

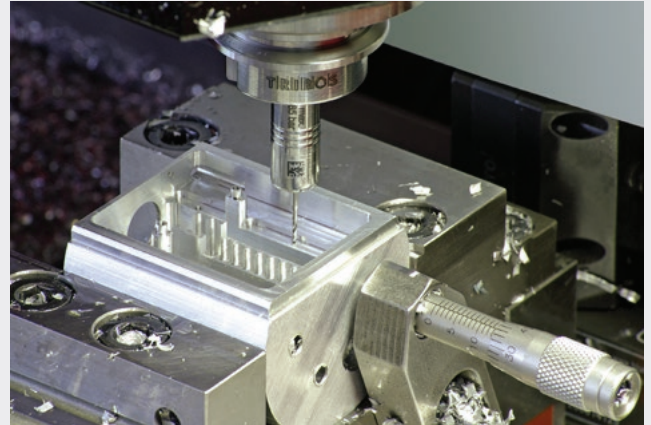


T|R|I|B|O|S®-Mini
Mini. Precise. Fast.

TRIBOS-Mini is setting standards in micro-cutting. This polygonal clamping system is used in filigree machining operations for housings, molds, electrodes, and engravings in medical technology and electrotechnology, as well as in the watch and clock making industry, or in the precision die construction industry. TRIBOS-Mini can be used to clamp extremely small shanks, starting at $\varnothing$ 0.3 mm, which means the time-consuming and cost-intensive manufacturing of special tools is no longer needed.



Ideal for HSC machining of difficult workpieces in micro-cutting



Advantages – Your benefits

- + For the smallest diameters starting from 0.3 mm**
Economical for filigree machining operations without special tools
- + Rotationally symmetrical design**
The rotationally symmetrical design minimizes the interfering contour and ensures high speed of rotation.
- + Excellent vibration damping**
Micro-blowouts are prevented, optimal workpiece surfaces, machine spindle protection, increased tool service life resulting in a reduction of costs
- + Minimizing set-up times and costs**
Quick and easy tool change with the clamping device TRIBOS-Mini SVP
- + Permanent run-out and repeat accuracy ≤ 0.003 mm**
Optimal surface results, high precision machining and safe processes due to a uniform cutting action and highest repeatability
- + Fine-balanced by default**
Suitable for high speeds with a balancing grade of G2.5 at 25,000 RPM



1 Anchor structure

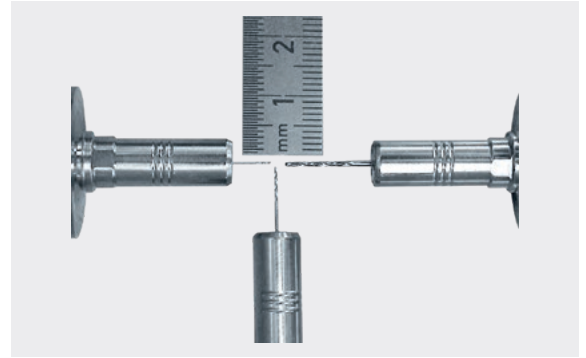
The anchor structure ensures high stability

2 Base body

One-piece design, from the machine interface to the clamping diameter

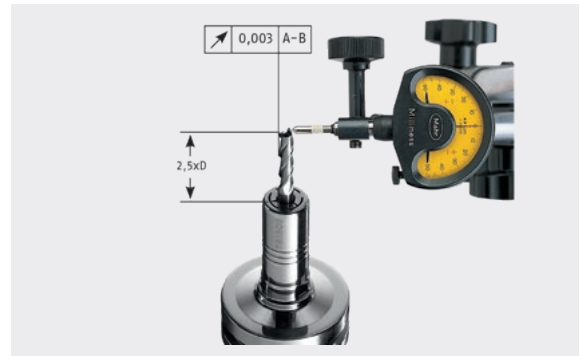
Top performance with the smallest diameter

All tool shanks with h6 tolerance can be clamped from $\varnothing 0.3$ mm.



