408-F2..				■	■						■		2	0,05–0,2
CCGT 120408F-AL..	■													
SCGX 050204-P2..						■					■		2,5	0,05–0,25
SCMT 060204-F2..				■	■								4	0,1–0,3
SCMT 09T308-F2..				■	■						■			
SCMT 120408-F2..				■	■						■		5	0,15–0,4
TCMT 16T308-F2..				■	■						■		4	0,15–0,4
TCGT 16T308F-AL..	■													
CCMT 160508-F2..									■		■		7	0,2–0,5
CCMT 160512-F2..									■		■			
SCMT 150512-F2..					■									
SCGX 150512-P2..						■					■			
VBMX 110204..			■										–	–
VBMX 160408..			■											

Please check availability in current price and stock-list.

* For recommended cutting speeds, see Guide pages.

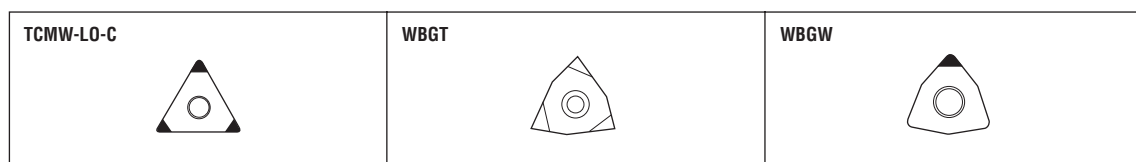
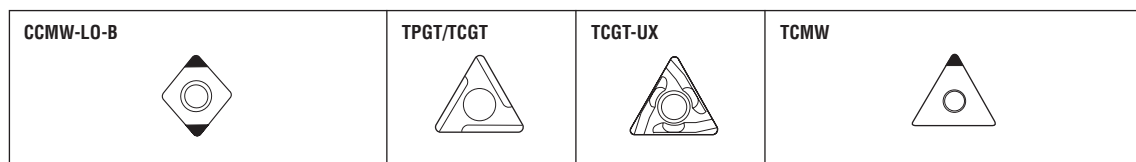
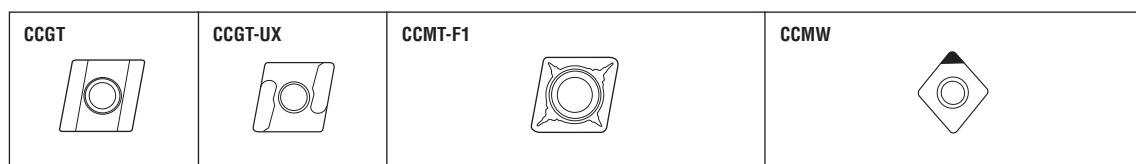


Inserts, recommended for fine boring

Part No.	Uncoated carbide		Coated carbide		Cermet		CBN			PCD			Cutting data*	
	Ground flank and chipbreaker, left hand cutting	Pressed chip-breaker	Ground flank and chipbreaker, left hand cutting	Ground flank and direct chipbreaker, left hand cutting	Ground flank and chipbreaker, left hand cutting	Pressed chip-breaker	Without chipbreaker, ground flank			Without chipbreaker, ground flank		Ground flank and chip-breaker	Depth of cut ap (mm)	Feed f (mm/rev)
							..CBN10	..81B1	..82B2	..91B3	..PCD20			
CCGT 060200..	■				■								0,01–0,3	0,03–0,15
CCGT 060202..	■		■		■									
CCGT 060204..	■		■	■	■									
CCMT 060202-F1..		■				■								
CCMT 060204-F1..		■				■								
CCMW 060202..							■	■						
CCMW 060202F-L1..										■				
CCMW 060204F-L1..										■				
CCMW 060204E-LO..							■							
CCGT 09T302..	■		■		■									
CCGT 09T304..	■		■	■	■									
CCMT 09T302-F1..		■				■								
CCMT 09T304-F1..		■				■								
CCMW 09T304F-L1..										■				
CCMW 09T304E-LO..							■							
CCMW 09T308E-LO..							■							
CCMW 09T304E-LO-B							■							
CCMW 09T308E-LO-B							■							
CCMW 09T308..									■					
TCGT 110202..	■		■	■	■									
TCGT 110204..	■		■	■	■									
TCMW 110204E-LO..							■							
TCMW 110204E-LO-C..							■							
TCMW 110202F-L1..										■				
TCMW 110204F-L1..										■				
WBGW 030100..	■				■									
WBGW 030102..	■				■									
WBGW 030102..	■						■	■			■			
WBGW 030102L..		■												

Please check availability in current price and stock-list.

* For recommended cutting speeds, see Guide pages.



This page summarises the insert locking keys and screws of all Graflex boring insert holders, tools and cartridges.

Recall : Spare parts are part of the original delivery content. Accessories are not included in the delivery content, to be ordered separately.

			Accessories		Spare parts		
			Torx driver for insert locking screw*		Insert locking screw		
For rough boring insert holders	For insert size	Part No.	Part No.	Torx			
	CP...0502	T07P-3	C02245-T07P	T07P			
	CC...0602	T07P-3	C02504-T07P	T07P			
	CC...09T3	T15P-3	C04008-T15P	T15P			
	CC...1214	T15P-3	C05012-T15P	T15P			
	CC...1605	T15P-3	C05012-T15P	T15P			
	SC...0502	T07P-3	C02245-T07P	T07P			
	SC...0602	T07P-3	C02504-T07P	T07P			
	SC...09T3	T15P-3	C04008-T15P	T15P			
SC...1204	T15P-3	C05012-T15P	T15P				
SC...1505	T15P-3	C05012-T15P	T15P				

* one Torx driver is delivered with each rough boring head.

			Accessories		Spare parts		
			Torx driver for insert locking screw		Insert locking screw		
For fine boring tools	For insert size	Part No.	Part No.	Torx			
	WB...0301...	T06P-2	C02035-T06P	T06P			
	CC...0602...	T07P-3	C02504-T07P	T07P			

			Accessories		Spare parts		
			Torx driver for insert locking screw		Insert locking screw		
For cartridges	For insert size	Part No.	Part No.	Torx			
	CC...16...	T15P-3	C05012-T15P	T15P			
	SC...15...	T15P-3	C05012-T15P	T15P			
	TC...16...	T15P-3	C03509-T15P	T15P			

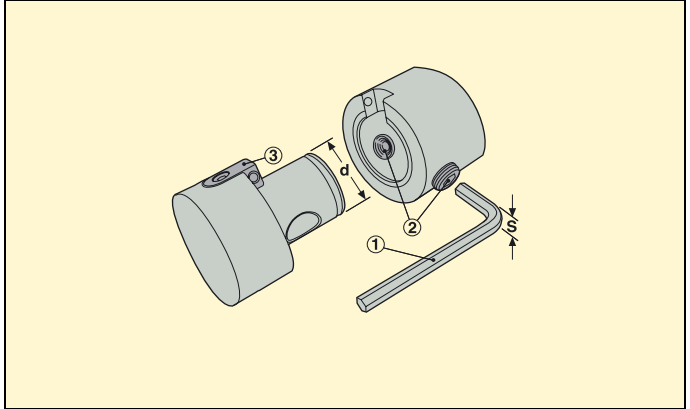
This page summarises the insert locking keys and screws of all Graflex boring insert holders, tools and cartridges.

Recall : Spare parts are part of the original delivery content. Accessories are not included in the delivery content, to be ordered separately.

		Spare parts		
		Torx driver for insert locking screw	Insert locking screw	
For chamfering tools	For insert size	Part No.	Part No.	Torx
	VBMX110204...	T07P-3	C02504-T07P	T07P
	VBMX160408...	T15P-3	C04008-T15P	T15P

		Spare parts		
		Torx driver for insert locking screw	Insert locking screw	
For fine boring insert holders, chamfering insert holders and back boring insert holders	For insert size	Part No.	Part No.	Torx
	WB...0301...	T06P-3	C02035-T06P	T06P
	CC...0602...	T07P-3	C02504-T07P	T07P
	CC...09T3...	T15P-3	C04008-T15P	T15P
TC...1102...	T07P-3	C02504-T07P	T07P	

Accessories and Spare parts for the Graflex connections



- For connection details and locking procedures, see the guide pages.

