



Product catalogue 2020 



Gripping. Clamping. Positioning.
High precision and permanent accuracy.
Competent and economical.

sales@sws-spannwerkzeuge.de

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A SWS Corporate guideline



PRECISION IS OUR PROFESSION.

Development and production of special clamping devices requires extensive experience, expertise in design and precision during manufacturing. Just like extreme climbing “free soloing” and speed climbing this requires precise preparation. It guarantees reliability and precision for increasingly shorter cycle times, during operation under ever differing surrounding conditions.

We design and manufacture standard and special clamping devices for workpiece and tool clamping. Highest demands on precision, quality and easy servicing will always be prioritised. Our product portfolio contains among others collets, special design collets, clamping mandrels and sleeves and complete collet systems, as well as quick-change interfaces for optimising set-up time. With nearly 100% vertical range of manufacture in Germany including our in-house salt-bath hardening we are producing the clamping devices on our own. Our customers include companies of the aerospace and automotive industries, medical technology, oil industry, optical goods, and machine tool industries. Our efficient and durable clamping devices are used all over the globe. Our brand SWS-Spannwerkzeuge signifies for our customers technically high quality solutions and long-lasting clamping tools, which are unrivalled. Clamping devices with specifically defined product properties and measurable product benefits, which fulfil all customer requirements.

We have everything under control.

This is the motto of the founder Mr. Weber, when he started 1920 with the manufacture of collets for the machine tool industry. It was his promise to the customers that all his products would be delivered with highest precision and would constantly be optimised. The founding motto of then is still valid today. Today the SWS-Spannwerkzeuge GmbH belongs internationally to the leading clamping device manufacturers for special clamping devices and precision tools.

With the high requirements of our customers our know-how in design and manufacture of clamping devices has grown perpetually. It is executed by skilled and motivated staff who have been with the company for many years and have extensive experience in clamping devices manufacturing. More than 400 designs for renowned customers acknowledge this expertise.

A SWS Corporate guideline



Relentless quality in all product areas

Our customers wishes and requirements we conceive as a constant challenge. Comparable to the attempt on the record on speed climbing at the Nose, a 1000 m long climbing path at the El Capitan (Yosemite Valley, USA) of the rope team Alexander and Thomas Huber (Huber Buam). Exact preparation, detailed planning and the needed will to break the speed record are prerequisite for such achievements. On October 4, 2007, with 2:45:45 hours (normal climbers take 3 to 5 days) the Huber Buam arrived on their target.

This ambition and mandatory precision we take as a model to meet our daily challenges in the interest of our customers, accurately, reliably and quickly.

Perfection out of tradition.

Since almost 100 years we have delivered innovative and durable clamping solutions. We are meeting your expectations on chucks for your productive utilisation: productivity gains, long lifetime, easy servicing, cost and set-up time optimisation, and quick delivery times. That's what SWS-Spannwerkzeuge GmbH stands for.

Precision and Perfection.

Ensuring the quality requirements of our customers for our clamping devices for industrial production we apply leading edge measurement technology (coordinate measuring machine) and testing procedures. This precision confirms the requirements for our manufacturing, enabling us to produce clamping tools with concentricity less than 3µm. On request all clamping devices are delivered with test report to document highest quality demands.

We have on our command the current version of 3D CAD Solidworks and are using the Finite Element Method FEM, the most advanced calculation and design software for the design and manufacturing of special clamping devices. The specification sheet for customised clamping devices we define in close cooperation with our customers.

A SWS Corporate guideline



Clamping devices made in Germany

We manufacture clamping devices for the most various industries and fields. All of our customers, nationally as well as internationally, expect clamping devices for cost-efficient and highest accuracy manufacturing.

Our standard clamping devices, special clamping devices and complex special clamping devices are outstanding due to their high precision, long lifetime and short delivery times.

Maintenance and service.

Further innovative services of SWS-Spannwerkzeuge GmbH include modification and maintenance of existing clamping devices. Our service delivers all overhauled clamping devices covered by a replacement value guarantee.

This sustainable – non-proprietary – service improves the utilisation of clamping devices. The benefit for our customers is a significantly improved cost-benefit-ratio of their investment goods (TCO).

In order to optimise the productivity of our customers production plants (OEE) we offer in our portfolio range design and manufacture of special designs as well as easy set-up clamping devices.

If required, for unscheduled machine downtime our quick-response workshop we will be able to support you within a week with collets. Please don't hesitate to contact us.

A SWS Corporate guideline



Exact concentricity, highest precision, and long lifetime are quality marks of our collets and chucks. When manufacturing all design features are produced in accordance with the predominant usage. Standard accuracy ranges up to 10 μm , for more demanding requirements we can achieve $<3\mu\text{m}$. Vulcanisation of our collets takes place inhouse.

The clamping surface is manufactured with smooth, cross-grooved, and with both transverse and longitudinal grooves. In order to improve tool lifetime we provide coating for the clamping devices in accordance with the intended application. All collets are readily on demand.

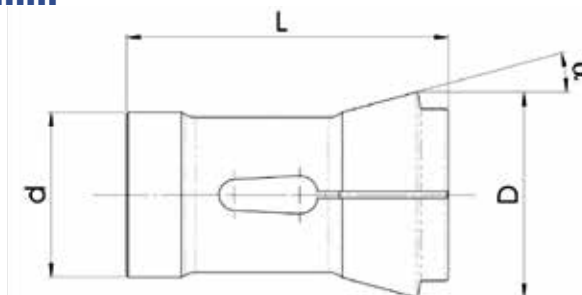
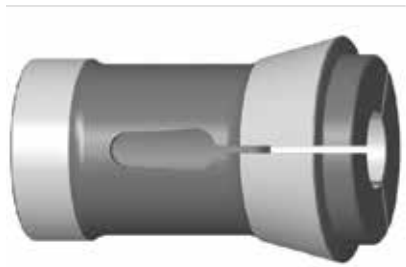
- Deadlength collets series 100
- Feed collets series 200
- Collet chucks series 300
- Tool collet chucks series 400
- Adapter sleeves
- Multirange collets series 700
- Doublecone collets series 800
- Collets, feed collets and pick up collet for multispindles series 9000
- Chuck heads for raw and finished tool clamping
- Segmented collets
- Clamping collets SP-TR
- Clamping collets FV-TR
- Clamping collets FH-TR
- Clamping collets SHM-TR

Further collets on request.



For your notes

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B Standard collets and chucks
SWS High performance precision deadlength collets series 100 – 145
DIN 6343 – clamping \varnothing 3 – 20 mm


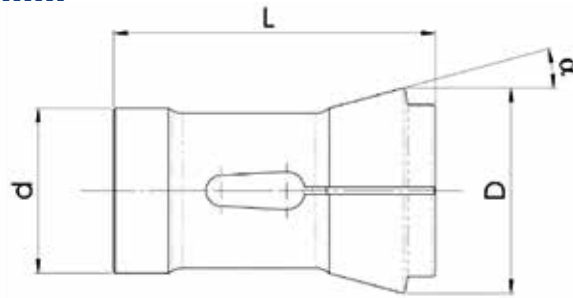
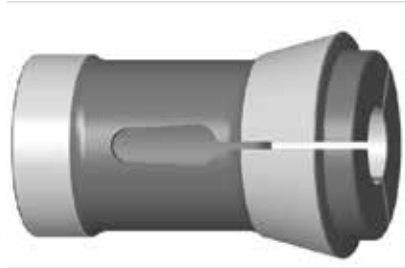
Type	Order No.	\varnothing d mm	\varnothing D mm	L mm	α °	Clamping \varnothing range mm	Clamping \varnothing steps mm	Weight g	Product group	Price group	Price per unit Euro	
100 E	600.100	6	10.0	30.0	15	0.5 – 4.5	0.1		11	A		
101 E	600.101	8	12.0	42.0	16	0.5 – 5.35	0.1		11	A		
102 E	600.102	8	13.7	30.0	21	1 – 5.5	0.1		11	A		
103 E	600.103	8	14.0	35.0	15	0.5 – 6	0.1		11	A		
109 E	600.109	10	16.0	47.5	20	1 – 7	0.1		11	A		
110 E	600.110	10	16.0	43.0	15	0.5 – 7	0.1		11	A		
111 E	600.111	10	16.0	47.0	20	1 – 7	0.1		11	A		
112 E	600.112	11	18.7	47.0	22	1 – 7.5	0.1		11	A		
113 E	600.113	12	15.5	32.5	10	2 – 10	0.1		11	A		
116 E	600.116	13	19.0	64.0	16	1 – 10	0.1		11	A		
117 E	600.117	14	18.0	46.0	13	1 – 10	0.1		11	A		
118 E	600.118	14	19.5	46.0	15	1 – 10	0.1		11	A		
120 E	600.120	15	21.0	64.0	16	1 – 12	0.1		11	A		
121 E	600.121	15	22.0	47.0	20	1 – 12	0.1		11	A		
123 E	600.123	16	22.0	55.0	16	1 – 13	0.1		11	A		
125 E	600.125	17	22.0	51.0	15	1 – 14	0.1		11	A		
127 E	600.127	18	25.0	67.0	15	1 – 12	0.1		11	A		
128 E	600.128	18	24.0	64.0	16	0.5 – 14	0.1		11	A		
136 E	600.136	20	25.2	66.0	15	1 – 16	0.1		11	A		
137 E	600.137	20	27.5	69.0	15	3 – 16	0.1		11	A		
138 E	600.138	20	28.0	67.0	16	3 – 16	0.1		11	A		
139 E	600.139	22	28.0	67.0	13	2 – 16	0.1		11	A		
140 E	600.140	22	30.0	55.0	15	2 – 16	0.1		11	A		
141 E	600.141	23	28.8	63.5	15	3 – 17	0.1		11	A		
143 E	600.143	25	31.0	54.0	15	3 – 16	0.1		11	A		
144 E	600.144	25	34.0	65.0	15	1 – 20	0.1		11	A		
145 E	600.145	25	35.0	77.0	16	3 – 20	0.1		11	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

B Standard collets and chucks

SWS High performance precision deadlength collets series 146 – 196

DIN 6343 – clamping \varnothing 3 – 100 mm



Type	Order No.	\varnothing d mm	\varnothing D mm	L mm	α °	Clamping \varnothing range mm	Clamping \varnothing steps mm	Weight g	Product group	Price group	Price per unit Euro
146 E	600.146	26	32	67	13	3 – 20	0.1		11	A	
147 E	600.147	27	38	73	15	3 – 23	0.1		11	A	
148 E	600.148	28	38	70	15	2 – 24	0.1		11	A	
156 E	600.158	30	39.3	86.5	15	3 – 25	0.1		11	A	
157 E	600.157	30	42	80	16	3 – 25	0.1		11	A	
161 E	600.161	32	45	75	15	1 – 26	0.1		11	A	
162 E	600.162	35	43	70	15	3 – 30	0.1		11	A	
163 E	600.163	35	48	80	15	2 – 30	0.1		11	A	
1536 E	601.536	37	47	92	16	3 – 32	0.1		11	A	
164 E	600.164	38	49.2	108	15	3 – 32	0.1		11	A	
171 E	600.171	42	55	94	15	3 – 37	0.1		11	A	
173 E	600.173	48	60	94	15	3 – 42	0.1		11	A	
174 E	600.174	52	63	92	15	6 – 46	0.1		11	A	
177 E	600.177	58	70	94	15	6 – 52	0.1		11	A	
185 E	600.185	66	84	110	15	4 – 60	0.1		11	A	
190 E	600.190	88	106	115	15	6 – 80	0.1		11	A	
193 E	600.193	90	107	130	15	20 – 80	0.1		11	A	
194 E	600.194	95	116	200	15	6 – 83	0.1		11	A	
195 E	600.195	105	125	172	15	6 – 90	0.1		11	A	
196 E	600.196	112	138	120	15	24 – 100	0.1		11	A	

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping \varnothing – manufacturing – coating

600.146 – RD – 10.00 – G – WO3

Clamping geometry

RD=round

VK=square

SK=hexagonal

Further geometries on request.

Manufacturing of the clamping bore

To improve the grip depending on the diameter the clamping bore is available in:

– smooth (G), standard, without further specifications

– cross-grooved (Q)

– transverse and longitudinal grooves (LQ)

– Z-corrugation (Z)

Coatings

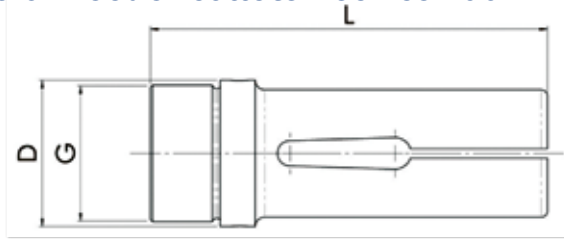
On request, to increase tool lifetime, optimise grip, and to prevent gumming, the clamping devices can be additionally coated in regard to the application.

A detailed description can be found in the order index.

Prices upon request

B Standard collets and chucks

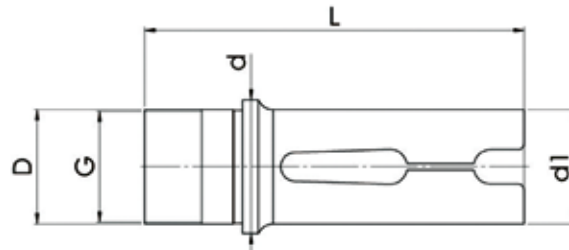
SWS High performance precision feeder collets – series 200



Type	Order No.	Ø d mm	Ø D mm	L mm	Thread G	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
207 E	600.207	18	16	70	M16 x 1-L	1 – 13	0.1		12	A		
217 E	600.217	21	20	70	M20 x 1-L	2 – 16	0.1		12	A		
220 E	600.220	24	22	85	M22 x 1-L	1 – 18	0.1		12	A		
236 E	600.236	30	29	95	M28 x 1-L	3 – 24	0.1		12	A		
237 E	600.237	31	29	90	M29 x 1-L	3 – 25	0.1		12	A		
254 E	600.254	42	40.5	116	M40 x 1-L	3 – 36	0.1		12	A		
273 E	600.273	60	58	140	M58 x 1-L	10 – 52	0.1		12	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

B SWS High performance precision external feeder collets



Type	Order No.	Ø D mm	Ø d mm	Ø d ₁ mm	L mm	Thread G	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
242 E	600.242	42	36	36	120	M36 x 1.5	24.5 – 30	0.1		12	A		
259 E	600.259	56	50	48	138	M50 x 1.5	37 – 42	0.1		12	A		
278 E	600.278	75	68	68	138	M68 x 1.5	53 – 60	0.1		12	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating

600.207 – RD – 10.00 – G – W03

Clamping geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries on request.