Best dynamic run-out properties

The TRIBOS-Mini polygonal clamping system stands for excellent dynamic run-out behavior < 0.003 mm. This level of run-out behavior achieves the best results for shape accuracy, surface quality, and shape and positional tolerance.



Excellent vibration damping

Micro-blowouts on the cutting edge of the tool are prevented, thus achieving optimum workpiece surfaces. The spindle performance will be enhanced, the tool service life is considerably increased and costs reduced.



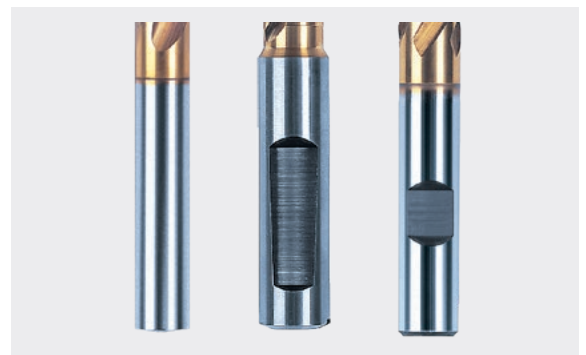
All commercially available tool shank types can be clamped

Form A: with smooth cylindrical shank, shank form A in accordance with DIN 1835 and DIN 6535 HA

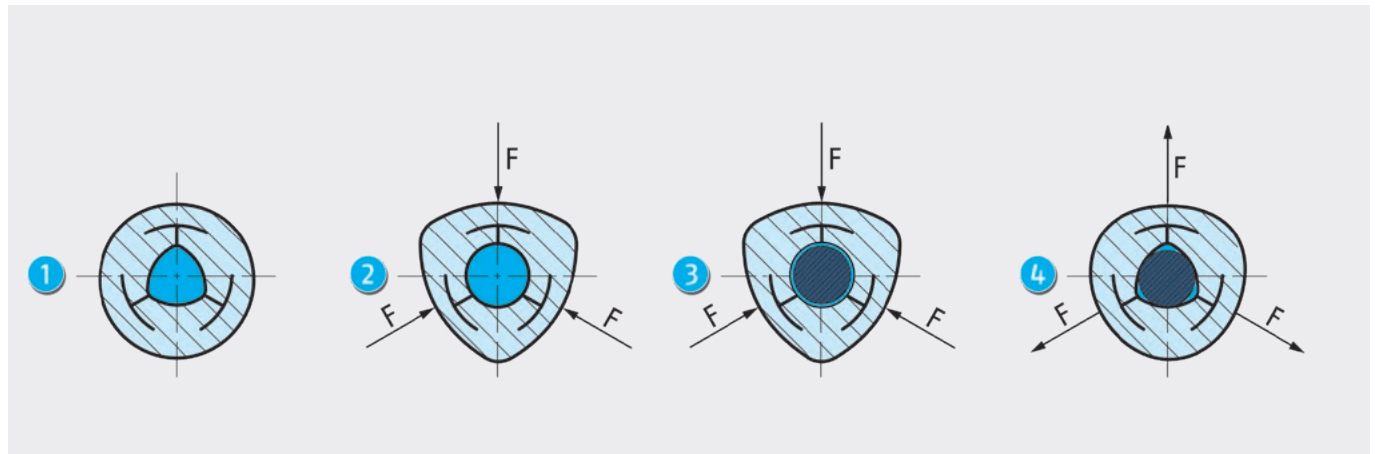
Form AB: with flat face and cylindrical shank with pulling face, shank form B in accordance with DIN 1835 and DIN 6535 HB

Form B: with lateral pulling faces, shank form B in accordance with DIN 1835

Form E: with inclined clamping face, shank form E in accordance with DIN 1835 and DIN 6535 HE



Functional principle of polygonal clamping technology



1 Clamping diameter polygonal

By using the TRIBOS SVP clamping devices and the matching pressure actuation, the polygonal clamping diameter of the toolholder becomes round.