Accessories and Spare parts	Description	Part No.	S	For Graflex connection d mm	For Graflex connection size		
					Female	Male	
Accessories	Locking key (1)	03H02	2	08/11	0/1		
	Locking key (1)	03H025	2,5	14	2		
	Locking key (1)	03H03	3	18	3		
	Locking key (1)	03H04	4	22	4		
	Locking key (1)	03H05	5	28	5		
	Locking key (1)	03H06	6	36	6		
Spare parts standard	Locking key (1)	03H10	10	46	7		
	Two ball nose screws kit (2)	90F0	2	08	0		
	Two ball nose screws kit (2)	90F1	2	11	1		
	Two ball nose screws kit (2)	90F2	2,5	14	2		
	Two ball nose screws kit (2)	90F3	3	18	3		
	Two ball nose screws kit (2)	90F4	4	22	4		
	Two ball nose screws kit (2)	90F5	5	28	5		
	Two ball nose screws kit (2)	90F6	6	36	6		
	Two ball nose screws kit (2)	90F7	10	46	7		
	Tenon kit (3)	90M0	2	08		0	
	Tenon kit (3)	90M1	2	11		1	
	Tenon kit (3)	90M2	2,5	14		2	
	Tenon kit (3)	90M3	3	18		3	
	Tenon kit (3)	90M4	4	22		4	
Tenon kit (3)	90M5	5	28		5		
Tenon kit (3)	90M6	6	36		6		
Tenon kit (3)	90M7	10	46		7		
Spare parts dedicated	Two short ball nose screws kit (2)	90F01	2	08	0		
	Two short ball nose screws kit (2)	90F51	5	28	5		
	Two short ball nose screws kit (2)	90F71	10	46	7		
	Thin tenon kit (3)	90M01	2	08		0	
	Short tenon kit (3)	90M11	2	11		1	
	Short tenon kit (3)	90M21	2,5	14		2	
	Short tenon kit (3)	90M31	3	18		3	
	Short tenon kit (3)	90M41	4	22		4	
	Short tenon kit (3)	90M51	5	28		5	
	Short tenon kit (3)	90M61	6	36		6	
	Short tenon kit (3)	90M71	10	46		7	
	Thin tenon kit (3)	90M7R	10	46		7	

Please check availability in current price and stock-list.

The tenon kit comprises a tenon with its locking screw and the integrated blocking screw (column S is for the blocking screw). The following page lists the Graflex modules requiring dedicated Spare parts. All other Graflex modules utilise the Spare parts as listed above.

List of the Graflex items requiring dedicated Graflex connection Spare parts

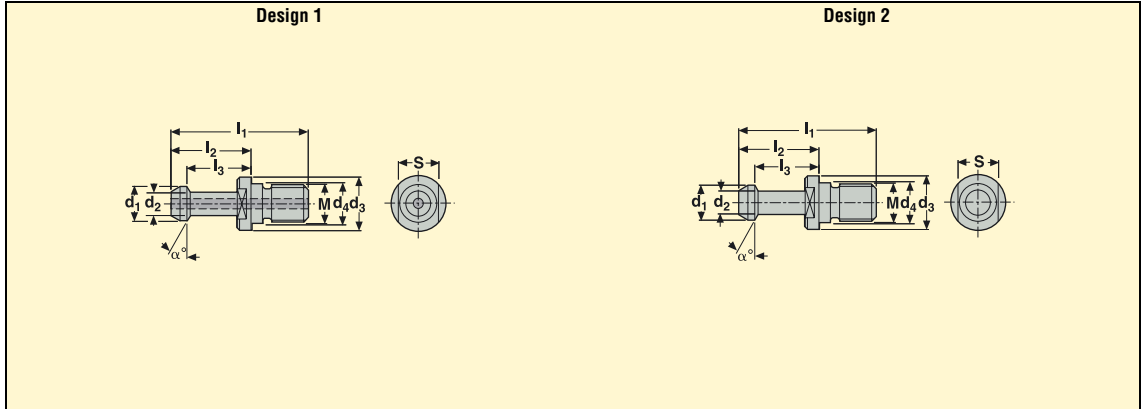
Dedicated Spare part		Suitable for				
90F01	Two short ball nose screws kit	M4011408C	-	-	-	-
90F51	Two short ball nose screws kit	EM44664012840	-	-	-	-
90F71	Two short ball nose screws kit	M402770R	M402771R	M402772R	-	-
90M01	Thin tenon kit	A78008	-	-	-	-
90M11	Short tenon kit	A75010	-	-	-	-
90M21	Short tenon kit	A75020	A76001	-	-	-
90M31	Short tenon kit	A75030	-	-	-	-
90M41	Short tenon kit	A75040	-	-	-	-
90M51	Short tenon kit	BSM0516181252A0	BSM0516181255A0	BSM0516183253A0	BSM0516183255A0	BSM051618125100
		BSM051618325100	BSM0516180163A0	BSM0516180165A0	BSM0516180203A0	BSM0516180205A0
		BSM0516180253A0	BSM0516180255A0	BSM0516182153A0	BSM0516182155A0	BSM0516182193A0
		BSM0516182195A0	BSM0516182253A0	BSM0516182255A0	BSM051618016100	BSM051618020100
		BSM051618025100	BSM051618215100	BSM051618219100	BSM051618225100	BSM0515872293A0
		BSM0515872295A0	BSM051587229100	BSM05140114100	BSM051401143A0	BSM051401145A0
		BSM05140118100	BSM051401183A0	BSM051401185A0	BSM05140122100	BSM051401223A0
		BSM051401225A0	A75050	A79000	A79050	M5260328
90M61	Short tenon kit	BM061610025	BM061610032	BM061610040	BM061610125	BM061610131
		BM061610138	BSM0616100254A0	BSM0616100324A0	BSM0616100404A0	BSM0616100256A0
		BSM0616100326A0	BSM0616100406A0	BSM0616101254A0	BSM0616101384A0	BSM0616101256A0
		BSM0616101316A0	BSM0616101386A0	BSM061610025200	BSM061610032200	BSM061610040200
		BSM061610125200	BSM061610131200	BSM061610138200	BSM0616181324A0	BSM0616181326A0
		BSM0616181404A0	BSM0616181406A0	BSM0616183314A0	BSM0616183316A0	BSM0616183384A0
		BSM0616183386A0	BSM061618132200	BSM061618140200	BSM061618331200	BSM061618338200
		BSM0616180324A0	BSM0616180326A0	BSM0616182314A0	BSM0616182316A0	BSM061618032200
		BSM061618231200	BSM061401284A0	BSM061401286A0	BSM061401364A0	BSM061401366A0
		BSM06140128200	BSM06140136110	BSM06140136200	BSM061401364A0	BSM061401366A0
		BSM061401284A0	BSM061401286A0	M5260436	A75060	-
90M71	Short tenon kit	A75070	-	-	-	
90M7R	Thin tenon kit	M402771R	M402772R	-	-	

Graflex items not listed above require standard Graflex connection Spare parts.