Manufacturing of the clamping bore
 To improve the grip depending on the diameter the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

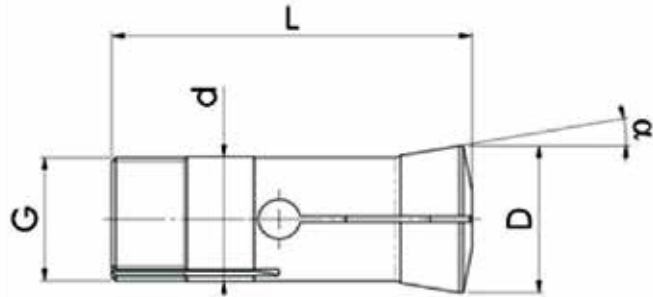
Coatings
 On request, to increase tool lifetime, optimise grip and to prevent gumming the clamping devices can be additionally coated in regard to the application. A detailed description can be found in the order index.

Prices upon request

B Standard collets and chucks

SWS High performance precision draw-in collets – series 300

DIN 6341



Type	Order No.	Ø d mm	Ø D mm	L mm	Thread G	α °	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro
302 E	600.302	8	12.7	35	W6.85x40Gg	20	0.5 – 6	0.1		13	A	
303 E	600.303	9.3	15	52	W8.35x32Gg	20	0.5 – 7.5	0.1		13	A	
313 E	600.313	10	14	75	LH9.2x1	20	0.5 – 8	0.1		13	A	
314 E	600.314	10	14	44.5	S10x0.833	15	0.5 – 8	0.1		13	A	
318 E	600.318	12	16	46	S12x1.25	15	0.5 – 10	0.1		13	A	
319 E	600.319	12	18	62	Tr.12x1.0	20	0.5 – 10	0.1		13	A	
3213 E	603.213	15	20.2	58.3	14.75x1.25	15	0.5 – 12.5	0.1		13	A	
324 E	600.324	15	21.5	56	M13x1	20	0.5 – 13	0.1		13	A	
330 E	600.330	16	24	72.5	Tr.16x1.5	20	0.5 – 13	0.1		13	A	
349 E	600.349	20	26.3	73	S20x1.66	15	0.5 – 18	0.1		13	A	
350 E	600.350	20	27.5	122	LH18.5x1.4	20	0.5 – 20	0.1		13	A	
351 E	600.351	20	28	83	Tr.20x1.5	20	0.5 – 20	0.1		13	A	
354 E	600.354	20	28	122	W19x20Gg	17.5	0.5 – 17.5	0.1		13	A	
355 E	600.355	20	28	122.7	S20x2	17.5	0.5 – 18	0.1		13	A	
358 E	600.358	23	32	85	M21x1	20	0.5 – 20	0.1		13	A	
359 E	600.359	23	32	93.5	Tr.23x1.5	20	0.5 – 20	0.1		13	A	
363 E	600.363	25	33.5	89	M23x1	16	0.5 – 22	0.1		13	A	
364 E	600.364	25	33.7	98	S25x15Gg	15	1 – 22	0.1		13	A	
366 E	600.366	28	36	108	Tr.27x20Gg	18	0.5 – 25	0.1		13	A	
367 E	600.367	28	38	104	Tr.28x1.5	20	1 – 24	0.1		13	A	
385 E	600.385	31.7	37.5	88	31.4x1/20°	10	1 – 26	0.1		13	A	
3713 E	603.713	32	40	106	S30x1.66	15	1 – 28	0.1		13	A	
386 E	600.386	32	45	115	Tr.32x1.5	20	1 – 29	0.1		13	A	
389 E	600.389	45	60	146	Tr.45x2	20	1 – 40	0.1		13	A	
390 E	600.390	45	60	146	Tr.45x2	20	5 – 40	0.1		13	A	

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating

600.302 – RD – 6.00 – G – WO3

Clamping geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries on request.

Manufacturing of the clamping bore
 To improve the grip depending on the diameter the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

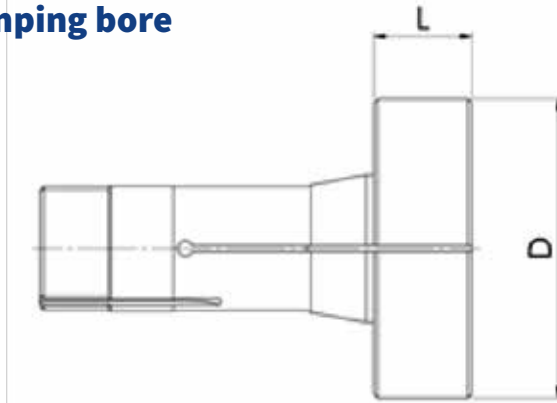
Coatings
 On request, to increase tool lifetime, optimise grip and to prevent gumming the clamping devices can be additionally coated in regard to the application. A detailed description can be found in the order index.

Prices upon request

B Standard collets and chucks

SWS High performance precision head collets 349 – 366

DIN 6341 – to unscrew the clamping bore



Type	Order No.	Ø D mm	L mm	Thread	Weight g	Product group	Price group	Price per unit Euro	
349 E	600.349	40	25	S19.7x1.66		13	A		
349 E	601.349	40	50	S19.7x1.66		13	A		
349 E	602.349	50	25	S19.7x1.66		13	A		
349 E	603.349	50	50	S19.7x1.66		13	A		
358 E	600.358	40	25	S19.7x1.66		13	A		
358 E	601.358	40	50	M21x1		13	A		
358 E	602.358	50	25	M21x1		13	A		
358 E	603.358	50	50	M21x1		13	A		
358 E	604.358	80	25	M21x1		13	A		
358 E	605.358	80	50	M21x1		13	A		
359 E	600.359	40	25	M21x1		13	A		
359 E	601.359	40	50	Tr. 23x1.5		13	A		
359 E	602.359	50	25	Tr. 23x1.5		13	A		
359 E	603.359	50	50	Tr. 23x1.5		13	A		
359 E	604.359	80	25	Tr. 23x1.5		13	A		
359 E	605.359	80	50	Tr. 23x1.5		13	A		
364 E	600.364	40	25	Tr. 23x1.5		13	A		
364 E	601.364	40	50	S25-15Gg.		13	A		
364 E	602.364	50	25	S25-15Gg.		13	A		
364 E	603.364	50	50	S25-15Gg.		13	A		
366 E	600.366	50	25	S25-15Gg.		13	A		
366 E	601.366	50	50	Tr. 27x1.5		13	A		
366 E	602.366	80	25	Tr. 27x1.5		13	A		
366 E	603.366	80	50	Tr. 27x1.5		13	A		
366 E	604.366	100	25	Tr. 27x1.5		13	A		
366 E	605.366	100	50	Tr. 27x1.5		13	A		

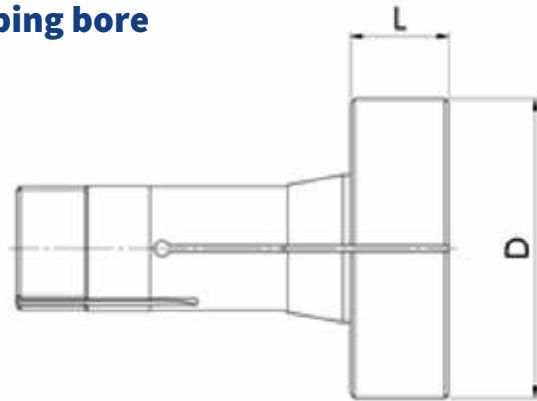
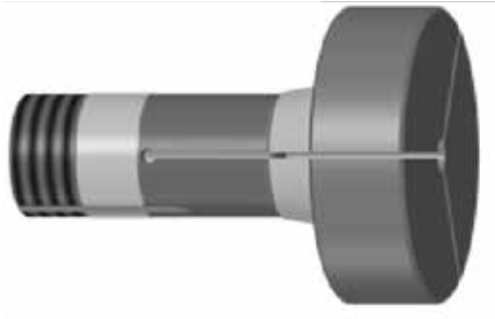
Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

SWS High performance precision head collets 367 – 386

DIN 6341 – to unscrew the clamping bore



Type	Order No.	Ø D mm	L mm	Thread	Weight g	Product group	Price group	Price per unit Euro	
367 E	600.367	50	25	Tr. 28x1.5		13	A		
367 E	601.367	50	50	Tr. 28x1.5		13	A		
367 E	602.367	80	25	Tr. 28x1.5		13	A		
367 E	603.367	80	50	Tr. 28x1.5		13	A		
367 E	604.367	100	25	Tr. 28x1.5		13	A		
367 E	605.367	100	50	Tr. 28x1.5		13	A		
385 E	600.385	50	25	Tr. 28x1.5		13	A		
385 E	601.385	50	50	Tr. 32x1.5		13	A		
385 E	602.385	80	25	Tr. 32x1.5		13	A		
385 E	603.385	80	50	Tr. 32x1.5		13	A		
385 E	604.385	100	25	Tr. 32x1.5		13	A		
385 E	605.385	100	50	Tr. 32x1.5		13	A		
386 E	600.386	50	25	Tr. 32x1.5		13	A		
386 E	601.386	50	50	Tr. 32x1.5		13	A		
386 E	602-386	80	25	Tr. 32x1.5		13	A		
386 E	603.386	80	50	Tr. 32x1.5		13	A		
386 E	604.386	100	25	Tr. 32x1.5		13	A		
386 E	605.386	100	50	Tr. 32x1.5		13	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating
 600.357 – RD – 6.00 – G – W03

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets – series 700



Exchangeable type	Order No.	Ø D mm	L mm	Le mm	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
136 E	609.136	26	18	12.7	4 – 16	0.1		15	A		
140 E	609.140	30	20	13.7	4 – 16	0.1		15	A		
148 E	609.148	38	30	22.7	4 – 22	0.1		15	A		
161 E	609.161	45	33	24.7	5 – 26	0.1		15	A		
163 E	609.163	48	34	25.7	6 – 30	0.1		15	A		
171 E	609.171	55	39	29.7	6 – 36	0.1		15	A		
173 E	609.173	60	39	29.7	6 – 42	0.1		15	A		
185 E	609.184	84	45	35.7	8 – 60	0.1		15	A		
190 E	609.190	106	45	34.5	35 – 80	0.1		15	A		
196 E	609.196	138	60	49.5	40 – 101	0.1		15	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating
 609.136 – RD – 10.00 – G – WO3

Clamping geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries on request.

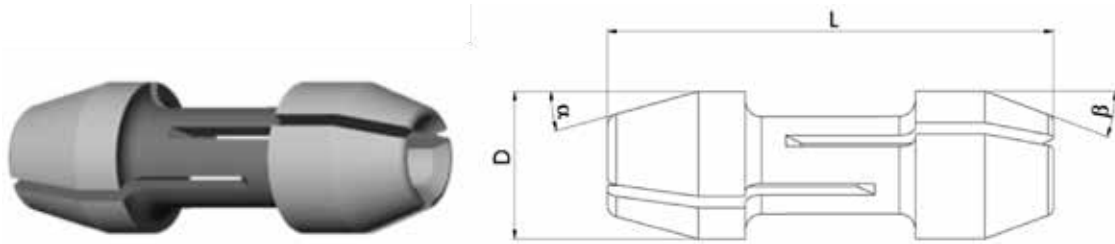
Manufacturing of the clamping bore
 To improve the grip depending on the diameter the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

Coatings
 On request, to increase tool lifetime, optimise grip and to prevent gummying the clamping devices can be additionally coated in regard to the application. A detailed description can be found in the order index.

Prices upon request

B Standard collets and chucks

SWS High performance precision doublecone collets – series 800



Type	Order No.	Ø D mm	L mm	α °	β °	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
868E	600.868	12	25	15	15	3 – 8	0.1		14	A		
868E	601.868	17	36	20	20	3 – 10	0.1		14	A		
868E	602.868	17	54	17.5	17.5	3 – 10	0.1		14	A		
868E	603.868	19	36	20	20	3 – 10	0.1		14	A		
868E	604.868	20	66	22.5	22.5	3 – 13	0.1		14	A		
868E	605.868	23	60	18.5	18.5	4 – 16	0.1		14	A		
868E	606.868	26.5	50	14	14	4 – 15	0.1		14	A		
868E	607.868	28	60	18	18.5	4 – 20	0.1		14	A		
868E	608.868	30	74	17.5	17.5	4 – 20	0.1		14	A		
869 E	600.869	31	55	14	14	4 – 20	0.1		14	A		
869 E	601.869	35	60	15	15	4 – 25	0.1		14	A		
869 E	602.869	35	85	17.5	17.5	4 – 25	0.1		14	A		
869 E	603.869	43	68	14	14	5 – 30	0.1		14	A		
869 E	604.869	46	68	14	14	6 – 32	0.1		14	A		
869 E	605.869	53	85	17.5	17.5	10 – 42	0.1		14	A		
869 E	606.869	59.4	120	20	20	10 – 42	0.1		14	A		
869 E	607.869	62	115	17.5	17.5	15 – 45	0.1		14	A		
869 E	608.869	83	130	18	18	15 – 65	0.1		14	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating

600.868 – RD – 8.00 – G – WO3

Clamping geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries on request.