2 Clamping diameter becomes round

The tool shank is now easy to insert.

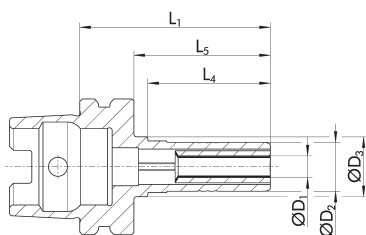
3 Inserting the tool shank

If the pressure on the clamping diameter eases off, then it will assume its polygonal shape again.

4 Tool clamped

The inserted tool shank is process-reliably clamped at a high repeat accuracy.

TRIBOS-M HSK-A 25



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours

Technical data

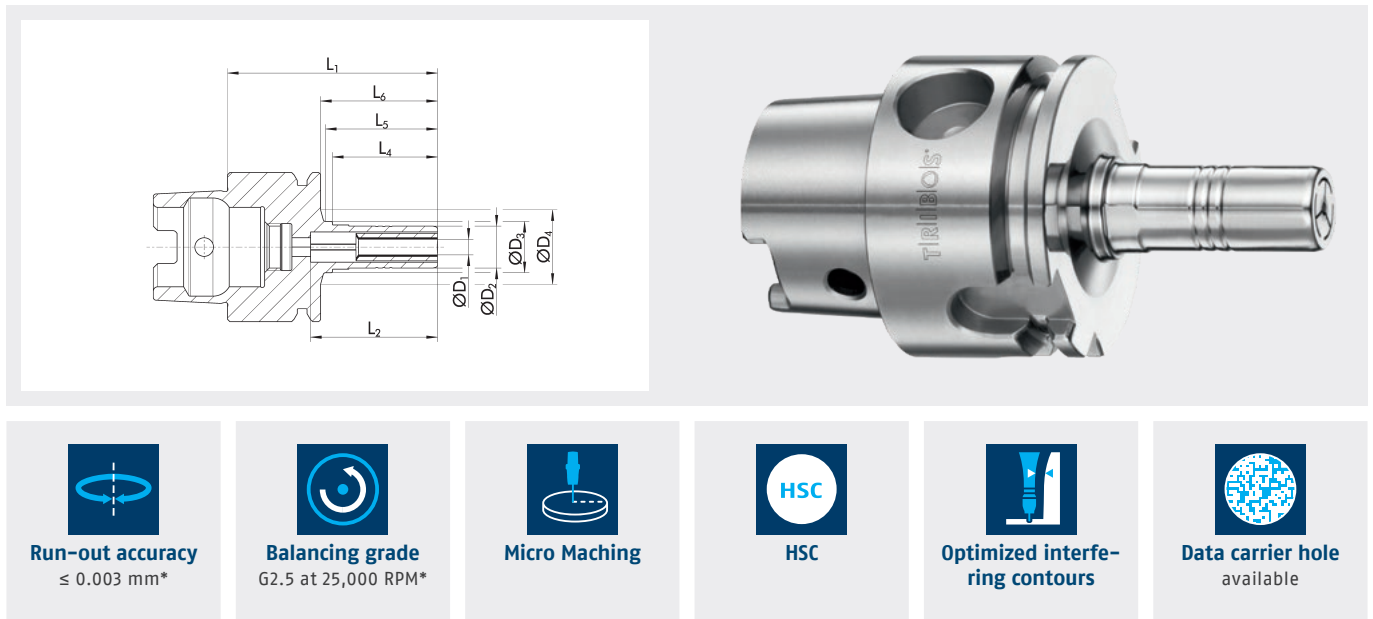
ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	Mmin [Nm]	Weight [kg]	
0226020	1	9	11	35	22.5	25		0.05	0201971
0226021	1.5	9	11	35	22.5	25		0.05	0201971
0226022	2	9	11	35	22.5	25	1	0.05	0201971
0226023	3	9	11	35	22.5	25	1.5	0.05	0201971
0226024	4	9	11	35	22.5	25	2.5	0.05	0201971
0226025	6	9	11	35	22.5	25	4.5	0.05	0201971
0226026	1/8"	9	11	35	22.5	25	1.5	0.05	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-A 32