Pull studs BT

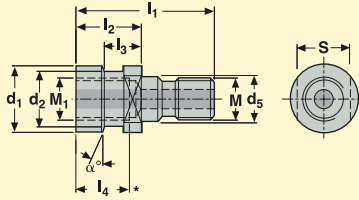
JIS B 6339/ BT compatible



For taper	Part No.	M	α°	Dimensions in mm								Coolant channel		Design	KG	
				d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₃	S	Yes	No			
30	E9509 4 1220P	M12	45°	11	7	16,5	12,5	43	23	18	13	■		1	0,04	
	E9509 5 1220P	M12	30°	11	7	16,5	12,5	43	23	18	13	■		1	0,04	
	E9509 4 1220	M12	45°	11	7	16,5	12,5	43	23	18	13		■	2	0,04	
	E9509 5 1220	M12	30°	11	7	16,5	12,5	43	23	18	13		■	2	0,04	
40	E9540 0 1625P	M16	45°	15	10	23,0	17,0	60	35	28	19	■		1	0,05	
	E9552 0 1625P	M16	30°	15	10	23,0	17,0	60	35	28	19	■		1	0,05	
	E9509 1 1625P	M16	0°	15	10	23,0	17,0	60	35	28	19	■		1	0,05	
	E9557 1 1625P	M16	0°	15	10	23,0	17,0	50	25	18	19	■		1	0,05	
	E9540 0 1625	M16	45°	15	10	23,0	17,0	60	35	28	19		■	2	0,05	
	E9552 0 1625	M16	30°	15	10	23,0	17,0	60	35	28	19		■	2	0,05	
	E9509 1 1625	M16	0°	15	10	23,0	17,0	60	35	28	19		■	2	0,05	
	E9557 1 1625	M16	0°	15	10	23,0	17,0	50	25	18	19		■	2	0,05	
50	E9555 0 2440P	M24	45°	23	17	38,0	25	85	45	35	30	■		1	0,25	
	E9599 2 12440P	M24	30°	23	17	38,0	25	85	45	35	30	■		1	0,25	
	E9557 0 2440P	M24	0°	24	18	36,0	25	71	31	23	30	■		1	0,20	
	E9568 0 2440P	M24	0°	23	17	38,0	25	85	45	35	30	■		1	0,25	
	E9555 0 2440	M24	45°	23	17	38,0	25	85	45	35	30		■	2	0,25	
	E9599 2 12440	M24	30°	23	17	38,0	25	71	45	35	30		■	2	0,25	
	E9557 0 2440	M24	0°	24	18	36,0	25	85	31	23	30		■	2	0,20	
	E9568 0 2440	M24	0°	23	17	38,0	25	85	45	35	30		■	2	0,25	

Please check availability in current price and stock-list.

Pull studs DIN 2080 compatible



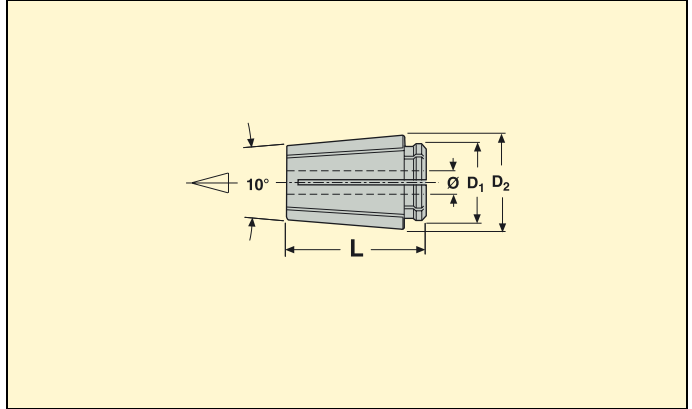
For taper	Holders	Part No.	M	M1	α°	Dimensions in mm										Coolant channel		KG
						d_1	d_2	d_5	l_1	l_2	l_3	l_4	S	Yes	No			
40	DIN 69871	E9599 1 61628	M16	M16	15	25,3	21,1	17	53,1	25,1	14,2	19	18	■		0,10		
	BT	E9599 7 91628	M16	M16	15	25,3	21,1	17	56,0	27,9	17,1	19	18	■		0,10		
50	DIN 69871	E9599 3 22440	M24	M24	0	39,6	32,0	25	65,1	25,1	13,3	18	30	■		0,25		

Please check availability in current price and stock-list.

D type collets



- Run-out 5 µm maximum at 3xd when assembled.
- Nominal clamping diameter only (no clamping range).
- Tool shank tolerance h8 maximum.

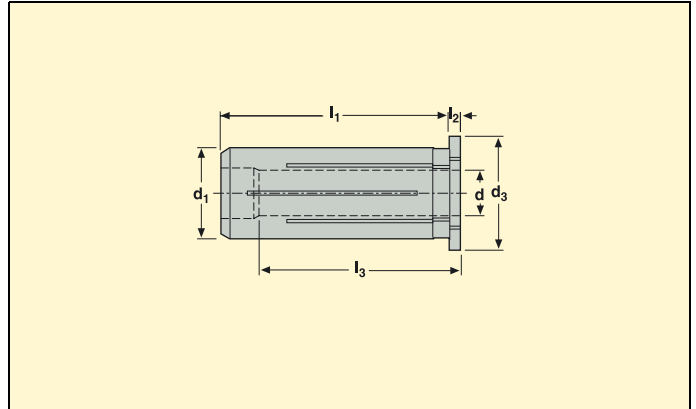


For chuck		Part No.	Dimensions in mm			
Capacity \varnothing mm	D type size		Collet bore	D ₁	D ₂	L
1-6	D 10	5872 10 01	1	8,4	10,1	20
	D 10	5872 10 015	1,5	8,4	10,1	20
	D 10	5872 10 02	2	8,4	10,1	20
	D 10	5872 10 025	2,5	8,4	10,1	20
	D 10	5872 10 03	3	8,4	10,1	20
	D 10	5872 10 035	3,5	8,4	10,1	20
	D 10	5872 10 04	4	8,4	10,1	20
	D 10	5872 10 045	4,5	8,4	10,1	20
	D 10	5872 10 05	5	8,4	10,1	20
	D 10	5872 10 055	5,5	8,4	10,1	20
D 10	5872 10 06	6	8,4	10,1	20	
1-10	D 16	5872 16 01	1	13	16,6	28,5
	D 16	5872 16 015	1,5	13	16,6	28,5
	D 16	5872 16 02	2	13	16,6	28,5
	D 16	5872 16 025	2,5	13	16,6	28,5
	D 16	5872 16 03	3	13	16,6	28,5
	D 16	5872 16 035	3,5	13	16,6	28,5
	D 16	5872 16 04	4	13	16,6	28,5
	D 16	5872 16 045	4,5	13	16,6	28,5
	D 16	5872 16 05	5	13	16,6	28,5
	D 16	5872 16 055	5,5	13	16,6	28,5
	D 16	5872 16 06	6	13	16,6	28,5
	D 16	5872 16 065	6,5	13	16,6	28,5
	D 16	5872 16 07	7	13	16,6	28,5
	D 16	5872 16 075	7,5	13	16,6	28,5
	D 16	5872 16 08	8	13	16,6	28,5
	D 16	5872 16 085	8,5	13	16,6	28,5
	D 16	5872 16 09	9	13	16,6	28,5
	D 16	5872 16 095	9,5	13	16,6	28,5
D 16	5872 16 10	10	13	16,6	28,5	
2-16	D 24	5872 24 02	2	19,5	24,1	35
	D 24	5872 24 025	2,5	19,5	24,1	35
	D 24	5872 24 03	3	19,5	24,1	35
	D 24	5872 24 035	3,5	19,5	24,1	35
	D 24	5872 24 04	4	19,5	24,1	35
	D 24	5872 24 045	4,5	19,5	24,1	35
	D 24	5872 24 05	5	19,5	24,1	35
	D 24	5872 24 055	5,5	19,5	24,1	35
	D 24	5872 24 06	6	19,5	24,1	35
	D 24	5872 24 065	6,5	19,5	24,1	35
	D 24	5872 24 07	7	19,5	24,1	35

Reduction sleeves for hydraulic chucks



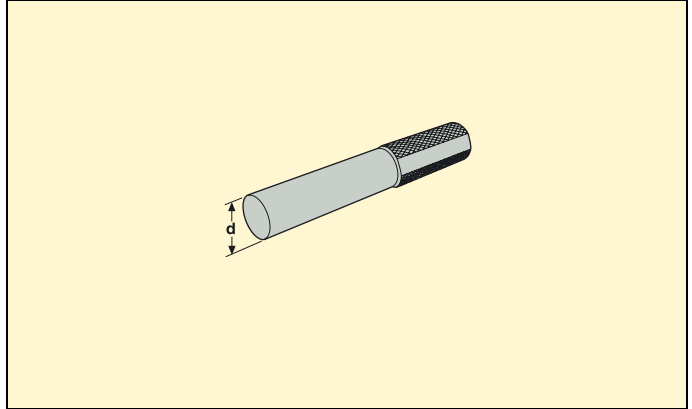
- Run-out 5 µm maximum at 3xd when assembled.
- Nominal clamping diameter only (no clamping range).
- Tool shank tolerance h6 maximum.