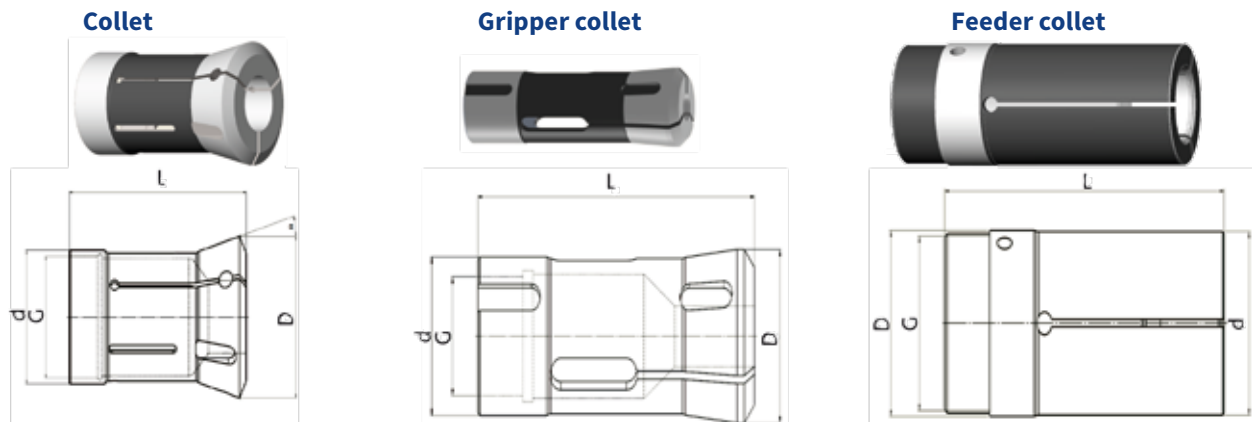
Manufacturing of the clamping bore
 To improve the grip depending on the diameter the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

Coatings
 On request, to increase tool lifetime, optimise grip and to prevent gumming the clamping devices can be additionally coated in regard to the application. A detailed description can be found in the order index.

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets – series 9000 for Gildemeister



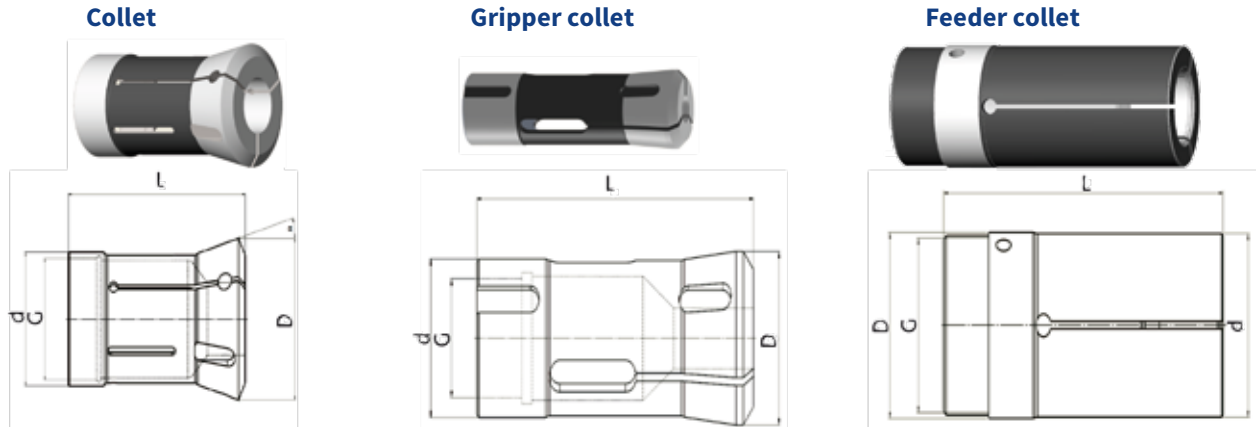
Machine type collet type	Type	Order No.	Ø d mm	Ø D mm	L mm	α °	Thread G	Clam- ping Ø max. mm	Weight g	Product group	Price group	Price per unit Euro	
AS 12													
Collet	9013 E	609.013	26.8	34	88.5	15	M24x 1 LH	12		16	A		
Feeder collet	9259 E	609.259	17.5	18.5	81	–	M24x1	12		16	A		
Gripper collet	9013 G	619.013	15.8	22	85	5	M13x 0.75 L	12		16	A		
AS16/20. GS20													
Collet	9012 E	609.012	34	42	90	16	M30x 1 LH	20		16	A		
Feeder collet	9258 E	619.258	24	25	90	–	M24x1	20		16	A		
Gripper collet	9012 G	619.012	26	28.5	80		M21.5 x0.75	–		16	A		
Gripper collet	9012 P	629.012	26	26	60		–	–		16	A		
AS 25													
Collet	9045 E	609.045	45	60.4	159	15	M40x 1 LH	25		16	A		
Feeder collet	9287 E	609.287	32.5	33	140	–	M30x 1 LH	25		16	A		
Gripper collet	9045G	619.045	30	35.1	63	–	M20 x1.5	–		16	A		
GS 25													
Collet	9046 E	609.046	45	60.4	159	15	M40x 1.5 LH	25		16	A		
Feeder collet	9289 E	609.289	33.6	34.2	140	–	M30x1	25		16	A		
Gripper collet	9046 G	619.046	37	45	78	–	M30 x1.5	–		16	A		
AV. AS. AA 32													
Collet	9069 E	609.069	53	69.4	128	15	M48x 1.5 LH	32		16	A		
Feeder collet	9316 E	609.316	39.5	40	136	–	M38x 1.5 LH	32		16	A		
Gripper collet	9069 G	619.069	38	43	80	–	M24x 1.5	–		16	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets for Gildemeister furthermore



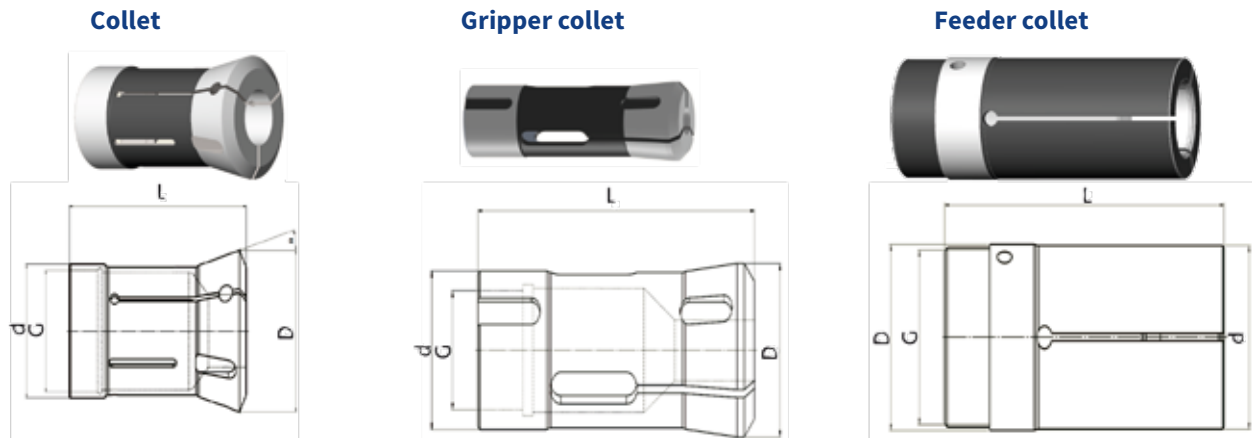
Maschine type collet type	Type	Order No.	Ø d mm	Ø D mm	L mm	α °	Thread G	Clamp- ing Ø max. mm	Weight g	Product group	Price group	Price per unit Euro	
AV. AS. AA. R 48													
Collet	9132 E	609.132	70	90.4	149	15	M65x 1.5 LH	48		16	A		
Feeder collet	9368 E	609.368	56.5	57	160	-	M54x 1.5 LH	48		16	A		
Gripper collet	9132 G	619.132	42	55	91	-	M28 x1.5	-		16	A		
AV. AS. AA 67													
Collet	9178 E	609.178	90	115.4	170	15	M85x 1.5 LH	67		16	A		
Feeder collet	9447 E	609.447	76	77.5	170	-	M74x 1.5 LH	67		16	A		
Gripper collet	9178 G	619.178	45	90.1	100	-	M28 x1.5	-		16	A		
AV 82. AS 82													
Collet	9209 E	609.209	109	138.4	189	15	M102x 1.5 LH	82		16	A		
Feeder collet	9475 E	609.475	93	94	180	-	M88x 1.5 LH	82		16	A		
Gripper collet	9209 G	619.209	60	105	130	-	M40 x1.5	-		16	A		
AS 100													
Collet	9239 E	609.239	128	160.4	250	15	M122x 1.5 LH	100		16	A		
Feeder collet	9483 E	609.483	113	114	235	-	M108x 1.5 LH	100		16	A		
Gripper collet	9239 G	619.239	60	120.1	130	-	M40 x1.5	-		16	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets for Index – Steinhäuser



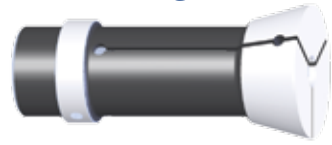
Machine type collet type	Type	Order No.	Ø d mm	Ø D mm	L mm	α °	Thread G	Clamp- ing Ø max. mm	Weight g	Product group	Price group	Price per unit Euro	
MS 16													
Collet	9007 E	609.007	32	41.5	84	15	M28x1 LH	18		16	A		
Feeder collet	9255 E	609.255	23	25	88	–	M23x1	18		16	A		
Gripper collet	–	–	–	–	–	–	–	–	–	–	–		
KS 20. KS 22													
Collet	9033 E	609.033	40	55.2	102	15	M35x1.5 LH	23		16	A		
Feeder collet	9273 E	609.273	28.5	30.8	102	–	M28x1.5	23		16	A		
Gripper collet	9033 G	619.033	36.5	49	49.8	–	M28x1.5 LH	–		16	A		
KS 25. MS 25													
Collet	9039 E	609.039	46	60.3	120	15	M40x1.5 LH	26		16	A		
Feeder collet	9282 E	609.282	33	37	118	–	M33x1.5 LH	–		26	A		
Gripper collet ZS25	9039 G	619.039	25	35.4	65	–	–	–		16	A		
Gripper collet KS25	9033 G	619.033	36.5	49	49.8	–	M28x1.5 LH	–		16	A		
KS 32													
Collet	9070 E	609.070	53	69.3	136	15	M47x1.5 LH	32		16	A		
Feeder collet	9319 E	609.319	40	41.8	130	–	M38x1.5	32		16	A		
Gripper collet	9033 G	619.033	36.5	49	49.8	–	M28x1.5 LH	–		16	A		
KS 42													
Collet	9108 E	609.108	62	82.4	180	15	M58x1.5 LH	42		16	A		
Feeder collet	9364 E	609.364	54	50	170	–	M50x1.5 LH	42		16	A		
Gripper collet	9033 G	619.033	36.5	49	49.8	–	M28x1.5 LH	–		16	A		
KS 50													
Collet	9133 E	609.133	70	92	157	15	M65x2 LH	50		16	A		
Feeder collet	9402 E	609.402	57	60	156	–	M57x2 LH	–		16	A		
Gripper collet	9033 G	619.033	36.5	49	49.8	–	M28x1.5 LH	–		16	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

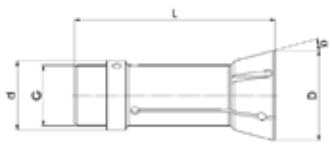
Prices upon request

B Standard collets and chucks

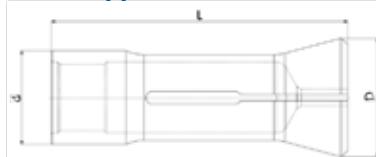
SWS High performance precision multirange collets for Pittler



Collet



Gripper collet



Feeder collet



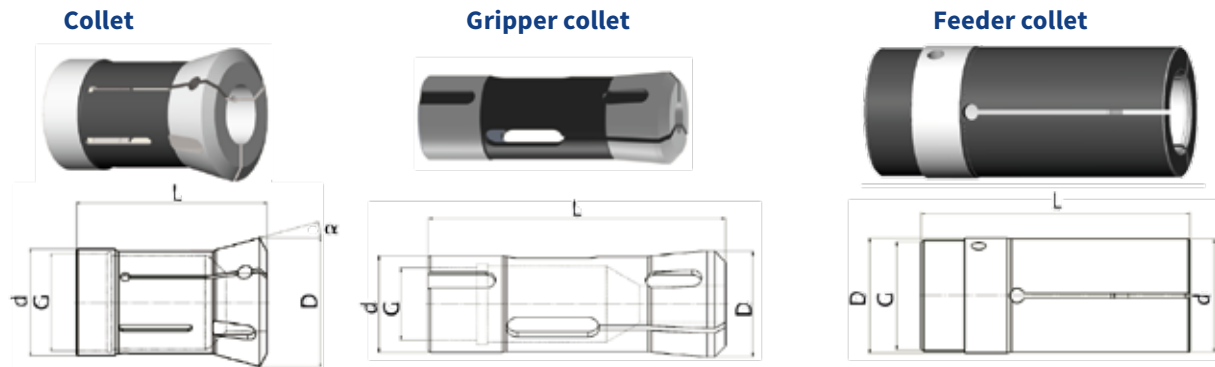
Machine type collet type	Type	Order No.	Ø d mm	Ø D mm	L m	α °	Thread G	Clamp- ing Ø max. mm	Weight g	Pro- duct group	Price group	Price per unit Euro
PRC 25/8												
Collet	9038 E	609.038	44.3	56	139.5	15	19/16"x18 Gg. LH	26		16	A	
Feeder collet	9278 E	609.278	31.7	34.9	147	-	11/4"x20 Gg. LH	26		16	A	
Gripper collet	9038 G	619.038	35	42.5	116	-	-	-		16	A	
PRC 32/6/8												
Collet	9067 E	609.067	52.2	64.7	152	15	13/16"x20 Gg. LH	32		16	A	
Feeder collet	9285 E	609.285	38.5	39.5	168	-	17/16"x 20 Gg. LH	32		16	A	
Gripper collet	9067 G	619.067	48	58	109	-	-	-		16	A	
PRC 36/6/8												
Collet	9078 E	609.078	56.9	69.7	152	15	2"x20 Gg. LH	36		16	A	
Feeder collet	9330 E	609.330	43.2	44.3	168	-	15/8"x 20 Gg. LH	36		16	A	
Gripper collet	9067 G	619.067	48	58	109	-	-	-		16	A	
PRB/PRC 50/4/6/8												
Collet	9141 E	609.141	76.8	95.5	180	15	211/16"x 16 Gg. LH	50		16	A	
Feeder collet	9405 E	609.405	59	63.5	186	-	25/16"x24 Gg. LH	50		16	A	
Gripper collet	9141 G	619.141	60	67.5	99	-	-	-		16	A	
PRC 72/4/6/8												
Collet	9206 E	609.206	106	127.7	225	15	313/16"x 18 Gg. LH	76		16	A	
Feeder collet	9472 E	609.472	85	92	214	-	33/8"x24 Gg. LH	76		16	A	
Gripper collet	9206 G	619.206	68	93	145	-	-	-		16	A	
PRC 100/4/6												
Collet	9236 E	609.236	136.5	165.7	224	15	51/16"x 18 Gg. LH	101		16	A	
Feeder collet	9482 E	609.482	114.3	116	273	-	493/8"x 18 Gg. LH	101		16	A	
Gripper collet	9236 G	619.236	68	125	159	-	-	-		16	A	