Run-out accuracy
 $\leq 0.003 \text{ mm}^*$



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
available

Technical data

ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L2 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225911	1	9	11	18.8	45	17.8	22.5	23.4	25		0.13	0201971
0225912	1.5	9	11	18.8	45	17.8	22.5	23.4	25		0.13	0201971
0225913	2	9	11	18.8	45	17.8	22.5	23.4	25	1	0.13	0201971
0225915	3	9	11	18.8	45	17.8	22.5	23.4	25	1.5	0.13	0201971
0225916	4	9	11	18.8	45	27.2	22.5	23.4	25	2.5	0.13	0201971
0225917	6	9	11	18.8	45	27.2	22.5	23.4	25	4.5	0.13	0201971
0225918	1/8"	9	11	18.8	45	17.8	22.5	23.4	25	1.5	0.13	0201971

*Run-out accuracy at $2.5 \times D$; run-out for $\varnothing 6 \text{ mm}$: $\leq 0.005 \text{ mm}$ at $2.5 \times D$

*Balancing grade: or $U_{\text{max}} < 1 \text{ gmm}$

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-A 40



Technical data

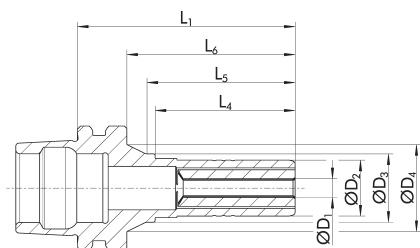
ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225921	1	9	11	32	50	22.5	23.4	30		0.23	0201971
0225922	1.5	9	11	32	50	22.5	23.4	30		0.23	0201971
0225923	2	9	11	32	50	22.5	23.4	30	1	0.23	0201971
0225925	3	9	11	32	50	22.5	23.4	30	1.5	0.23	0201971
0225926	4	9	11	32	50	22.5	23.4	30	2.5	0.23	0201971
0225927	6	9	11	32	50	22.5	23.4	30	4.5	0.23	0201971
0225928	1/8"	9	11	32	50	22.5	23.4	30	1.5	0.23	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 20



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours

Technical data

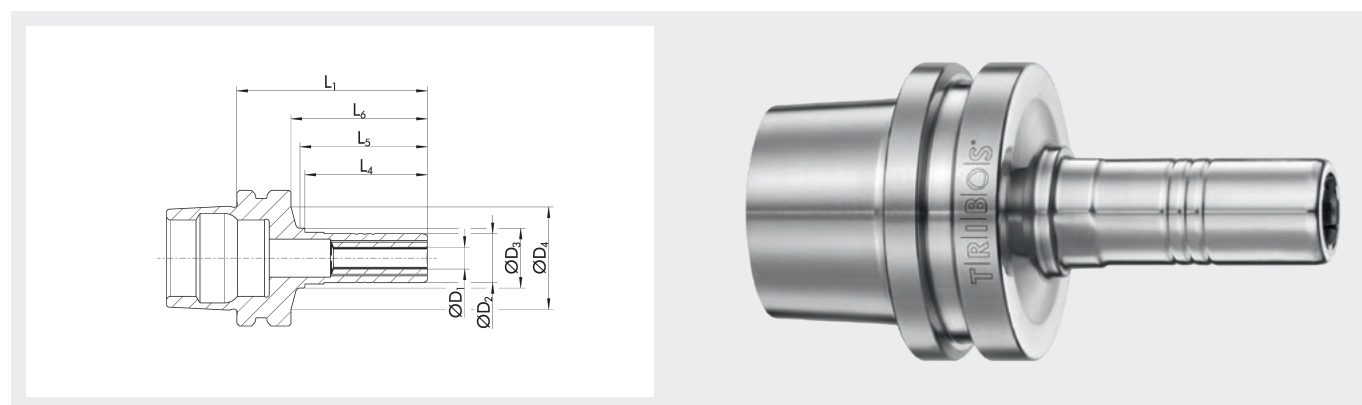
ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0204727	1	9	11	14	35	22.5	23.8	27		0.03	0201971
0204728	1.5	9	11	14	35	22.5	23.8	27		0.03	0201971
0204729	2	9	11	14	35	22.5	23.8	27	1	0.03	0201971
0204730	3	9	11	14	35	22.5	23.8	27	1.5	0.03	0201971
0204731	4	9	11	14	35	22.5	23.8	27	2.5	0.03	0201971
0204732	6	9	11	14	35	22.5	23.8	27	4.5	0.03	0201971
0204733	1/8"	9	11	14	35	22.5	23.8	27	1.5	0.03	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 25