d ₁ mm	d mm	Part No.	Dimensions in mm			
			d ₃	l ₁	l ₂	l ₃
12	3	05F5832 12 03	16	44	2	28
	4	05F5832 12 04	16	44	2	28
	5	05F5832 12 05	16	44	2	28
	6	05F5832 12 06	16	44	2	36
	8	05F5832 12 08	16	44	2	36
	10	05F5832 12 10	16	44	2	40
20	3	05F5832 20 03	25	51	2,5	28
	4	05F5832 20 04	25	51	2,5	28
	5	05F5832 20 05	25	51	2,5	28
	6	05F5832 20 06	25	51	2,5	36
	8	05F5832 20 08	25	51	2,5	36
	10	05F5832 20 10	25	51	2,5	40
	12	05F5832 20 12	25	51	2,5	45
	14	05F5832 20 14	25	51	2,5	45
	16	05F5832 20 16	25	51	2,5	48
32	6	05F5832 32 06	36	60	3	36
	8	05F5832 32 08	36	60	3	36
	10	05F5832 32 10	36	60	3	40
	12	05F5832 32 12	36	60	3	45
	14	05F5832 32 14	36	60	3	45
	16	05F5832 32 16	36	60	3	48
	18	05F5832 32 18	36	60	3	48
	20	05F5832 32 20	36	60	3	50
	25	05F5832 32 25	36	60	3	56

Please check availability in current price and stock-list.

Control gauges for hydraulic chucks



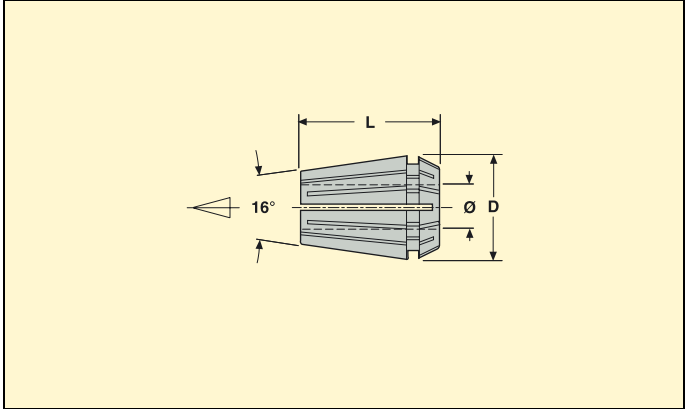
- Control gauges to check chuck's clamping capability, see Guide pages.

Description	Part No.	d mm	
Control gauges	CA5832 03	3	
	CA5832 04	4	
	CA5832 05	5	
	CA5832 06	6	
	CA5832 08	8	
	CA5832 10	10	
	CA5832 12	12	
	CA5832 14	14	
	CA5832 16	16	
	CA5832 18	18	
	CA5832 20	20	
	CA5832 25	25	
	CA5832 32	32	

Please check availability in current price and stock-list.

ER collets, standard, type 5880

DIN 6499



- Run-out 35 µm maximum at 3xd.
- Clamping range -0,5 or -1 mm.
- See also ER collets high precision, type 5880HP, after type 5880 pages.

For chuck		Part No.	Dimensions in mm			
Capacity Ø mm	Size		Clamping range	Collet bore	D	L
0,5-5	ER 08	5880 08 01	-0,5	1	8,5	13,5
	ER 08	5880 08 015	-0,5	1,5	8,5	13,5
	ER 08	5880 08 02	-0,5	2	8,5	13,5
	ER 08	5880 08 025	-0,5	2,5	8,5	13,5
	ER 08	5880 08 03	-0,5	3	8,5	13,5
	ER 08	5880 08 035	-0,5	3,5	8,5	13,5
	ER 08	5880 08 04	-0,5	4	8,5	13,5
	ER 08	5880 08 045	-0,5	4,5	8,5	13,5
	ER 08	5880 08 05	-0,5	5	8,5	13,5
0,5-7	ER 11	5880 11 01	-0,5	1	11,5	11
	ER 11	5880 11 015	-0,5	1,5	11,5	11
	ER 11	5880 11 02	-0,5	2	11,5	11
	ER 11	5880 11 025	-0,5	2,5	11,5	11
	ER 11	5880 11 03	-0,5	3	11,5	11
	ER 11	5880 11 035	-0,5	3,5	11,5	11
	ER 11	5880 11 04	-0,5	4	11,5	11
	ER 11	5880 11 045	-0,5	4,5	11,5	11
	ER 11	5880 11 05	-0,5	5	11,5	11
	ER 11	5880 11 055	-0,5	5,5	11,5	11
	ER 11	5880 11 06	-0,5	6	11,5	11
	ER 11	5880 11 065	-0,5	6,5	11,5	11
	ER 11	5880 11 07	-0,5	7	11,5	11
0,5-10	ER 16	5880 16 01	-0,5	1	17	27
	ER 16	5880 16 02	-1	2	17	27
	ER 16	5880 16 03	-1	3	17	27
	ER 16	5880 16 04	-1	4	17	27
	ER 16	5880 16 05	-1	5	17	27
	ER 16	5880 16 06	-1	6	17	27
	ER 16	5880 16 07	-1	7	17	27
	ER 16	5880 16 08	-1	8	17	27
	ER 16	5880 16 09	-1	9	17	27
	ER 16	5880 16 10	-1	10	17	27

ER collets, standard, type 5880

DIN 6499

For chuck		Part No.	Dimensions in mm			
Capacity \varnothing mm	Size		Clamping range	Collet bore	D	L
1-16	ER 25	5880 25 02	-1	2	26	34
	ER 25	5880 25 03	-1	3	26	34
	ER 25	5880 25 04	-1	4	26	34
	ER 25	5880 25 05	-1	5	26	34
	ER 25	5880 25 06	-1	6	26	34
	ER 25	5880 25 07	-1	7	26	34
	ER 25	5880 25 08	-1	8	26	34
	ER 25	5880 25 09	-1	9	26	34
	ER 25	5880 25 10	-1	10	26	34
	ER 25	5880 25 11	-1	11	26	34
	ER 25	5880 25 12	-1	12	26	34
	ER 25	5880 25 13	-1	13	26	34
	ER 25	5880 25 14	-1	14	26	34
	ER 25	5880 25 15	-1	15	26	34
	ER 25	5880 25 16	-1	16	26	34
	2-20	ER 32	5880 32 03	-1	3	33
ER 32		5880 32 04	-1	4	33	40
ER 32		5880 32 05	-1	5	33	40
ER 32		5880 32 06	-1	6	33	40
ER 32		5880 32 07	-1	7	33	40
ER 32		5880 32 08	-1	8	33	40
ER 32		5880 32 09	-1	9	33	40
ER 32		5880 32 10	-1	10	33	40
ER 32		5880 32 11	-1	11	33	40
ER 32		5880 32 12	-1	12	33	40
ER 32		5880 32 13	-1	13	33	40
ER 32		5880 32 14	-1	14	33	40
ER 32		5880 32 15	-1	15	33	40
ER 32		5880 32 16	-1	16	33	40
ER 32		5880 32 17	-1	17	33	40
ER 32		5880 32 18	-1	18	33	40
ER 32	5880 32 19	-1	19	33	40	
ER 32	5880 32 20	-1	20	33	40	
3-26	ER 40	5880 40 04	-1	4	41	46
	ER 40	5880 40 05	-1	5	41	46
	ER 40	5880 40 06	-1	6	41	46
	ER 40	5880 40 07	-1	7	41	46
	ER 40	5880 40 08	-1	8	41	46
	ER 40	5880 40 09	-1	9	41	46
	ER 40	5880 40 10	-1	10	41	46
	ER 40	5880 40 11	-1	11	41	46
	ER 40	5880 40 12	-1	12	41	46
	ER 40	5880 40 13	-1	13	41	46
	ER 40	5880 40 14	-1	14	41	46
	ER 40	5880 40 15	-1	15	41	46
	ER 40	5880 40 16	-1	16	41	46
	ER 40	5880 40 17	-1	17	41	46
	ER 40	5880 40 18	-1	18	41	46
	ER 40	5880 40 19	-1	19	41	46
	ER 40	5880 40 20	-1	20	41	46
	ER 40	5880 40 21	-1	21	41	46
	ER 40	5880 40 22	-1	22	41	46
	ER 40	5880 40 23	-1	23	41	46
ER 40	5880 40 24	-1	24	41	46	
ER 40	5880 40 25	-1	25	41	46	
ER 40	5880 40 26	-1	26	41	46	