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets for Schütte



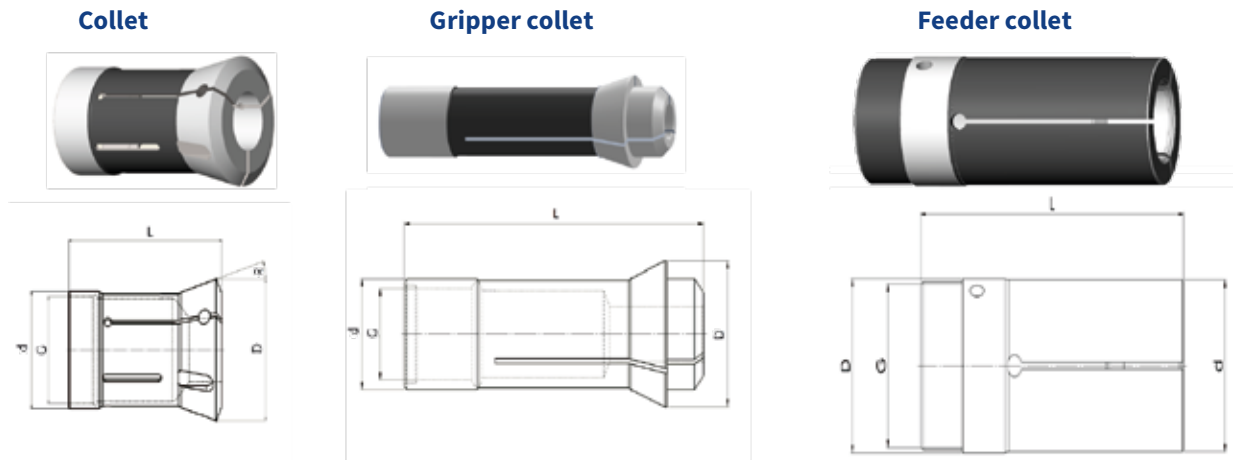
Machine type collet type	Type	Type No.	Ø d mm	Ø D mm	L mm	α °	Thread G	Clamping Ø max. mm	Weight g	Product group	Price group	Price per unit Euro	
SE16. SF 18													
Collet	9007 E	609.007	32	41.5	84	15	M28x 1 LH	18		16	A		
Feeder collet	9255 E	609.255	23	25	88	-	M23x1	18		16	A		
Greifer- zange	9007 G	619.007	25	35.1	60	-	M24x 1.5 LH	-		16	A		
SF 20													
Collet	9016 E	609.016	32	41.5	84	15	M30x 1 LH	20		16	A		
Feeder collet	9262 E	609.262	25	27	88	-	M25x1	20		16	A		
Greifer- zange	9016 G	619.016	28	36	50	-	M24x 1.5 LH	-		16	A		
VD/SD/SE25/ SE/SF 26													
Collet	9039 E	609.039	46	60.3	120	15	M40x 1.5 LH	26		16	A		
Feeder collet	9282 E	609.282	33	37	118	-	M33x1.5	26		16	A		
Gripper collet VD/ SD/SE25	9039 G	619.039	32	45.1	71	-	M22x 1.5 LH	-		16	A		
Gripper collet SE/SF/26	9039 H	619.039	34	42	53	-	-	-		16	A		
AD/VD/SD/ SF 32													
Collet	9070 E	609.070	53	69.3	136	15	M47x 1.5 LH	32		16	A		
Feeder collet	9319 E	609.319	40	41.8	130	-	M38x1.5	32		16	A		
Gripper collet AD/ VD/SD32	9070 G	619.070	39	50.6	81	-	M26x 1.5 LH	-		16	A		
Gripper collet SF 32	9070 H	629.070	52	60.6	60	-	-	-		16	A		
AD/VD 40 SF 40/42													
Collet	9112 E	609.112	62.9	78.3	157	15	M56x 1.5 LH	42		16	A		
Feeder collet	9372 E	609.372	49	51	154	-	M48x1.5	42		16	A		
Gripper collet AD/ VD 40	9012 G	609.012	39	60.6	81	-	M26x 1.5 LH	-		16	A		
Gripper collet SF 40/42	9070 G	639.070	52	60.6	60	-	-	-		16	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

SWS High performance precision multirange collets for Tornos



Machine type collet type	Type	Type No.	Ø d mm	Ø D mm	L mm	α °	Thread G	Clamp- ing Ø max. mm	Weight g	Product group	Price group	Price per unit Euro	
AS/BS 14													
Collet	9001 E	609.001	25	35	75	16.0	M22x1	14		16	A		
Feeder collet	9251 E	609.251	17.5	17.9	70	–	M16x 0.75	14		16	A		
Gripper collet	9001 G	619.001	16	21	66	–	M14x 0.75	–		16	A		
AS/SAS 16													
Collet	9021 E	609.021	25	35	92	15.5	M25x1	16		16	A		
Feeder collet	9265 E	609.265	22.5	22.8	98	–	M20x 0.75	16		16	A		
BS 20 / 22													
Collet	9018 E	609.018	36	45	107	15.5	M33x1	20		16	A		
Feeder collet	9263 E	609.263	29	29.7	116	–	M27x1	20		16	A		
BS 20 B													
Collet	9017 E	609.017	36	45	107	15.5	M33x 1.25	20		16	A		
Feeder collet	9263 E	609.263	25.3	27.7	116	–	M25x1	20		16	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

When ordering state the order number: example

Order No. – clamping geometry – clamping Ø – manufacturing – coating
 609.001 – RD – 10.00 – G – WO3

Note: for multispindle collets: minimum order quantity 6 pieces per dimension.
 Short delivery times for call-off orders. Please contact us.

Clamping
 geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries
 on request.

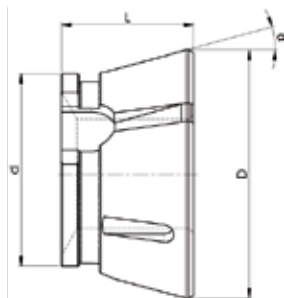
Manufacturing of the clamping bore
 To improve the grip depending on the diameter
 the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

Coatings
 On request, to increase tool lifetime, optimise grip
 and to prevent gumming the clamping devices can
 be additionally coated in regard to the application.
 A detailed description can be found in the order
 index.

Prices upon request

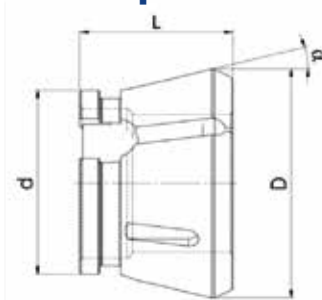
B Standard collets and chucks

SWS High performance precision chucks SK



Type No.	Order No.	L mm	Ø d mm	Ø D mm	α °	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
SK032-44	308.617	44	46.5	57.7	15	4 – 32	0.1		18	A		
SK032-47	310.766	47	46.5	57.7	15	4 – 32	0.1		18	A		
SK042-42	308.613	42	54.0	79.3	15	4 – 42	0.1		18	A		
SK042-47	308.595	47	54.0	79.3	15	4 – 42	0.1		18	A		
SK052-46	308.596	46	66.1	79.3	15	4 – 52	0.1		18	A		
SK065-49	310.767	49	80.0	99.5	15	5 – 65	0.1		18	A		
SK065-53	308.615	53	80.0	99.5	15	5 – 65	0.1		18	A		
SK065-58	308.609	58	80.0	99.5	15	5 – 65	0.1		18	A		
SK080-53	308.616	53	95.0	114.3	15	5 – 80	0.1		18	A		
SK100-59	310.768	59	121.0	144.5	15	15 – 100	0.1		18	A		

B SWS High performance precision clamping chucks SKS with narrow groove on front face



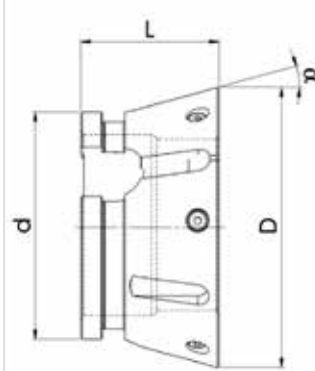
Type No.	Order No.	L mm	Ø d mm	Ø D mm	α °	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro	
SKS032-44	521.798	44	46.5	57.7	15	4 – 32	0.1		18	A		
SKS032-47	511.008	47	46.5	57.7	15	4 – 32	0.1		18	A		
SKS042-42	521.799	42	54.0	79.3	15	4 – 42	0.1		18	A		
SKS042-47	511.043	47	54.0	79.3	15	4 – 42	0.1		18	A		
SKS052-46	511.044	46	66.1	79.3	15	4 – 52	0.1		18	A		
SKS065-49	521.627	49	80.0	99.5	15	5 – 65	0.1		18	A		
SKS065-53	521.776	53	80.0	99.5	15	5 – 65	0.1		18	A		
SKS065-58	511.045	58	80.0	99.5	15	5 – 65	0.1		18	A		
SKS080-53	521.777	53	95.0	114.3	15	5 – 80	0.1		18	A		
SKS100-59	510.047	59	121.0	144.5	15	15 – 100	0.1		18	A		

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

Prices upon request

B Standard collets and chucks

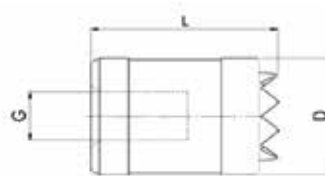
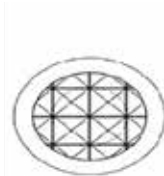
SWS High performance precision chucks with grip insert SKG



Type No.	Order No.	L mm	Ø d mm	Ø D mm	α °	Clamping Ø range mm	Clamping Ø steps mm	Weight g	Product group	Price group	Price per unit Euro
SKG042-47	521.823	47	54	79.3	15	34 – 37	0.5		18	B	
SKG052-46	521.824	46	66	79.3	15	34 – 47	0.5		18	B	
SKG065-53	521.827	53	80	99.5	15	34 – 60	0.5		18	B	
SKG080-53	521.825	53	95	114.3	15	34 – 75	0.5		18	B	
SKG100-59	521.826	59	121	144.5	15	34 – 95	0.5		18	B	

Minimum order quantity 10 pieces per dimension. Small quantities with surcharge.

B SWS High performance precision chucks with grip inserts SG and SGF



Type No.	Order No.	D mm	L mm	G	very important feature	Weight g	Product group	Price group	Price per unit Euro
SG 8	501.043	8-0.13	10-0.07	M4	w/o camfer		18	A	
SGF 8	308.785	8-0.13	10-0.07	M4	with camfer		18	A	

Minimum order quantity 20 pieces per dimension. Small quantities with surcharge.

Advantages and benefits:

- small vulcanisation grooves at the front face (SKS, SKG)
- SKS and SKG: front face vulcanisation avoids chip impact damage
- optimal maintenance possibilities
- delivery on request also possible without specification of the clamping diameter
- short delivery time
- all geometries and special designs available from stock

Clamping geometry
 RD=round
 VK=square
 SK=hexagonal
 Further geometries on request.

Manufacturing of the clamping bore
 To improve the grip depending on the diameter the clamping bore is available in:
 – smooth (G), standard, without further specifications
 – cross-grooved (Q)
 – transverse and longitudinal grooves (LQ)
 – Z-corrugation (Z)

Coatings
 On request, to increase tool lifetime, optimise grip and to prevent gumming the clamping devices can be additionally coated in regard to the application. A detailed description can be found in the order index.

Prices upon request

C Special collets and chucks



Depending on the clamped workpiece and the inserted chuck we will manufacture all customised geometries and diameters from $\varnothing 0.200$ mm to $\varnothing 400$ mm.

Production will be in accordance with customer drawings or on the basis of our own design. Special carbide inserts, either glued or soldered, improve tool lifetime. Additionally coatings increase wear resistance, prevent gumming at the location bore, avoid clamping imprints, and increase holding torques.

We offer these specialised designs in order to increase lifetime and rely hereby on our vast experience in nearly 100 years of company history.

Our emphasis lies on:

- DIN standard collets with special design
- Collets with special design
- Segmented collets with special design
- Collets with carbide inserts
- Toothed collets
- Tool collets
- Adapter sleeves

Further collets on request.

C Special collets and chucks

Are you looking for a reliable and high-quality partner in design and production of special collets or special clamping chucks?

Then you have found the right company!

For every task, in the quality required for the clamping situation, we develop and produce clamping devices and complete clamping systems almost up to 100% in Germany. For nearly a century, we have supported our customers worldwide with our know-how with almost every clamping design – naturally also in accordance with your customer drawings.

Whether slotted on one side or slotted on both sides with a slot width of > 0.100 mm, whether hot or cold vulcanised or modified to improve the tool lifetime, we can produce nearly all special clamping contours – naturally also with a wear-resistant coating.

Our offer includes special collets in accordance with DIN or standard collets, straightforward special collets and special chucks.

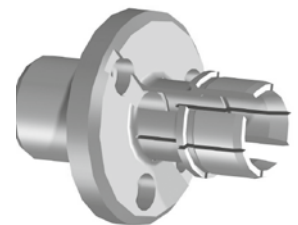
Our skilled employees with many years of service and experience guarantee high-quality designs and provide the qualitative requirements essential for their deployment. Our modern machine park manufactures even one-off or small batch production reliably and quickly. Let yourself be persuaded by our flexibility and delivery reliability.



Special collet with bajonett



Special collet



Special collet



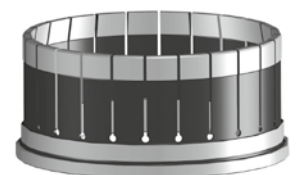
Segmented collet



Special collet



**Chuck
in size SKS260**



Special collet

D Clamping mandrels and sleeves



A wide variety of workpieces can be precisely clamped with our mandrels with adequate dimensioning. The corresponding clamping sleeves match the workpiece clamping.