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours

Technical data

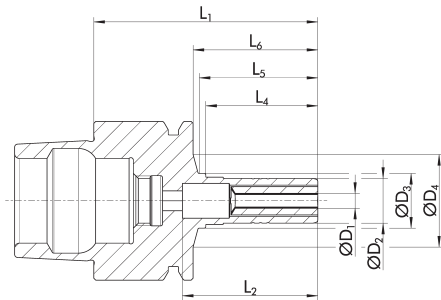
ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225605	0.5	9	11	18.8	35	22.5	23.4	25		0.05	0201971
0225610	1	9	11	18.8	35	22.5	23.4	25		0.05	0201971
0225615	1.5	9	11	18.8	35	22.5	23.4	25		0.05	0201971
0225620	2	9	11	18.8	35	22.5	23.4	25	1	0.05	0201971
0225625	2.5	9	11	18.8	35	22.5	23.4	25	1.25	0.05	0201971
0205250	3	9	11	18.8	35	22.5	23.4	25	1.5	0.05	0201971
0225635	3.5	9	11	18.8	35	22.5	23.4	25	2	0.05	0201971
0205256	4	9	11	18.8	35	22.5	23.4	25	2.5	0.05	0201971
0225645	4.5	9	11	18.8	35	22.5	23.4	25	3	0.05	0201971
0205258	5	9	11	18.8	35	22.5	23.4	25	3.5	0.05	0201971
0205267	6	9	11	18.8	35	22.5	23.4	25	4.5	0.05	0201971
0225661	1/8"	9	11	18.8	35	22.5	23.4	25	1.5	0.05	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 32