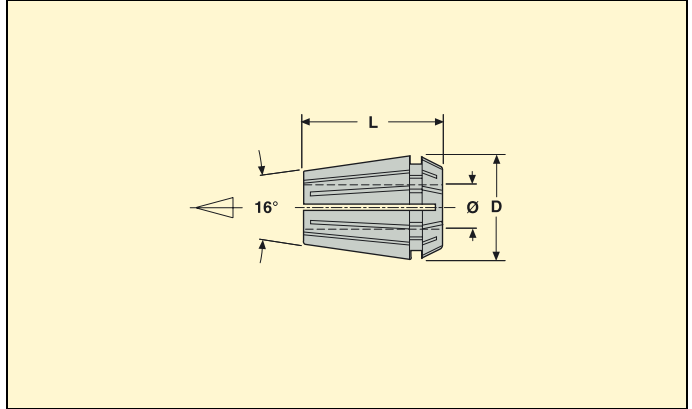
Please check availability in current price and stock-list.

ER collets, high precision, type 5880HP

DIN 6499



- Run-out 15 µm maximum at 3xd.
- Clamping range -0,5 or -1 mm.



For chuck		Part No.	Dimensions in mm			
Capacity Ø mm	Size		Clamping range	Collet bore	D	L
0,5-10	ER 16	5880 16 01HP5	-0,5	1	17	27
	ER 16	5880 16 02HP5	-1	2	17	27
	ER 16	5880 16 03HP5	-1	3	17	27
	ER 16	5880 16 04HP5	-1	4	17	27
	ER 16	5880 16 05HP5	-1	5	17	27
	ER 16	5880 16 06HP5	-1	6	17	27
	ER 16	5880 16 07HP5	-1	7	17	27
	ER 16	5880 16 08HP5	-1	8	17	27
	ER 16	5880 16 09HP5	-1	9	17	27
	ER 16	5880 16 10HP5	-1	10	17	27
1-16	ER 25	5880 25 02HP5	-1	2	26	34
	ER 25	5880 25 03HP5	-1	3	26	34
	ER 25	5880 25 04HP5	-1	4	26	34
	ER 25	5880 25 05HP5	-1	5	26	34
	ER 25	5880 25 06HP5	-1	6	26	34
	ER 25	5880 25 07HP5	-1	7	26	34
	ER 25	5880 25 08HP5	-1	8	26	34
	ER 25	5880 25 09HP5	-1	9	26	34
	ER 25	5880 25 10HP5	-1	10	26	34
	ER 25	5880 25 11HP5	-1	11	26	34
	ER 25	5880 25 12HP5	-1	12	26	34
	ER 25	5880 25 13HP5	-1	13	26	34
	ER 25	5880 25 14HP5	-1	14	26	34
	ER 25	5880 25 15HP5	-1	15	26	34
	ER 25	5880 25 16HP5	-1	16	26	34
	2-20	ER 32	5880 32 10HP5	-1	10	33
ER 32		5880 32 11HP5	-1	11	33	40
ER 32		5880 32 12HP5	-1	12	33	40
ER 32		5880 32 13HP5	-1	13	33	40
ER 32		5880 32 14HP5	-1	14	33	40
ER 32		5880 32 15HP5	-1	15	33	40
ER 32		5880 32 16HP5	-1	16	33	40
ER 32		5880 32 17HP5	-1	17	33	40
ER 32		5880 32 18HP5	-1	18	33	40
ER 32		5880 32 19HP5	-1	19	33	40
ER 32		5880 32 20HP5	-1	20	33	40

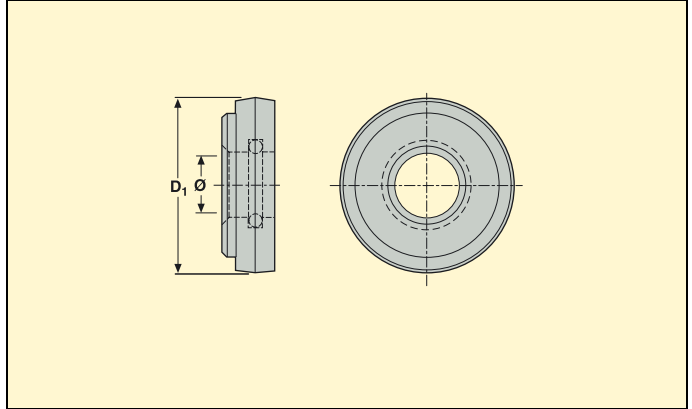
ER collets, high precision, type 5880HP

DIN 6499

For chuck		Part No.	Dimensions in mm				
Capacity \varnothing mm	Size		Clamping range	Collet bore	D	L	
3-26	ER 40	5880 40 10HP5	-1	10	41	46	
	ER 40	5880 40 11HP5	-1	11	41	46	
	ER 40	5880 40 12HP5	-1	12	41	46	
	ER 40	5880 40 13HP5	-1	13	41	46	
	ER 40	5880 40 14HP5	-1	14	41	46	
	ER 40	5880 40 15HP5	-1	15	41	46	
	ER 40	5880 40 16HP5	-1	16	41	46	
	ER 40	5880 40 17HP5	-1	17	41	46	
	ER 40	5880 40 18HP5	-1	18	41	46	
	ER 40	5880 40 19HP5	-1	19	41	46	
	ER 40	5880 40 20HP5	-1	20	41	46	
	ER 40	5880 40 21HP5	-1	21	41	46	
	ER 40	5880 40 22HP5	-1	22	41	46	
	ER 40	5880 40 23HP5	-1	23	41	46	
	ER 40	5880 40 24HP5	-1	24	41	46	
	ER 40	5880 40 25HP5	-1	25	41	46	
	ER 40	5880 40 26HP5	-1	26	41	46	

Please check availability in current price and stock-list.

ER sealing rings



- For fitting into ER sealing nuts.