Our patented “Optispring” clamping sleeves was designed to offer an alternative to vulcanised collets. This spring-based innovation doubles service lifetime and boosts availability of our customers’ production. The innovative design of Optispring allows independent repair by the machine operators.

Our standard supply includes mandrels, clamping sleeves and segmented clamping bushes as well as special mandrels and expanding mandrels such as:

- High precision mandrel with concentricity of $< 3\mu\text{m}$
- Sliding jaw expansion mandrel
- Sleeve mandrels
- Segmented mandrels

D Clamping mandrels and sleeves

28 – 100



Clamping mandrel systems

30 – 32

Clamping mandrels	SD-SB	30
Segmented clamping mandrels	SB-SB	31
Segmented clamping mandrels	SH-SB	31
Clamping sleeves	OS-SB	32
Optispring	WA-SB	32



Special mandrels

33 – 42

Mandrels high precision	SD-HP	34
Mandrels with planar face	SD-IP	35
Mandrels with retractable contact face	SD-RA	36
Mandrels with 2 clamping \emptyset	SD-ZD	37
Sliding jaw expansion mandrels for long take-up ranges	GD-HP	38
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Axial mandrels with pendulum mandrel centering		40
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Clamping sleeves high precision	HD-HP	42



Special clamping sleeves

43



Mandrel

44 – 100

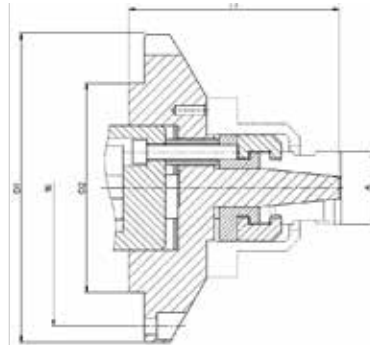
Flange collet mandrels and collets

Collet mandrels	SP-TR	44
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Flange collet mandrels	SHK-TR	84
Collets	FH-TR	86 – 88
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Collets	SHM-TR	94 – 97
Continuous tailstock couplings	MRA-TR	100

D Clamping mandrels and sleeves

Original SWS High performance precision mandrel system SB

Mandrel SD-SB



Type No.	Order No.	Mandrel size	Ø D1 mm	Ø D2 mm	Ø TK mm	L mm	Coupling AG	Clamping Ø range mm	Weight g	Product group	Price group	Location	Price per unit Euro	
SD-SB-E01	520.183	1	170	115	152	107	M90x1.5	25 – 40		31	C	Single spindle		
SD-SB-E02	520.188	2	170	115	152	107	M90x1.5	40 – 78		31	C	Single spindle		
SD-SB-E03	520.193	3	170	115	152	108	M90x1.5	70 – 110		31	C	Single spindle		
SD-SB-E04	511.472	4	210	115	152	108	M90x1.5	110 – 157		31	C	Single spindle		
SD-SB-E05	521.848	5	210	115	155	108	M90x1.5	156 – 170		31	C	Single spindle		
SD-SB-E06	550.000	6	248	115	171.4	136	M90x1.5	170 – 205		31	C	Single spindle		
SD-SB-M04	500.863	4	164	115	141	124.8	Bajonett	40 – 68		31	C	Multi-spindle		
SD-SB-M05	500.871	5	164	115	141	125	Bajonett	60 – 90		31	C	Multi-spindle		

WHEN ORDERING state the order no: Example:
 Order No. (w/o sleeve and end-stop – page 31) 520.183



FEATURES

- Application:** turning, grinding, checks
- Taper type:** spindle flange (on request)
 quick-change system (page 122)
 drawtube adapter (on request)
- Actuation:** pull-back
 deadlength on request
- Sleeves:** segmented mandrel SB-SB (page 31)



Segmented sleeve



Sleeve



Optispring

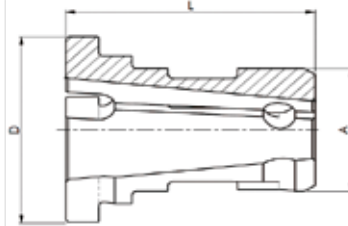
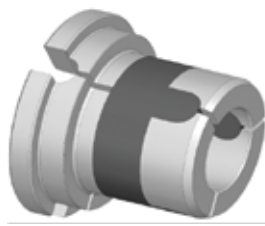
Advantages and benefits:

- large clamping range
- axial movement of collet
- concentricity < 10µm
- all clamping Ø available
- applicable for various sleeves

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision segmented mandrel SB-SB



FEATURES

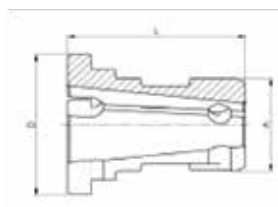
Design: – vulcanised

Advantages and benefits:

- durability
- pullback segmented mandrel
- concentricity 10µm

Type No.	Order No.	Mandrel size	Ø type	Ø D mm	L mm	Clamping Ø range [A]/mm	Opening stroke mm	Weight g	Product group	Price group	Location	Price per unit Euro
SB-SB-11	500.994	1	1	38	45	25 – 30	1		31	B	Single spindle	
SB-SB-12	500.995	1	2	38	45	30 – 40	1		31	B	Single spindle	
SB SB-21	521.132	2	1	58	45	39.4 – 50	1		31	B	Single spindle	
SB-SB-22	521.133	2	2	58	45	50 – 78	1		31	B	Single spindle	
SB-SB-31	521.232	3	1	88	50	70 – 110	1		31	B	Single spindle	
SB-SB-41	521.857	4	1	123	50	110 – 157	1		31	B	Single spindle	
SB-SB-51	521.858	5	1	154	50	156 – 170	1		31	B	Single spindle	
SB-SB-M41	521.813	4	1	47	55	40 – 68	1		31	B	Multi-spindle	
SB-SB-M51	521.814	5	1	67	65	60 – 90	1		31	B	Multi-spindle	

D Original SWS High performance precision segmented mandrel SH-SB



Type No.	Order No.	Mandrel size	Ø type	Ø D mm	L mm	Clamping Ø range [A] mm	Opening stroke mm	Weight g	Product group	Price group	Location	Price per unit Euro
SH-SB-11	501.236	1	1	38	45	25 – 30	0.3 – 0.5		31	B	Single spindle	
SH-SB-12	521.815	1	2	38	45	30 – 40	0.3 – 0.5		31	B	Single spindle	
SH SB-21	521.816	2	1	58	45	39.4 – 50	0.3 – 0.5		31	B	Single spindle	
SH-SB-22	521.817	2	2	58	45	50 – 78	0.3 – 0.5		31	B	Single spindle	
SH-SB-31	521.818	3	1	88	50	70 – 110	0.3 – 0.5		31	B	Single spindle	
SH-SB-41	521.859	4	1	123	50	110 – 157	0.3 – 0.5		31	B	Single spindle	
SH-SB-51	521.860	5	1	154	50	156 – 170	0.3 – 0.5		31	B	Single spindle	
SH-SB-M41	521.819	4	1	47	55	40 – 68	0.3 – 0.5		31	B	Multi-spindle	
SH-SB-M51	521.820	5	1	67	65	60 – 90	0.3 – 0.5		31	B	Multi-spindle	

FEATURES

Design:

– opposite slotted geschlitzte Ausführung

Application:

– mandrel SD-SB (page 30)

Advantages and benefits:

- durability
- axial movement of sleeve
- concentricity 10µm
- concentricity < 10µm on request

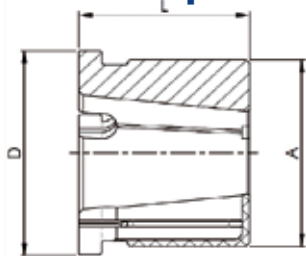
WHEN ORDERING

state the order no: Example:
 Order No. – Clamping Ø
 501.236 – XXX.XXX

Prices upon request

D Clamping mandrels and sleeves

Original SWS high performance precision Optispring OS-SB



Type No.	Order No.	Mandrel size	Ø Type	Ø D mm	L mm	Clamping Ø range [A] mm	Opening stroke mm	Weight g	Product group	Price group	Location	Price per unit Euro	
OS-SB-11	521.828	1	1	38	45	26 – 30	1		31	B	Single spindle		
OS-SB-12	521.829	1	2	38	45	30 – 40	1		31	B	Single spindle		
OS-SB-21	521.830	2	1	58	45	39.4 – 50	1		31	B	Single spindle		
OS-SB-22	521.831	2	2	58	45	50 – 78	1		31	B	Single spindle		
OS-SB-31	521.832	3	1	88	50	71.2 – 110	1		31	B	Single spindle		
OS-SB-41	521.861	4	1	123	50	110 – 157	1		31	B	Single spindle		
OS-SB-51	521.862	5	1	154	50	156 – 170	1		31	B	Single spindle		
OS-SB-M41	521.833	4	1	47	55	40 – 68	1		31	B	Multi-spindle		
OS-SB-M51	521.834	5	1	67	65	60 – 90	1		31	B	Multi-spindle		

FEATURES

Design:
 – patented spring system Optispring

Application:
 – mandrel SD-SB (page 30)

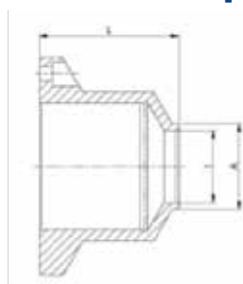
Advantages and benefits:

- doubling tool lifetime compared to vulcanisation
- axial movement of Optispring
- concentricity 10µm
- concentricity < 10µm on request
- all clamping Ø available

WHEN ORDERING

state the order no: Example:
 Order No. – Clamping Ø
 521.828 – XXX.XXX

D Original SWS precision – tool end-stop WA-SB



FEATURES

- Design:
 – stroke height individually produced
- Advantages and benefits:
 – workpiece stop for all sleeves of the SB series available
 – customising possible
- Application:
 – mandrel SD-SB (page 30)

Type No.	Order No.	Mandrel size	Tool height max.mm	Outer Ø range [A] mm	Inner Ø range [I] mm	Weight g	Product group	Price group	Location	Price per unit Euro	
WA-SB-1	521.835	1	40	27.5 – 68	25.5 – 40		31	B	Single spindle		
WA-SB-2	521.836	2	40	42.5 – 90	40.5 – 78.5		31	B	Single spindle		
WA-SB-3	521.837	3	40	72.5 – 121	70.5 – 110.5		31	B	Single spindle		
WA-SB-4	521.863	4	45	112.5 – 174	110.5 – 157.5		31	B	Single spindle		
WA-SB-5	521.864	5	45	158.5 – 188	156.5 – 170.5		31	B	Single spindle		
WA-SB-M4	521.838	4	45	42.5 – 84	40.5 – 68.5		31	B	multi-spindle		
WA-SB-M5	521.839	5	50	62.5 – 108	60.5 – 90.5		31	B	single spindle		

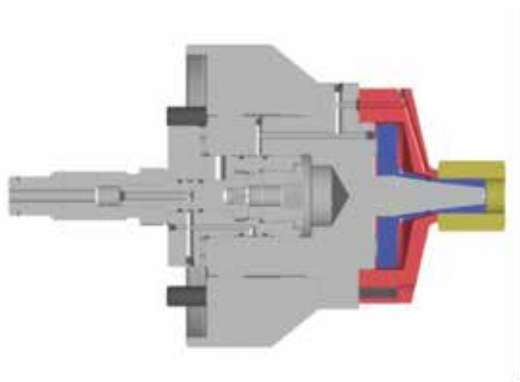
When ordering state the order number: Example:

Order No. – A Ø – I Ø – end-stop height (h)
 521.835 – XXX.XXX – XXX.XXX – XXX.XXX

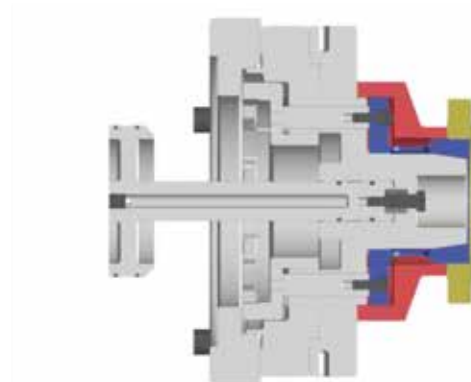
Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision special mandrels and sleeves



Mandrel for segmented sleeves



Mandrel for gear cutting sleeves

As with the special collets and special chucks we have been designing and manufacturing special mandrels for nearly one century.

High-precision manufacturing accuracy ensure exact workpiece clamping.

SWS clamping devices are characterized by optimum design mandrels for the relevant tasks with concentricity <math>< 3 \mu\text{m}</math>.

Process-oriented engineering

Standard mandrels are not necessarily practical for all tasks at hand. In these cases our design department can call upon many years of special solutions experience. Our focus is on the processes, user friendliness and easy set-up for individual applications. Together with our customers we will create a comprehensive specification sheet and design customised solutions, which are tailored to the task.

Optimization of production

The objective of SWS – Spannwerkzeuge is to significantly improve production quality, while optimizing easy set-up and reducing the set-up frequency. Subsequently, Overall Equipment Effectiveness (OEE) and Total Cost of Ownership (TCO) are considerably reduced.

High quality with optimum delivery times

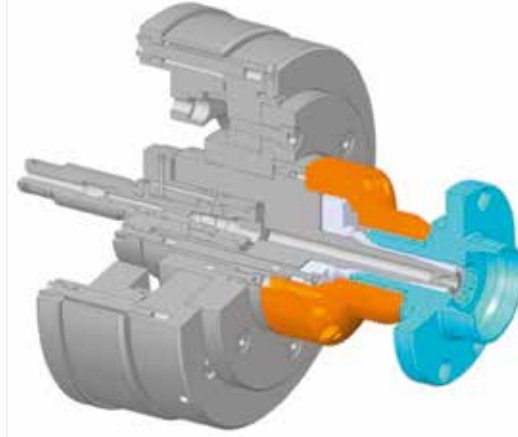
Our clamping range up to 400mm guarantees excellent quality and concentricity <math>< 3 \mu\text{m}</math>. We commit ourselves to optimum delivery times. Unforeseeable situations might call for short-term replacement. Our emergency tool shop will help instantly – made possible with our almost 100% vertical range of manufacture including our own hardening shop.