Run-out accuracy
 $\leq 0.003 \text{ mm}^*$



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
optionally possible

Technical data

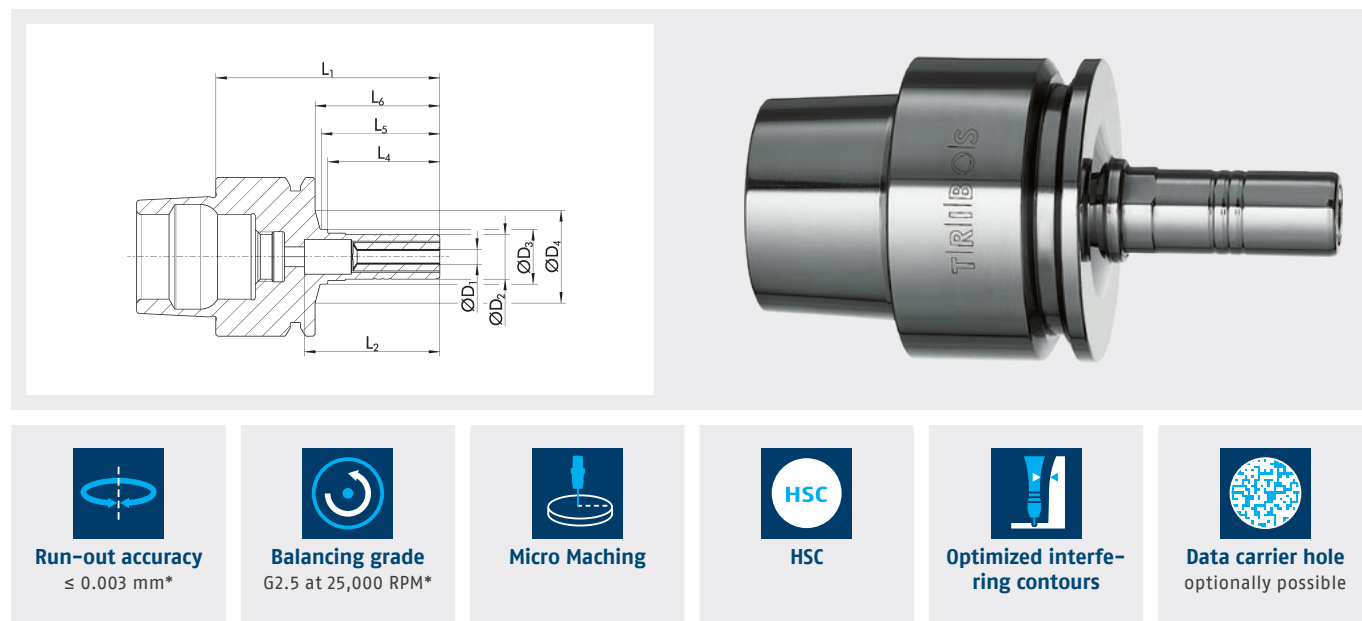
ID	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L2 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225705	0.5	9	11	18.8	45	27.2	22.5	23.4	25		0.13	0201971
0225760	1	9	11	18.8	45	27.2	22.5	23.4	25		0.13	0201971
0225715	1.5	9	11	18.8	45	27.2	22.5	23.4	25		0.13	0201971
0225761	2	9	11	18.8	45	27.2	22.5	23.4	25	1	0.13	0201971
0225725	2.5	9	11	18.8	45	27.2	22.5	23.4	25	1.25	0.13	0201971
0225762	3	9	11	18.8	45	27.2	22.5	23.4	25	1.5	0.13	0201971
0225735	3.5	9	11	18.8	45	27.2	22.5	23.4	25	2	0.13	0201971
0225763	4	9	11	18.8	45	27.2	22.5	23.4	25	2.5	0.13	0201971
0225745	4.5	9	11	18.8	45	27.2	22.5	23.4	25	3	0.13	0201971
0225764	5	9	11	18.8	45	27.2	22.5	23.4	25	3.5	0.13	0201971
0225765	6	9	11	18.8	45	27.2	22.5	23.4	25	4.5	0.13	0201971

*Run-out accuracy at $2.5 \times D$; run-out for $\varnothing 6 \text{ mm}$: $\leq 0.005 \text{ mm}$ at $2.5 \times D$

*Balancing grade: or $U_{\text{max}} < 1 \text{ gmm}$

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 32



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
optionally possible

Technical data

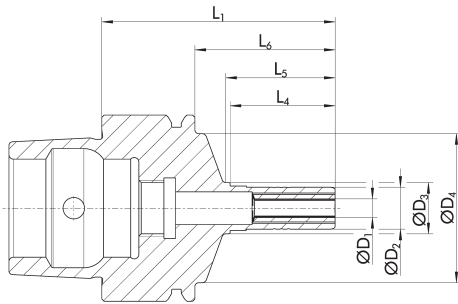
ID	D1 [Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L2 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225766	1/8"	9	11	18.8	45	27.2	22.5	23.4	25	1.5	0.13	0201971