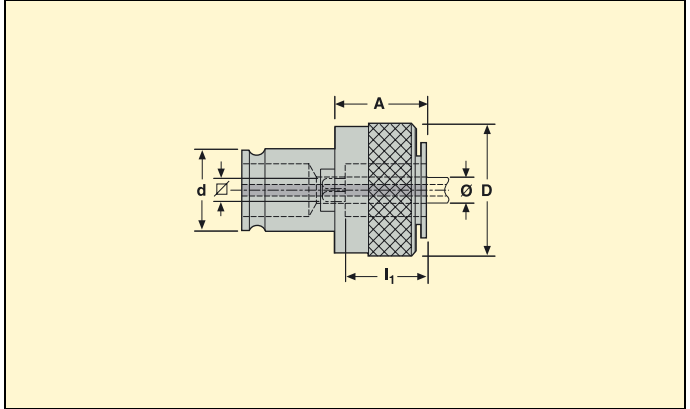
For sealing nut size/ Part No.	Sealing capacity Ø mm	Part No.	D ₁ mm	
ER 16/ 08B58751C	4,5-5	01B5875 16 05	13	
	5,5-6	01B5875 16 06	13	
	6,5-7	01B5875 16 07	13	
	7,5-8	01B5875 16 08	13	
	8,5-9	01B5875 16 09	13	
	9,5-10	01B5875 16 10	13	
ER 25/ 08B5875251C	4,5-5	01B5875 25 05	21	
	5,5-6	01B5875 25 06	21	
	6,5-7	01B5875 25 07	21	
	7,5-8	01B5875 25 08	21	
	8,5-9	01B5875 25 09	21	
	9,5-10	01B5875 25 10	21	
	10,5-11	01B5875 25 11	21	
	11,5-12	01B5875 25 12	21	
	13,5-14	01B5875 25 14	21	
	15,5-16	01B5875 25 16	21	
ER 32/ 08B5875321C	4,5-5	01B5875 32 05	27	
	5,5-6	01B5875 32 06	27	
	6,5-7	01B5875 32 07	27	
	7,5-8	01B5875 32 08	27	
	8,5-9	01B5875 32 09	27	
	9,5-10	01B5875 32 10	27	
	10,5-11	01B5875 32 11	27	
	11,5-12	01B5875 32 12	27	
	13,5-14	01B5875 32 14	27	
	15,5-16	01B5875 32 16	27	
	17,5-18	01B5875 32 18	27	
	19,5-20	01B5875 32 20	27	

Please check availability in current price and stock-list.

For sealing nuts, see Accessories in ER collet chucks pages.

Note: Sealing rings and sealing nuts in size ER 40 are only available on request, please enquire. Not available in size ER 08 and ER 11.

Quick change tap adapters, with torque limiter, type 5285



- Torque is set according to the thread size.

For quick change tapping chuck		For tap			Part No.	Dimensions in mm				 KG
Range	Size	For thread size	Ø mm	Square mm		d	A	D	I ₁	
M3-M12	2	M3	3,5	2,7	T52852 035 027M3	19	25	32	17	0,15
	2	M4	4	3,1	T52852 040 031M4	19	25	32	17	0,15
	2	M4	4,5	3,5	T52852 045 035M4	19	25	32	17	0,15
	2	M5	6	4,9	T52852 060 049M5	19	25	32	17	0,15
	2	M6	6	4,9	T52852 060 049M6	19	25	32	17	0,15
	2	M6	6,3	5	T52852 063 050M6	19	25	32	17	0,15
	2	M8	6	4,9	T52852 060 049M8	19	25	32	17	0,15
	2	M8	8	6,3	T52852 080 063M8	19	25	32	17	0,15
	2	M10	7	5,5	T52852 070 055M10	19	25	32	17	0,15
	2	M10	10	8	T52852 100 080M10	19	25	32	17	0,15
2	M12	9	7,1	T52852 090 071M12	19	25	32	17	0,15	
M8-M20	3	M8	6	4,9	T52853 060 049M8	31	34	50	30	0,50
	3	M8	8	6,3	T52853 080 063M8	31	34	50	30	0,50
	3	M10	7	5,5	T52853 070 055M10	31	34	50	30	0,50
	3	M10	10	8	T52853 100 080M10	31	34	50	30	0,50
	3	M12	9	7,1	T52853 090 071M12	31	34	50	30	0,50
	3	M14	11	9	T52853 110 090M14	31	34	50	30	0,50
	3	M16	12	9	T52853 120 090M16	31	34	50	30	0,50
	3	M16	12	10	T52853 125 100M16	31	34	50	30	0,50
	3	M18	14	11	T52853 140 110M18	31	34	50	30	0,50
	3	M18	14	11,2	T52853 140 112M18	31	34	50	30	0,50
3	M20	14	11,2	T52853 140 112M20	31	34	50	30	0,50	
3	M20	16	12	T52853 160 120M20	31	34	50	30	0,50	
M14-M33	4	M20	16	12	T52854 160 120M20	48	45	72	44	1,60
	4	M22	18	14,5	T52854 180 145M22	48	45	72	44	1,60
	4	M24	18	14	T52854 180 140M24	48	45	72	44	1,60
	4	M24	18	14,5	T52854 180 145M24	48	45	72	44	1,60
	4	M27	20	16	T52854 200 160M27	48	45	72	44	1,60
	4	M30	22	18	T52854 220 180M30	48	45	72	44	1,60
	4	M33	25	20	T52854 250 200M33	48	45	72	44	1,60

Please check availability in current price and stock-list.
For tap adapter code key, see Guide pages.

Assembly supports, Tool Boy

	Code	For holder size(s)		 KG
Tool Boy, kit (base+head) 	M211H32	HSK-A/C32	HSK-B/D40	7,20
	M211H40	HSK-A/C40	HSK-B/D50	7,20
	M211H40E	HSK-E40	-	7,20
	M211H50	HSK-A/C50	HSK-B/D63	7,40
	M211H63	HSK-A/C63	HSK-B/D80	7,60
	M211H80	HSK-A/C80	HSK-B/D100	8,20
	M211H10	HSK-A/C100	HSK-B/D125	8,40
	M211S30	SA30	-	7,20
	M211S40	SA40	-	7,40
	M211S45	SA45	-	8,80
	M211S50	SA50	-	9,20
	M211V30	VDI30	-	7,60
	M211V40	VDI40	-	8,20
	M211V50	VDI50	-	8,40
	Tool Boy, base unit only 	M210C00	-	-
Tool Boy, head only 	M210H32	HSK-A/C32	HSK-B/D40	2,20
	M210H40	HSK-A/C40	HSK-B/D50	2,20
	M210H40E	HSK-E40	-	2,20
	M210H50	HSK-A/C50	HSK-B/D63	2,40
	M210H63	HSK-A/C63	HSK-B/D80	2,60
	M210H80	HSK-A/C80	HSK-B/D100	3,20
	M210H10	HSK-A/C100	HSK-B/D125	3,40
	M210S30	SA30	-	2,20
	M210S40	SA40	-	2,40
	M210S45	SA45	-	3,80
	M210S50	SA50	-	4,20
	M210V30	VDI30	-	2,60
	M210V40	VDI40	-	3,20
	M210V50	VDI50	-	3,40
	Wall mounted storage rack for Tool Boy heads 	M210Q00	-	-

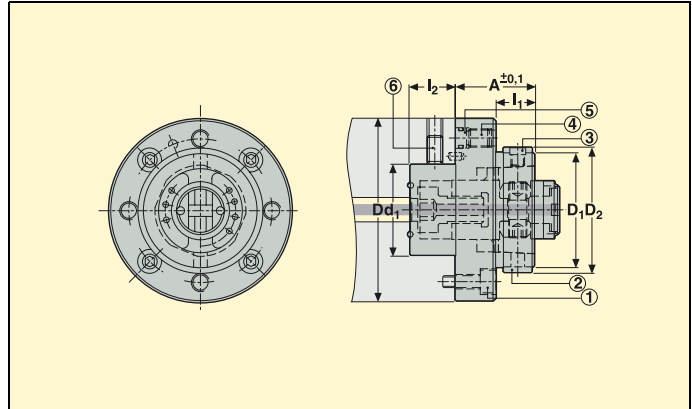
Different heads can be fitted to the common base unit.

Type BR1 - HSK locking flange mounts, TF

HSK / ISO 12164



- For manual clamping of holders HSK-C and HSK-A with radial bore.
- Flange with radial and angular adjustment.



For HSK Form A/C	d ₁ mm	Part No.	Dimensions in mm						KG
			A	D	D ₁	D ₂	l ₁	l ₂	
32	30	BR130 5095 3226	26	60	32	37	12	12	0,45
40	35	BR135 5095 4030	30	70	40	45	14	15	0,65
50	40	BR140 5095 5035	35	80	50	55	17	20	0,95
63	50	BR150 5095 6343	43	100	63	70	23	27	2,05
80	63	BR160 5095 8050	50	117	80	88	28	35	4,00
100	80	BR180 5095 1070	70	140	100	110	42	35	7,00

Spindle machining advice, see following pages.