SWS special mandrels: summary of highlights

- improving Overall Equipment Effectiveness (OEE) and Total Cost of Ownership (TCO)
- qualities <math>< 3 \mu\text{m}</math>
- optimised set-up time design
- quick delivery for unforeseeable circumstances

D Clamping mandrels and sleeves

Original SWS High performance precision special mandrel mandrel high precision SD-HP



Clamping range \varnothing : 20 – 52 mm

Concentricity: 0.003 mm

Opening stroke 0.3 – 0.5 mm

Workpiece height: 6 – 70 mm

Run-out accuracy: 0.003 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

The mandrel system HP (High Precision) serves as an alternative to hydraulic mandrels due to its robustness and great accuracies. The relatively large opening stroke pardons clamping without workpiece. Additionally, the high-precision sleeve is confined in its clamping distance during unintentional clamping without workpiece and therefore will not be damaged. Our tried and tested system is an integral part of finished part machining in gear wheel production and all tasks requiring highest precision of 3 – 5 μm . Due to the flexible use of the clamping devices, whether vulcanised, slotted or in our patented Optispring design, almost all application tasks can be mastered. The SD-HP is designed for fast changing times to significantly reduce set-up time.

APPLICATION – examples:

- gear hobbing; drilling; turning; precision turning

WORKPIECES – examples:

- | | | | |
|--------------------|-----------------------|----------------------|------------------|
| – axle drive gears | – bearing inner rings | – planetary carriers | – sliding wheels |
| – gear rings | – bearing outer rings | – pump housings | – crown wheels |
| – bevel gears | – hubs | – sliding collars | – gear wheels |
| | – planetary gears | | |

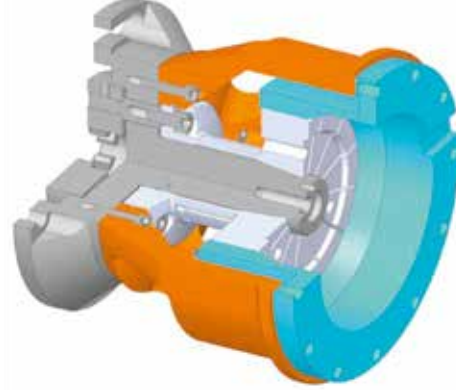
Advantages and benefits:

- high precision clamping
- large opening stroke 0.500 mm
- better loading and unloading safety
- reliable processes for gear wheel manufacturing
- no collet damage during clamping without workpiece
- extremely less fatigue for sleeves
- easy set-up

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision mandrel with integrated planar face SD-IP



Clamping range \varnothing : 60 – 110 mm

Taper:

large support face
even with thin-walled
workpieces

Concentricity: 0.005 mm

Run-out accuracy: 0.005 mm

Opening stroke 0.3 – 0.5 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Our mandrel SD-IP is used for the highest demands on machining of housings. The integrated planar positioning at the housing bore ensures radial and axial runout required for the planar surface. The sleeve securely clamps inside the bore and draws the workpiece against the planar surface. For fast set-up times and thus ensuring efficient production, the mandrel is equipped with a quick-change interface for the mounting surface and towards the drawbar. The stable and compact design also allows heavy machining with consistent quality.

APPLICATION – examples:

- drilling; turning; milling; cylindrical grinding

WORKPIECES – examples:

- housings
- gear housings
- motor housings
- workpieces with high planar face

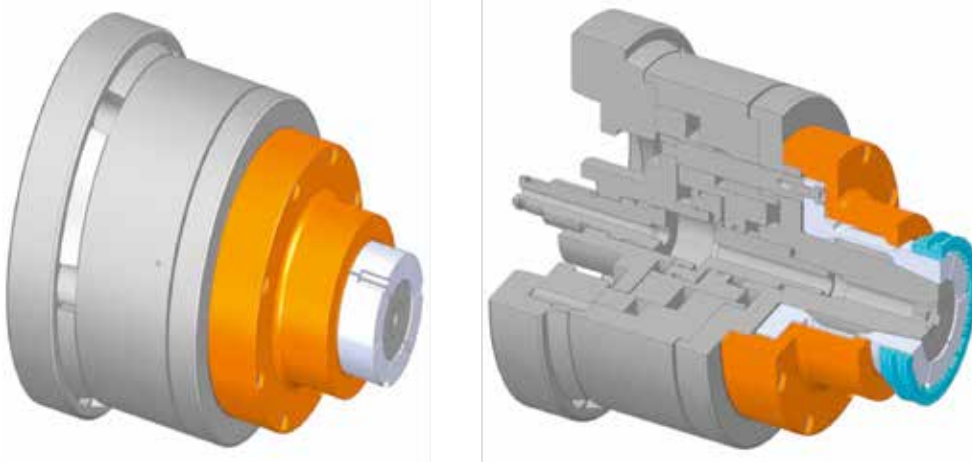
Advantages and benefits:

- high precision housing clamping
- compensating internal clamping to the planar face
- ensuring the required radial and axial runout requirements
- integrated quick-change interface
- short set-up times when changing the mandrel

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision mandrel SD-RA with mobile, retractable end-stop



Clamping range \varnothing : 35 – 100 mm

Concentricity: 0.010 mm

Opening stroke 0.3 – 0.5 mm

Workpiece height: 10 – 60 mm

Run-out accuracy: 0.010 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

For machining both contact faces we recommend our mandrel SD-RA with retractable end-stop. The workpiece is drawn towards the end-stop during machining of the first face. When finished, the spring-loaded end-stop retracts with the shutdown of the pneumatic control. Subsequently the second contact face can be machined. Our mandrel SD-RA reduces the work steps and guarantees efficient production while increasing the quality of all outer faces during one clamping process.

Reducing set-up time is our top priority. Employing additionally our SWS – quick-change system will minimize the mandrel changing time.

APPLICATION – examples:

- turning; precision turning; hard turning; measuring; grinding

WORKPIECES – Examples:

- axle driver gears
- gear rings
- bearings (inner and outer ring)
- strokes
- planet gear
- sliding collar
- gear wheels

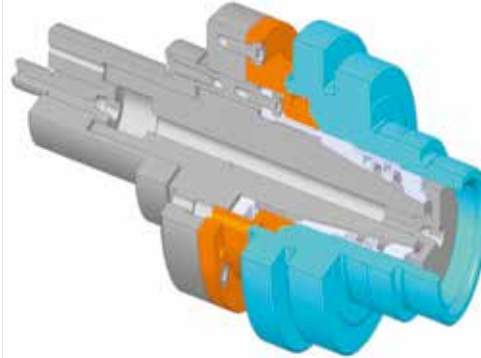
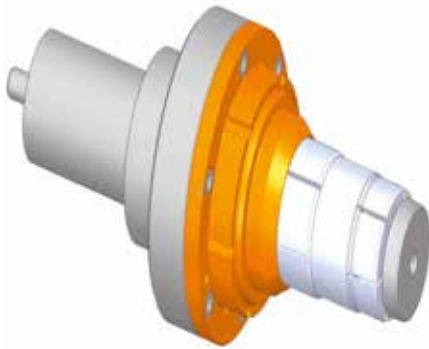
Advantages and benefits:

- mobile end-stop
- planar machining during one clamping process
- large clamping \varnothing range
- high manufacturing accuracy
- option: linking with quick-change system

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision mandrel SD-ZD clamping two varying diameters



Clamping range \varnothing : 40 – 100 mm

Workpiece height: max. 80 mm

Concentricity: 0.015 mm

Run-out accuracy: 0.010 mm

Opening stroke 0.3 – 0.5 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

When clamping workpieces with two differing clamping diameters our mandrel SD-ZD demonstrates its many strengths. One example is the deployment for machining a workpiece, which has to be finished and separated in one clamping procedure in order to produce two workpieces. This clamping approach significantly reduces the number of required machining spindles. Further applications include clamping of two differing clamping diameters with varying tolerances.

By purposeful sequencing the clamping process and special design features both diameters will be clamped safely and accurately, despite differing tolerance ranges on both clamping areas. This workpiece clamping offsets different tolerances and ensures reduced distortion during machining and production.

APPLICATION – examples:

- turning; precision turning; hard turning; honing; circular grinding; cutting; gear honing

WORKPIECES – examples:

- hollow shafts
- bearings (inner and outer ring)
- hubs
- tower blanks
- gear shafts
- gear wheels

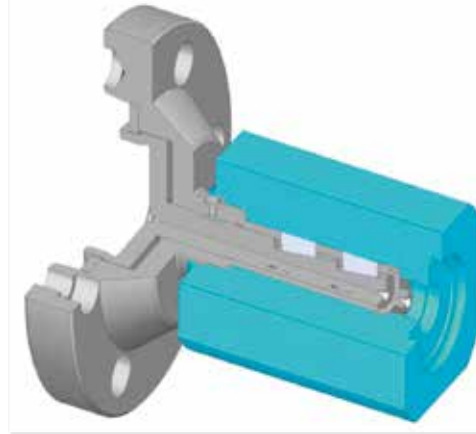
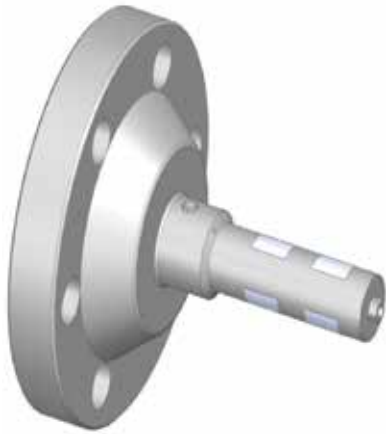
Advantages and benefits:

- secure clamping of two clamping \varnothing with different tolerance ranges in one clamping process
- long workpieces with different inner \varnothing
- secure separation of workpieces in one clamping process
- large clamping \varnothing range
- we guarantee high manufacturing accuracy
- option: linking with quick-change system

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision sliding jaw expansion mandrel high precision GD-HP



Clamping range \varnothing : 50 – 100 mm

Concentricity: 0.050 mm

Opening stroke ca. 4 mm

Workpiece height: 100 – 200 mm

Run-out accuracy: 0.050 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

The high-precision sliding jaw expansion mandrel GD-HP is applied when long workpieces have to be clamped via two clamping areas with potentially differing clamping diameters. Areas with significantly smaller chuck diameters will accentuate the advantages of GD-HP. Large take-up ranges are immaterial because of its relatively large opening stroke.

When retracting during clamping the workpiece is securely drawn against the end-stop to achieve the required position. The workpiece end-stop is set-up friendly, changeable and is located at the face of the sliding jaw expansion mandrel, inside the workpiece.

APPLICATION – examples:

- turning; milling; hard turning; grinding

WORKPIECES – Examples:

- stack of sheets (rotor)
- housings
- gear housings
- motor housings

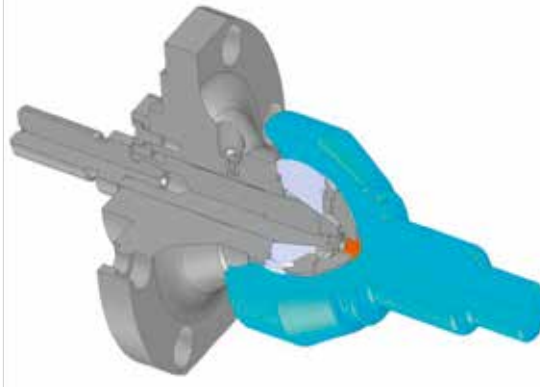
Advantages and benefits:

- large jaw stroke
- easy inserting chucks in smaller \varnothing
- positively driven jaw guides
- backlash-free jaw guides
- uniform clamping

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision sliding jaw expansion mandrel GD-GB



Clamping range Ø: 50 – 100 mm

Workpiece height: 30 – 100 mm

Concentricity: 0.050 mm

Run-out accuracy: 0.050 mm

Opening stroke ca. 4 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Our sliding jaw expansion mandrels are ideal for tasks where large opening strokes are required. The sliding jaw expansion mandrel GD-ZF is an established part in hinge joint housing manufacturing. Essential, where mandrels are inserted into small dimension chucks for clamping of larger diameters. The positively driven jaw guides ensures nearly backlash-free constant jaw strokes and therefore a secure and distortion-free workpiece clamping. Depending on the workpiece design, the workpiece stop can take place on the face side on the sliding mandrel inside the workpiece or on the workpiece's planar side. The jaw stroke is designed in such a way that the workpiece is always pulled securely against the planar face stop.

With the aid of a support fixture the length of workpiece height > 100 mm can be nearly unlimited.

APPLICATION – examples:

- turning; milling; hard turning; grinding

WORKPIECES – Examples:

- hinge joint housings
- ball cages

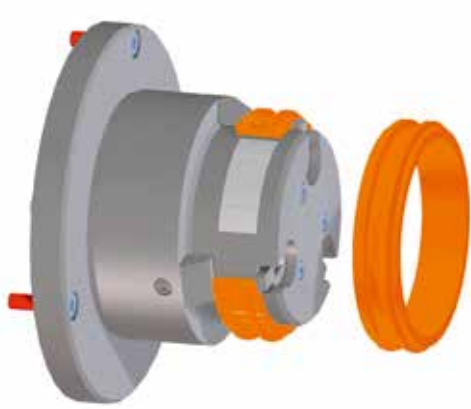
Advantages and benefits:

- large jaw stroke
- easy inserting chucks in smaller Ø
- positively driven jaw guides
- backlash-free jaw guides
- uniform clamping

Prices upon request

D Clamping mandrels and sleeves

Axial mandrel with pendulum jaw centring



Clamping range Ø: 85 – 150 mm

Concentricity: 0.01 mm

Opening stroke 0.3 – 0.5 mm

Run-out accuracy: 0.005 mm

Workpiece loading:

- manually
- automatic loading

FEATURES

For highest demands on the concentricity of thin-walled components. Due to the filigree workpiece contour, the centering force must be kept very low that machining is no longer reliably possible. For this reason, the combination of centring by pendulum jaws and axial tension has been developed. Firstly the workpiece is centered via the pendulum jaws and hereafter clamped axially. The necessary forces are exerted by springs and are individually adaptable depending on workpiece and machining requirements. To release one cylinder is sufficient.