*Run-out accuracy: at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 40



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
optionally possible

Technical data

ID	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225805	0.5	9	11	32	50	22.5	23.4	30		0.23	0201971
0225810	1	9	11	32	50	22.5	23.4	30		0.23	0201971
0225815	1.5	9	11	32	50	22.5	23.4	30		0.23	0201971
0225820	2	9	11	32	50	22.5	23.4	30	1	0.23	0201971
0225825	2.5	9	11	32	50	22.5	23.4	30	1.25	0.23	0201971
0205450	3	9	11	32	50	22.5	23.4	30	1.5	0.23	0201971
0225835	3.5	9	11	32	50	22.5	23.4	30	2	0.23	0201971
0205456	4	9	11	32	50	22.5	23.4	30	2.5	0.23	0201971
0225845	4.5	9	11	32	50	22.5	23.4	30	3	0.23	0201971
0205458	5	9	11	32	50	22.5	23.4	30	3.5	0.23	0201971
0205459	6	9	11	32	50	22.5	23.4	30	4.5	0.23	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M HSK-E 40



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
optionally possible

Technical data

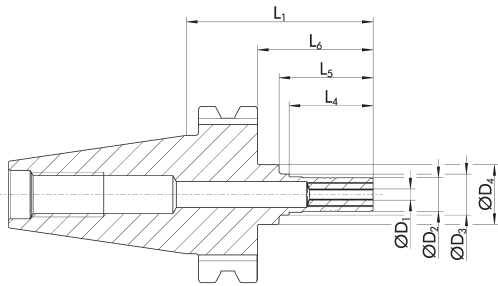
ID	D1 [Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225850	1/8"	9	11	32	50	22.5	23.4	30	1.5	0.23	0201971

*Run-out accuracy: at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M SK 30



Run-out accuracy
≤ 0.003 mm*



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
optionally possible

Technical data

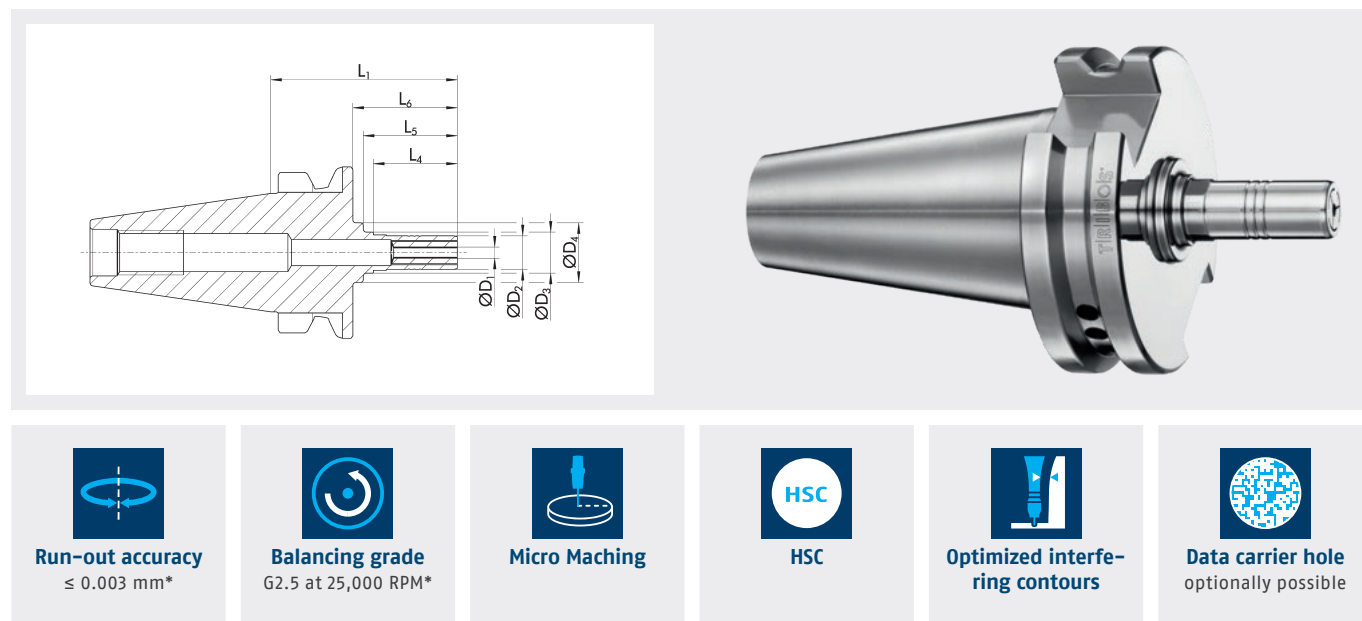
ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225780	1	9	11	16	50	22.5	25.2	30.9		0.25	0201971
0225781	1.5	9	11	16	50	22.5	25.2	30.9		0.25	0201971
0225782	2	9	11	16	50	22.5	25.2	30.9	1	0.25	0201971
0225783	3	9	11	16	50	22.5	25.2	30.9	1.5	0.25	0201971
0225784	4	9	11	16	50	22.5	25.2	30.9	2.5	0.25	0201971
0225785	6	9	11	16	50	22.5	25.2	30.9	4.5	0.25	0201971
0225786	1/8"	9	11	16	50	22.5	25.2	30.9	1.5	0.25	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M JIS-BT 30