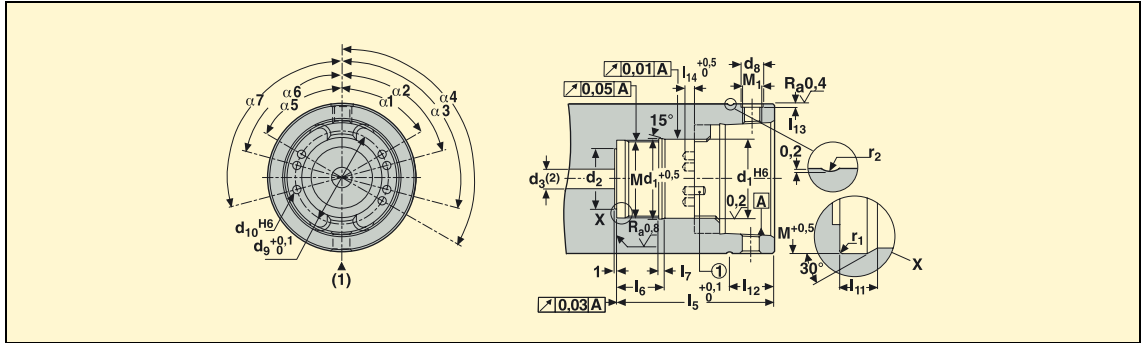
Spare parts

	Flange fixing screw (1)	Sealing ring (2)	Ring blocking screw (3)	Axial adjustment screw (4)	Contact anvil (5)	Radial adjustment screw (6)
For HSK						
32	950D0520	00X509532	19DS04007003002	19A71040	17C090045	19A71040
40	950D0620	00X509540	19DS05008004002	19A71040	17C090045	19A71040
50	950D0625	00X509550	19DS06010005002	19A71040	17C090045	19A71040
63	950D0825	00X509563	19DS08012506002	19A71060	17C120065	19A71060
80	950D0830	00X509580	19DS10015008002	19A71060	17C120065	19A71060
100	950D1035	00X5095100	19DS12017510002	19A71060	17C120065	19A71060

Please check availability in current price and stock-list.

The assembly spanners and locking keys for the TF units, and the indexing pins in the TF units product pages.

Machining advice for fitting the HSK locking units, TF



Spindle HSK Form C	Dimensions in mm												
	d_1^{H6}	d_2	d_3 max	d_8	d_9	d_{10}^{H12}	$l_5^{0/+0.1}$	l_6	l_7	l_{11}	l_{12}	l_{13}	$l_{14}^{0/+0.5}$
32	17	12	4,2	5	20	1,5	32,5	10	1,5	2,5	11	0,6	3,5
40	21	16	5	6,5	25	2	40,5	12	2	3	13	0,8	3,5
50	26	20	6,8	7,5	31	2,5	50,5	15	2	4	15	0,8	3,5
63	34	26	8,4	9,5	39,5	3,5	65,5	20	2,5	5	18	1	4
80	42	30,5	10,2	12	49,5	4,5	80	22	3	5	23	1,2	5
100	53	36,5	12	14	62	4,5	98	26	3	5	28	1,5	5

(1) Position of the access to the unit clamping screw. (2) If through coolant.

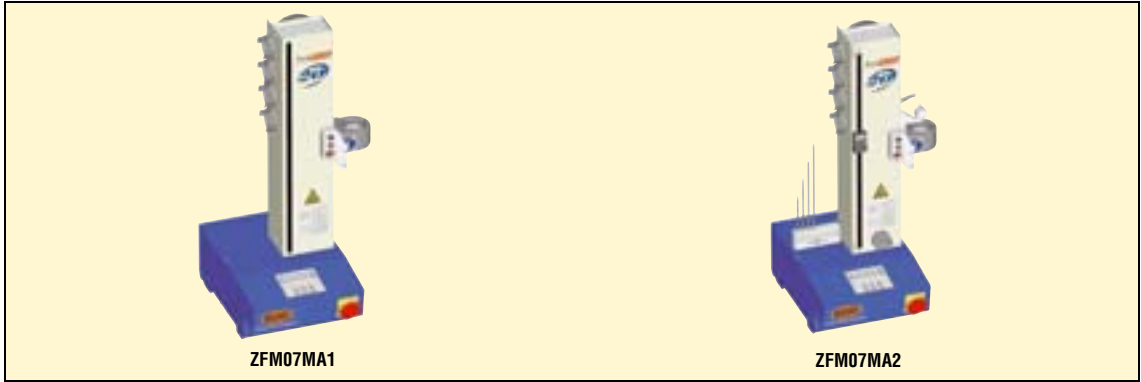
HSK	M	M1	r_1	r_2	$\alpha 1^\circ$	$\alpha 2^\circ$	$\alpha 3^\circ$	$\alpha 4^\circ$	$\alpha 5^\circ$	$\alpha 6^\circ$	$\alpha 7^\circ$		
32	M16 x 1	M4	0,4	1,4	50	75	100	127,5	50	80	105		
40	M20 x 1	M5	0,4	1,4	52,5	75	100	127,5	52,5	80	105		
50	M25 x 1	M6	0,4	1,6	55	75	100	125	55	80	105		
63	M33 x 1	M8	0,4	1,6	60	75	105	120	60	75	105		
80	M41 x 1,5	M10	0,8	2,2	60	75	105	120	60	75	105		
100	M52 x 1,5	M12	0,8	2,2	45	75	105	135	45	75	105		

Accessories

Indexing pin DIN 1481		
HSK		
32	1,5 x 6	925E01506
40	2 x 6	925E02006
50	2,5 x 6	925E02506
63	3,5 x 6	925E03508
80	4,5 x 10	925E04510
100	4,5 x 10	925E04510



EasyShrink® 20, heating modules



ZFM07MA1

ZFM07MA2

Module	Part No.	Capacity tool shank mm		Shrinking time, approx.	Dimensions in mm			 KG
		Carbide/ Heavy metal	Steel/ HSS		Width	Depth	Height	
Heating module without height setting	ZFM07MA1	∅ 3-32	∅ 6-32	10 sec.	355	565	960	40,0
Heating module with height setting*	ZFM07MA2	∅ 3-32	∅ 6-32	10 sec.	355	565	960	41,0

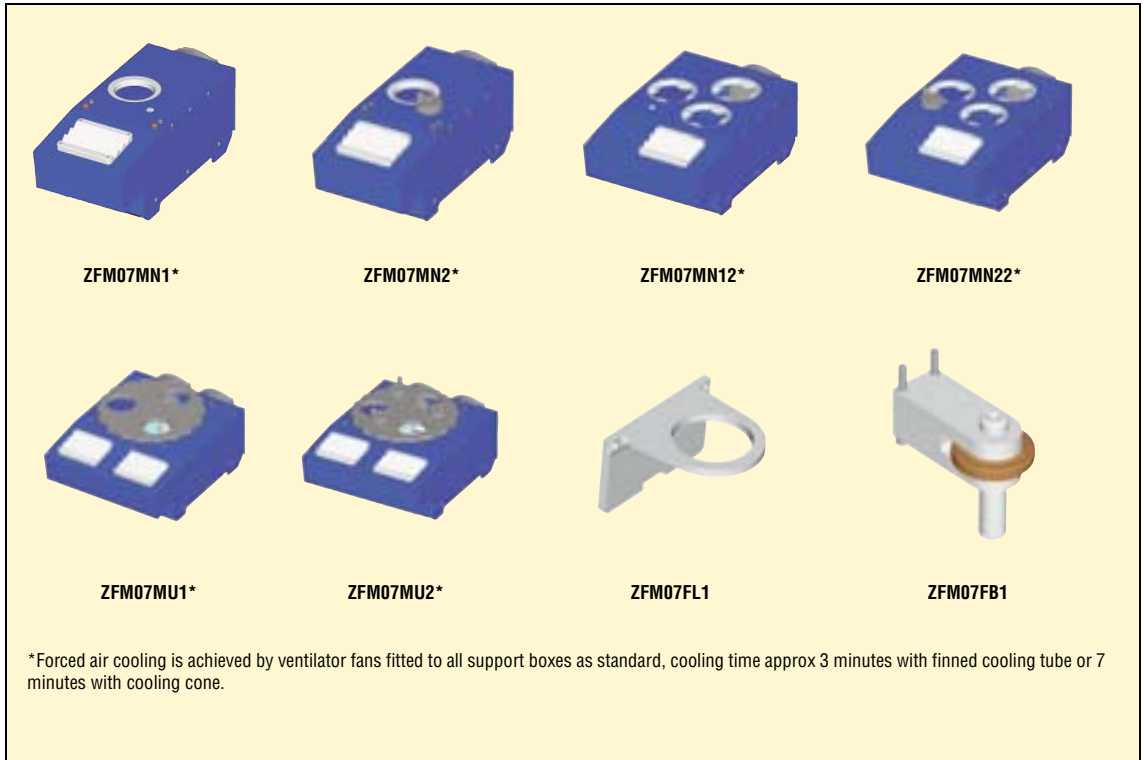
*Delivery content includes one standard stop rods set (ZFS07IN004) and one storage rack for 16 stop rods (ZFCM07IN001).