APPLICATION – examples:

- turning; grinding

WORKPIECES – Examples:

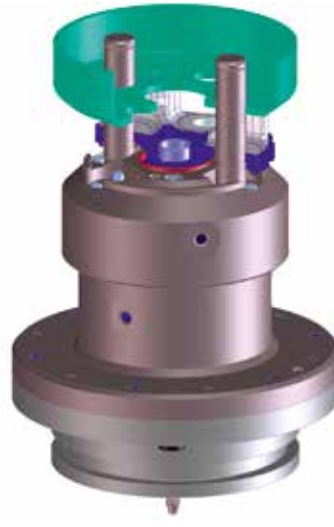
- sliding sleeves
- bearing rings

Advantages and benefits:

- ensuring required concentricity
- due to the short mandrel length the handling could be kept

Prices upon request

D Welding fixtures



Clamping range \varnothing : 12 – 300 mm

Concentricity: 0.02 mm

Opening stroke 0.3 – 1.5 mm

Run-out accuracy: 0.02 mm

Workpiece loading:

- manually
- automatic loading

FEATURES

The SWS welding fixtures have been further developed with various machine manufacturers and operators. The results are special devices with customized adaptations to the requirements of workpieces and their machining. Due to the high stress load of gear parts it is sometimes necessary to warm up components as well as their fixtures. Depending on the material, a preheating temperature of up to 250° C could be required. In particular for large clamping diameters the differing temperatures require a large clamping stroke to compensate workpieces and their fixtures' expansions. All fixtures are spring actuated and released via external cylinder.

APPLICATION – examples:

- laser welding; electron beam welding

WORKPIECES – Examples:

- planet carrier
- output shafts
- dual-mass flywheels

Advantages and benefits:

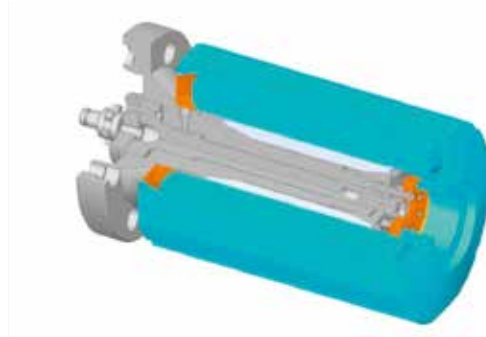
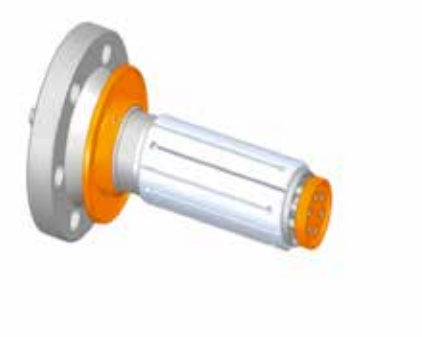
- high reproducibility
- individually adaptable

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision mandrel

High precision HD-HP



Clamping range Ø: 40 – 370 mm **Concentricity: 0.030 mm**
Workpiece height: 80 – 1.100 mm **Run-out accuracy: 0.030 mm**

Opening stroke 0.5 – 4 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Compact design with stable clamping due to axial clamping force ensures high demands on the manufacturing tolerances. The workpiece pull-back against the end-stop takes place automatically due to the actuation of the mandrel. This ensures a high level of run-out accuracy and concentricity. Particularly suitable is our sleeve mandrel HD-HP for long workpieces or large clamping lengths. As with every SWS clamping system, attention was also paid to set-up friendliness with the HP-HP sleeve clamping mandrel. In conjunction with our quick-change system, set-up times are significantly reduced.

APPLICATION – examples:

- drilling; turning; milling; grinding

WORKPIECES – Examples:

- electric motor housings
- housings
- gear housings
- motor housings
- cylinder liners

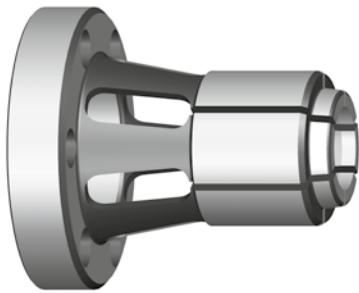
Advantages and benefits:

- high run-out accuracy and concentricity
- high reproducibility
- robust design
- automatic pull-back
- reduced set-up times
- optimising the set-up times for workpiece parts assemblies

Prices upon request

D Clamping mandrels and sleeves

Original SWS High performance precision special sleeves



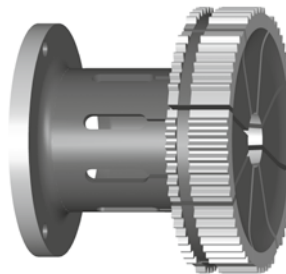
special sleeve



clamping ring



special sleeve



gear cutting sleeve

Slotted sleeves

All our collets, standard or special, are manufactured with the highest precision. An individual factor of your special clamping sleeve is the design of the slot width of 0.150 mm. These two influencing factors, clamping accuracy and customized slot width ensure optimum clamping solution for the application. Our in-house salt-bath hardening increases tool lifetime. Three essential factors for high performance clamping sleeves, all from one single source.

Vulcanised segmented sleeves

Our vulcanized segmented sleeves are employed when larger opening strokes are required. Our decades of experience in the field of vulcanisation create new horizons. With designated structural vulcanization design and required fixtures we effect the opening stroke. This enables us to always produce the optimum design of vulcanised segmented sleeves for your application.

Optispring – the alternative for vulcanised segmented sleeves

Would you prefer to be independent from the manufacturer of your vulcanised segmented sleeve when defective?

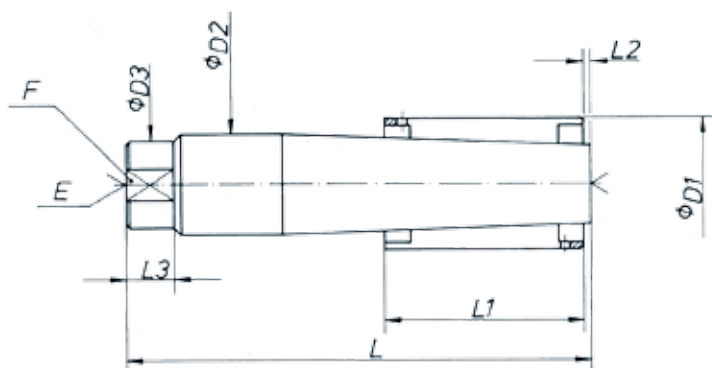
Yes, it is possible with our patented “Optispring” range of clamping sleeves – with a doubling of lifetime time in comparison to vulcanised segmented sleeves. The exchangeability 1:1 of almost every vulcanized segmented sleeve is guaranteed with a clamping diameter of > 16mm. Delivery times upon request.

Should the “Optispring” sleeve fail, the operator can independently carry out the repair – even with vulcanised or sealed design versions.

Interested? We look forward to hearing from you.

D Clamping mandrels and sleeves

Collet mandrel SP-TR



Basic mandrel

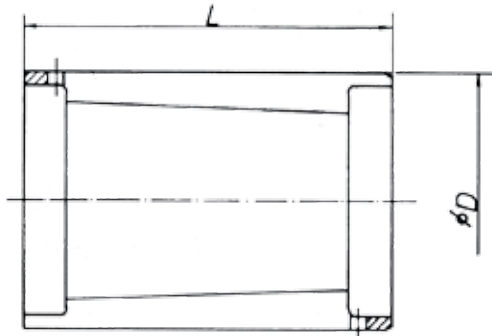
Collet: go to page 45 – 47

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D1$	D2 mm	D3 mm	L mm	L1 mm	L2 mm	L3 mm	E (2x) DIN	F	Product group	Price group	Price per piece Euro
SP-TR 00	310.000.101	00	8 – 10.5	8	–	75	40	3	11	B 1 x 2.12	7	734	01	
SP-TR 0	310.000.201	0	10 – 12.5	10	–	110	45	3	12	B 1.25 x 2.65	8	734	01	
SP-TR 1	310.000.301	1	12 – 15	12	–	125	60	4	13	B 1.25 x 2.65	10	734	01	
SP-TR 2	310.000.401	2	14 – 17	14	–	140	70	4	15	B 1.6 x 3.35	12.5	734	01	
SP-TR 3	310.000.501	3	16 – 20	16	–	150	70	4	19	B 1.6 x 3.35	13.5	734	01	
SP-TR 4	310.000.601	4	19 – 23	19	–	170	80	4	19.5	B 2.5 x 5.3	16	734	01	
SP-TR 5	310.000.701	5	22 – 26	21	–	175	80	4	20	B 2.5 x 5.3	17	734	01	
SP-TR 6	310.000.801	6	25 – 37	25	–	225	100	4	22	B 3.15 x 6.7	22	734	01	
SP-TR 7	310.000.901	7	35 – 47	33	–	225	100	5	24	B 4 x 8.5	30	734	01	
SP-TR 8	310.001.001	8	45 – 59	45	–	300	125	5	28	B 4 x 8.5	42	734	01	
SP-TR 9	310.001.101	9	55 – 70	53	–	330	135	5	35	B 5 x 10.6	45	734	01	
SP-TR 10	310.001.201	10	68 – 85	64	–	350	150	5	32	B 5 x 10.6	61	734	01	
SP-TR 11	310.001.301	11	80 – 105	76	66	350	150	5	36	B 6.3 x 13.2	63	734	01	
SP-TR 12	310.001.401	12	105 – 140	99	76	400	170	5	40	B 6.3 x 13.2	72	734	01	
SP-TR 13	310.001.501	13	135 – 185	125.1	80	443	180	73	40	B 10 x 21.2	75	734	01	
SP-TR 14	310.001.701	14	185 – 235	149.4	80	443	200	63	40	B 10 x 21.2	75	734	01	

Prices upon request

D Clamping mandrels and sleeves

Collet SP-TR



Basic mandrel: go to page 44

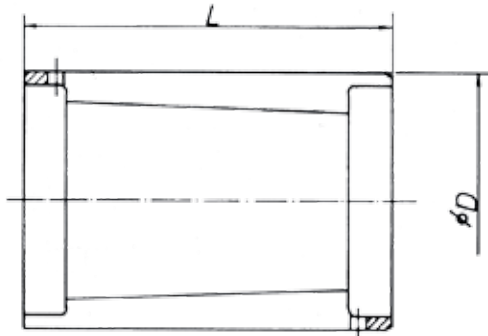
Type No.	Order No.	Mandrel size	Clamping range Ø D	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SP-TR 00	310.080.102	00	8	40	1.5	734	01		
SP-TR 00	310.090.102	00	9	40	1.5	734	01		
SP-TR 0	310.100.202	0	10	45	1.5	734	01		
SP-TR 0	310.110.202	0	11	45	1.5	734	01		
SP-TR 1	310.120.302	1	12	60	2	734	01		
SP-TR 1	310.130.302	1	13	60	2	734	01		
SP-TR 2	310.140.402	2	14	70	2	734	01		
SP-TR 2	310.150.402	2	15	70	2	734	01		
SP-TR 3	310.160.502	3	16	70	2	734	01		
SP-TR 3	310.170.502	3	17	70	2	734	01		
SP-TR 3	310.180.502	3	18	70	2	734	01		
SP-TR 4	310.190.602	4	19	80	2	734	01		
SP-TR 4	310.200.602	4	20	80	2	734	01		
SP-TR 4	310.210.602	4	21	80	2	734	01		
SP-TR 5	310.220.702	5	22	80	2	734	01		
SP-TR 5	310.230.702	5	23	80	2	734	01		
SP-TR 5	310.240.702	5	24	80	2	734	01		
SP-TR 6	310.250.802	6	25	100	3	734	01		
SP-TR 6	310.260.802	6	26	100	3	734	01		
SP-TR 6	310.280.802	6	28	100	3	734	01		
SP-TR 6	310.300.802	6	30	100	3	734	01		
SP-TR 6	310.320.802	6	32	100	3	734	01		
SP-TR 6	310.340.802	6	34	100	3	734	01		
SP-TR 7	310.350.902	7	35	100	3	734	01		
SP-TR 7	310.360.902	7	36	100	3	734	01		
SP-TR 7	310.380.902	7	38	100	3	734	01		
SP-TR 7	310.400.902	7	40	100	3	734	01		
SP-TR 7	310.420.902	7	42	100	3	734	01		
SP-TR 7	310.440.902	7	44	100	3	734	01		

can also be ordered with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet SP-TR