Technical data

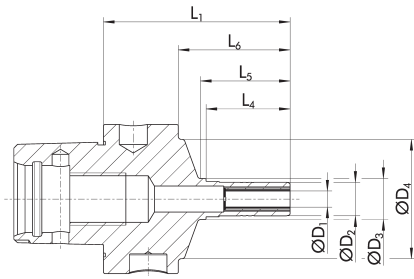
ID	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
0225665	1	9	11	16	52	22.5	25.2	30		0.25	0201971
0225666	1.5	9	11	16	52	22.5	25.2	30		0.25	0201971
0225667	2	9	11	16	52	22.5	25.2	30	1	0.25	0201971
0225668	3	9	11	16	52	22.5	25.2	30	1.5	0.25	0201971
0225669	4	9	11	16	52	22.5	25.2	30	2.5	0.25	0201971
0225670	6	9	11	16	52	22.5	25.2	30	4.5	0.25	0201971

*Run-out accuracy at 2.5 x D; run-out for Ø 6 mm: ≤ 0.005 mm at 2.5 x D

*Balancing grade: or Umax < 1 gmm

Additional sizes and customized designs are available upon request

TRIBOS-M SCHUNK CAPTO C4



Run-out accuracy
 $\leq 0.003 \text{ mm}^*$



Balancing grade
G2.5 at 25,000 RPM*



Micro Maching



HSC



Optimized interfering contours



Data carrier hole
available

Technical data

ID	D1 [mm/Inch]	D2 [mm]	D3 [mm]	D4 [mm]	L1 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	Mmin [Nm]	Weight [kg]	
25005564	1	9	11	32	50	22.5	24	30		0.23	0201971
25005565	1.5	9	11	32	50	22.5	24	30		0.23	0201971
25005566	2	9	11	32	50	22.5	24	30	1	0.23	0201971
25005567	3	9	11	32	50	22.5	24	30	1.5	0.23	0201971
25005569	4	9	11	32	50	22.5	24	30	2.5	0.23	0201971
25005570	5	9	11	32	50	22.5	24	30	3.5	0.23	0201971
25005571	6	9	11	32	50	22.5	24	30	4.5	0.23	0201971
25005568	1/8"	9	11	32	50	22.5	24	30	1.5	0.23	0201971

*Run-out accuracy at $2.5 \times D$; run-out for $\varnothing 6 \text{ mm}$: $\leq 0.005 \text{ mm}$ at $2.5 \times D$

*Balancing grade: or $U_{\text{max}} < 1 \text{ gmm}$

Additional sizes and customized designs are available upon request



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