Accessories and Spare parts

For ZFM07MA1 and ZFM07MA2	Part no.	For tool shank dia	d ₃ mm	 KG
Heat focusing stopper for tools with a larger head* (pairs of half plates ZFAT... and ring ZFCM...) 	Accessories:			
	ZFCE2086	∅ 3-6 mm	6,5	0,20
	ZFCE2087	∅ 8-14 mm	15	0,20
	ZFCE2088	∅ 16-20 mm	21	0,20
	ZFCE2089	∅ 25-32 mm	33	0,20
	ZFCM07IN107	–	–	0,02
	Heat focusing stopper 	Spare parts:		
ZFAT07C01		∅ 3-6 mm	6,5	0,20
ZFAT07C02		∅ 8-14 mm	15	0,20
ZFAT07C03		∅ 16-20 mm	21	0,20
ZFAT07C04		∅ 25-32 mm	33	0,20
Pair of protective gloves 	Spare parts:			
	ZFAG01	–	–	–

* Maximum tool head that can pass through the inductor is 65 mm.

EasyShrink® 20, support modules



*Forced air cooling is achieved by ventilator fans fitted to all support boxes as standard, cooling time approx 3 minutes with finned cooling tube or 7 minutes with cooling cone.

Module	Part No.	For toolholder taper max.	Dimensions in mm			KG
			Width	Depth	Height	
Single-station support box without height setting						
	ZFM07MN1	SA50/ HSK-A100	224	570	210	15,00
Single-station support box with height setting						
	ZFM07MN2	SA50/ HSK-A100	224	570	210	15,00
Three-station support box (1 operating and 2 cooling stations) without height setting						
	ZFM07MN12	SA50/ HSK-A100	333	570	210	20,00
Three-station support box (1 operating and 2 cooling stations) with height setting						
	ZFM07MN22	SA50/ HSK-A100	333	570	210	20,00
Three-station rotary support box without height setting						
	ZFM07MU1	SA50/ HSK-A100	404	570	210	25,00
Three-station rotary support box with height setting						
	ZFM07MU2	SA50/ HSK-A100	404	570	210	25,00
Support corner plate						
	ZFM07FL1	SA50/ HSK-A100	143	176	100	0,70
Height setting for support corner plate						
	ZFM07FB1	-	113	60	100	1,00

Accessories for EasyShrink® 20 support modules

	Part No.	mm	mm	For tool shank ∅ mm	KG	
Cooling cone (ZFAR02C) Cone fitting ring (ZFAR07C) 		D				
	ZFAR02C	120	–	–	0,10	
	ZFAR07C	120	–	–	0,06	
Covering lid* 	ZFAR02B	–	–	–	0,25	
Storage rack for 16 stop rods** 	ZFCM07IN001	L₁ 150	F 60	–	0,13	
Stop rods set, standard** Stop rods set, thin 			Groove fitting/ ∅ Front	For length capacity		
	ZFS07IN004	5,0	0-240	6-32	0,16	
	ZFS07IN010	2,5	0-240	3-5	0,12	
				Thread fitting/ ∅ Front	For length capacity	
	ZFS07IN017	5,0	0-240	6-32	0,16	
	ZFS07IN018	2,5	0-240	3-5	0,12	
Tool supporting sleeve for stop rod 		∅ d₂	For stop rod dia d₁			
	05RS580003	3	2,5	3	0,25	
	05RS580004	4	2,5	4	0,25	
	05RS580005	5	2,5	5	0,25	
	05RS580006	6	5	6	0,30	
	05RS580008	8	5	8	0,30	
	05RS580010	10	5	10	0,30	
	05RS580012	12	5	12	0,35	
	05RS580014	14	5	14	0,35	
	05RS580016	16	5	16	0,35	
	05RS580018	18	5	18	0,35	
	05RS580020	20	5	20	0,35	
	05RS580025	25	5	25	0,40	
	05RS580032	32	5	32	0,40	
	Stop screw setting adapter with hexagonal back-end 		∅ d₂ = d₃	S		
05R580006		6	3	6	0,30	
05R580008		8	3	8	0,30	
05R580010		10	3	10	0,30	
05R580012		12	5	12	0,35	
05R580014		14	5	14	0,35	
05R580016		16	5	16	0,35	
05R580018		18	5	18	0,35	
05R580020		20	5	20	0,35	
05R580025		25	5	25	0,40	
05R580032		32	5	32	0,40	

* Suitable for both cooling stations of the single-station support boxes (ZFM07MN12, ZFM07MN22).

** A storage rack and a standard stop rods set are part of the delivery content of the heating module with height setting (ZFM07MA2).

EasyShrink[®], cooling bells water cooler



Module	Part No.	Cooling bells Qty.	Cooling time, approx.	Dimensions in mm			 KG
				Width	Depth	Height	
Refrigerated water cooling bells unit							
	ZFM07RE1	2	0,5 min.	325	507	762	60,00

Contact bushes are required, see Accessories.

Accessories and Spare parts for the cooling bells water cooler

	Part No.	For Shrinkfit holder			
		Type	∅ mm		
Contact bush for cooling bells 	Accessories:				
	ZFAR10D006	5800	∅ 6 mm	0,60	
	ZFAR10D008	5800	∅ 8 mm	0,60	
	ZFAR10D010	5800	∅ 10 mm	0,60	
	ZFAR10D012	5800	∅ 12 mm	0,60	
	ZFAR10D014	5800	∅ 14 mm	0,60	
	ZFAR10D016	5800	∅ 16 mm	0,60	
	ZFAR10D018	5800	∅ 18 mm	0,60	
	ZFAR10D020	5800	∅ 20 mm	0,60	
	ZFAR10D025	5800	∅ 25 mm	0,60	
	ZFAR10D032	5800	∅ 32 mm	0,60	
	ZFAR10D103	5801	∅ 3 mm	0,60	
	ZFAR10D104	5801	∅ 4 mm	0,60	
	ZFAR10D105	5801	∅ 5 mm	0,60	
	ZFAR10D106	5801	∅ 6 mm	0,60	
	ZFAR10D108	5801	∅ 8 mm	0,60	
	ZFAR10D110	5801	∅ 10 mm	0,60	
	ZFAR10D112	5801	∅ 12 mm	0,60	
	ZFAR10D114	5801	∅ 14 mm	0,60	
	ZFAR10D116	5801	∅ 16 mm	0,60	
	ZFAR10D306	5803	∅ 6 and 8 mm	0,60	
	ZFAR10D310	5803	∅ 10 and 12 mm	0,60	
	ZFAR10D314	5803	∅ 14 and 16 mm	0,60	
	ZFAR10D318	5803	∅ 18 and 20 mm	0,60	
ZFAR10D325	5803	∅ 25 and 32 mm	0,60		
Set of 12 water treatment tablets* 	Spare parts:				
	ZFAP01	-	-	-	

* 3 tablets are part of the cooler delivery content. Treatment needs 3 tablets (at once) every 6 months.