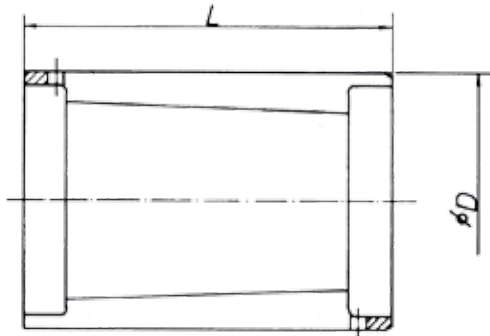


Basic mandrel: go to page 44

Type No.	Order No.	Mandrel size	Clamping range Ø D	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SP-TR 8	310.451.002	8	45	125	5	734	01		
SP-TR 8	310.481.002	8	48	125	5	734	01		
SP-TR 8	310.501.002	8	50	125	5	734	01		
SP-TR 8	310.521.002	8	52	125	5	734	01		
SP-TR 8	310.541.002	8	54	125	5	734	01		
SP-TR 9	310.551.102	9	55	135	5	734	01		
SP-TR 9	310.581.102	9	58	135	5	734	01		
SP-TR 9	310.601.102	9	60	135	5	734	01		
SP-TR 9	310.621.102	9	62	135	5	734	01		
SP-TR 9	310.651.102	9	65	135	5	734	01		
SP-TR 10	310.681.202	10	68	150	5	734	01		
SP-TR 10	310.701.202	10	70	150	5	734	01		
SP-TR 10	310.721.202	10	72	150	5	734	01		
SP-TR 10	310.751.202	10	75	150	5	734	01		
SP-TR 10	310.781.202	10	78	150	5	734	01		
SP-TR 10	310.801.202	10	80	150	5	734	01		
SP-TR 11	310.801.302	11	80	150	5	734	01		
SP-TR 11	310.851.302	11	85	150	5	734	01		
SP-TR 11	310.901.302	11	90	150	5	734	01		
SP-TR 11	310.951.302	11	95	150	5	734	01		
SP-TR 11	311.001.302	11	100	150	5	734	01		
SP-TR 12	311.051.402	12	105	170	5	734	01		
SP-TR 12	311.101.402	12	110	170	5	734	01		
SP-TR 12	311.151.402	12	115	170	5	734	01		
SP-TR 12	311.201.402	12	120	170	5	734	01		
SP-TR 12	311.251.402	12	125	170	5	734	01		
SP-TR 12	311.301.402	12	130	170	5	734	01		
SP-TR 12	311.351.402	12	135	170	5	734	01		

can also be ordered with custom ground design

Prices upon request



Basic mandrel: go to page 44

Type No.	Order No.	Mandrel size	Clamping range Ø D	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SP-TR 13	311.351.502	13	135	180	5	734	01		
SP-TR 13	311.401.502	13	140	180	5	734	01		
SP-TR 13	311.451.502	13	145	180	5	734	01		
SP-TR 13	311.501.502	13	150	180	5	734	01		
SP-TR 13	311.551.502	13	155	180	5	734	01		
SP-TR 13	311.601.602	13	160	180	5	734	01		
SP-TR 13	311.651.602	13	165	180	5	734	01		
SP-TR 13	311.701.602	13	170	180	5	734	01		
SP-TR 13	311.751.602	13	175	180	5	734	01		
SP-TR 13	311.801.602	13	180	180	5	734	01		
SP-TR 14	311.851.702	14	185	200	5	734	01		
SP-TR 14	311.901.702	14	190	200	5	734	01		
SP-TR 14	311.951.702	14	195	200	5	734	01		
SP-TR 14	312.001.702	14	200	200	5	734	01		
SP-TR 14	312.051.702	14	205	200	5	734	01		
SP-TR 14	312.101.802	14	210	200	5	734	01		
SP-TR 14	312.151.802	14	215	200	5	734	01		
SP-TR 14	312.201.802	14	220	200	5	734	01		
SP-TR 14	312.251.802	14	225	200	5	734	01		
SP-TR 14	312.301.802	14	230	200	5	734	01		

can also be ordered with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Mandrel kit type SP-TR including wooden storage box



Mandrel kits contain the following items:
(including wooden storage box)

Basic mandrel: go to page 44

Type No.	Order No.	Mandrel size	Clamping range Ø D	Order No.	Product group	Price group	Price per piece Euro	
SP-TR-A	320.000.000	1		310.000.301	734	01		
		2		310.000.401				
		3		310.000.501				
		4		310.000.601				
		5		310.000.701				
			12	310.120.302				
			14	310.140.402				
			16	310.160.502				
			18	310.180.502				
			20	310.200.602				
			22	310.220.702				
			24	310.240.702				

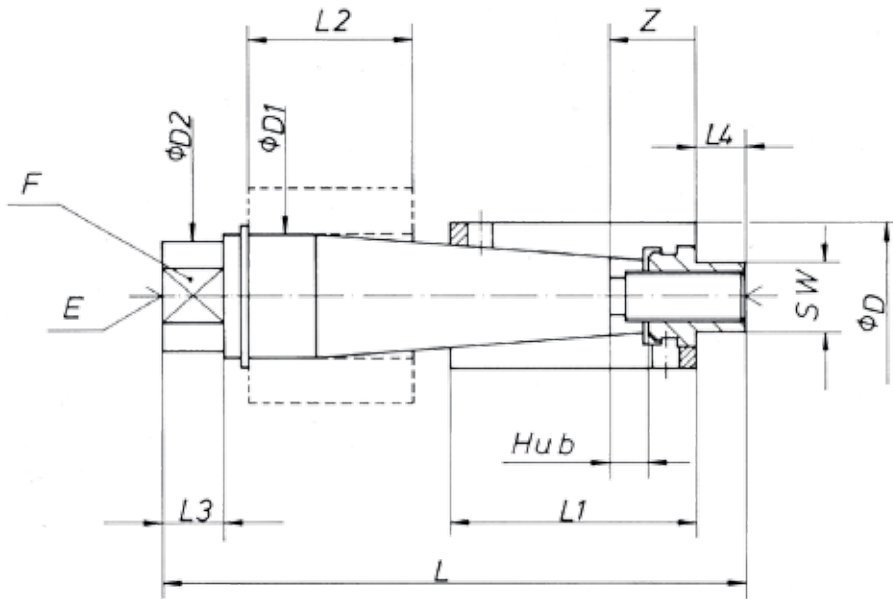
Type No.	Order No.	Mandrel size	Clamping range Ø D	Order No.	Product group	Price group	Price per piece Euro	
SP-TR-B	330.000.000	6		310.000.801	734	01		
		7		310.000.901				
		8		310.001.001				
			25	310.250.802				
			30	310.300.802				
			35	310.350.902				
			40	310.400.902				
			45	310.451.002				
	50	310.501.002						

Prices upon request

For your notes

D Clamping mandrels and sleeves

Mandrel FVM-TR



Collet: go to page 71 – 73
 Clamping nut: go to page 52

Basic mandrel

Type No.	Order No.	Mandrel size	Clamping range D1	D2 mm	D3 mm	L mm	L1 mm	L2 max mm	L3 mm	L4 mm	E (2x) DIN 322	F	SW	Z mm	Stroke mm
FVM-TR 1	530.000.101	1	14.7 – 19.7	15	13	95	35	31	10	8	B 1.25 x 2.65	11	11	12	6
FVM-TR 2	530.000.201	2	19.7 – 24.7	20	18	95	40	26	10	8	B 1.6 x 3.35	16	11	14	6
FVM-TR 3	530.000.301	3	24.7 – 29.7	24	20	125	46	39	20	9	B 2.5 x 5.3	18	17	14.5	6
FVM-TR 4	530.000.401	4	29.7 – 34.7	28	20	125	50	35	20	9	B 2.5 x 5.3	18	17	14.5	6
FVM-TR 5	530.000.501	5	34.7 – 39.7	32	30	160	60	50	24	12	B 3.15 x 6.7	26	22	14.5	6
FVM-TR 6	530.000.601	6	39.7 – 44.7	37	30	160	60	50	24	12	B 3.15 x 6.7	26	22	15.5	6
FVM-TR 7	530.000.701	7	44.7 – 54.7	42	35	200	80	59	24	15	B 4 x 8.5	31	27	22.5	12
FVM-TR 8	530.000.801	8	54.7 – 64.7	52	35	200	90	49	24	15	B 4 x 8.5	31	27	24.5	12
FVM-TR 9	530.000.901	9	64.7 – 82.7	62	55	270	100	106	24	18	B 5 x 10.6	50	36	24.5	12
FVM-TR 10	530.001.001	10	81.7 – 101.7	75	55	270	122	84	24	18	B 5 x 10.6	50	36	26.5	12
FVM-TR 11	530.001.101	11	100.7 – 120.7	90	70	300	140	96	24	18	B 6.3 x 13.2	62	41	32	12
FVM-TR 12	530.001.201	12	119.7 – 141.7	110	80	305	180	68	24	23	B 6.3 x 13.2	70	41	33	12



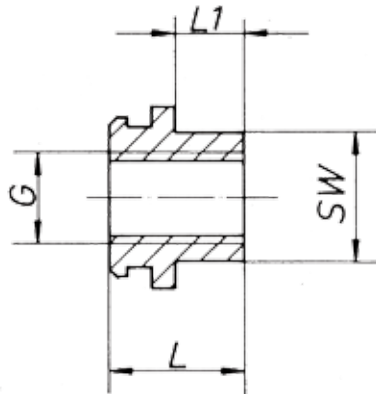
Basic mandrel

Type No.	Order No.	Product group	Price group	Price per piece Euro	
FVM-TR 1	530.000.101	734	01		
FVM-TR 2	530.000.201	734	01		
FVM-TR 3	530.000.301	734	01		
FVM-TR 4	530.000.401	734	01		
FVM-TR 5	530.000.501	734	01		
FVM-TR 6	530.000.601	734	01		
FVM-TR 7	530.000.701	734	01		
FVM-TR 8	530.000.801	734	01		
FVM-TR 9	530.000.901	734	01		
FVM-TR 10	530.001.001	734	01		
FVM-TR 11	530.001.101	734	01		
FVM-TR 12	530.001.201	734	01		

Prices upon request

D Clamping mandrels sand sleeves

Clamping nut FVM-TR



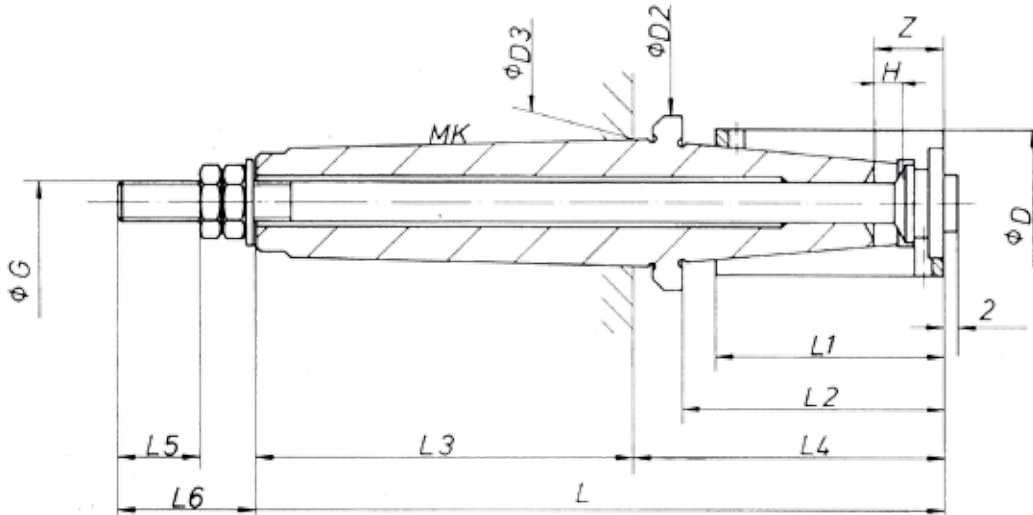
Basic mandrel: go to page 50 – 51

Type No.	Order No.	Mandrel size	G	L mm	L1 mm	SW	Product group	Price group	Price per piece Euro	
FVM-TR 1	530.000.109	1	M 6	14	7.5	11	734	01		
FVM-TR 2	530.000.209	2	M 8 x 1	16	8	11	734	01		
FVM-TR 3	530.000.309	3	M 12 x 1	17.5	9	17	734	01		
FVM-TR 4	530.000.409	4	M 12 x 1	17.5	9	17	734	01		
FVM-TR 5	530.000.509	5	M 16 x 1.5	20.5	12	22	734	01		
FVM-TR 6	530.000.609	6	M 16 x 1.5	21.5	12	22	734	01		
FVM-TR 7	530.000.709	7	M 18 x 1.5	25.5	15	27	734	01		
FVM-TR 8	530.000.809	8	M 18 x 1.5	27.5	15	27	734	01		
FVM-TR 9	530.000.909	9	M 24 x 1.5	30.5	18	36	734	01		
FVM-TR 10	530.001.009	10	M 24 x 1.5	32.5	18	36	734	01		
FVM-TR 11	530.001.109	11	M 28 x 1.5	38	18	41	734	01		
FVM-TR 12	530.001.209	12	M 28 x 1.5	39	18	41	734	01		

For your notes

D Clamping mandrels and sleeves

Mandrel FVZ-TR



Basic mandrel

Collet: go to page 71 – 73

Clamping bolt: go to page 64

Type No.	Order No.	Mandrel size	Clamping range Ø D	D2 mm	L1 mm	L2 mm	Z	H	F max. da N	MK	D3	L mm	L3 mm	L4 mm	L5 mm	L6 mm	G
FVZ-TR 1	510.000.102	1	14.7 – 19.7	24	35	41.5	12.5	6	700	2	17.78	116.5	64	52.5	21	32	M 6
FVZ-TR 1	510.000.103	1	14.7 – 19.7	24	35	41.5	12.5	6	700	3	23.825	127.5	81	46.5	21	32	M 6
FVZ-TR 1	510.000.104	1	14.7 – 19.7	24	35	41.5	12.5	6	700	4	31.267	150.5	102.5	48	21	32	M 6
FVZ-TR 2	510.000.202	2	19.7 – 24.7	27	40	46.5	14.5	6	900	2	17.78	122.5	64	58.5	22.2	36	M 8
FVZ-TR 2	510.000.203	2	19.7 – 24.7	27	40	46.5	14.5	6	900	3	23.825	137.5	81	56.5	22.2	36	M 8
FVZ-TR 2	510.000.204	2	19.7 – 24.7	27	40	46.5	14.5	6	900	4	31.267	155.5	102.5	53	22.2	36	M 8
FVZ-TR 3	510.000.302	3	24.7 – 29.7	32	46	52.5	14.5	6	1200	2	17.78	129.5	64	65.5	20.2	34	M 8
FVZ-TR 3	510.000.303	3	24.7 – 29.7	32	46	52.5	14.5	6	1200	3	23.825	146.5	81	65.5	23.8	41	M 10
FVZ-TR 3	510.000.304	3	24.7 – 29.7	32	46	52.5	14.5	6	1200	4	31.267	161.5	102.5	59	23.8	41	M 10
FVZ-TR 3	510.000.305	3	24.7 – 29.7	32	46	52.5	14.5	6	1200	5	44.399	188.5	129.5	59	23.8	41	M 10
FVZ-TR 4	510.000.403	4	29.7 – 34.7	38	50	56.5	15.5	6	1200	3	23.825	150.5	81	69.5	23.8	41	M 10
FVZ-TR 4	510.000.404	4	29.7 – 34.7	38	50	56.5	15.5	6	1200	4	31.267	172.5	102.5	70	23.8	41	M 10
FVZ-TR 4	510.000.405	4	29.7 – 34.7	38	50	56.5	15.5	6	1200	5	44.399	192.5	129.5	63	23.8	41	M 10
FVZ-TR 5	510.000.503	5	34.7 – 39.7	43	60	66.5	16.5	6	1500	3	23.825	160.5	81	79.5	23.8	48	M 12
FVZ-TR 5	510.000.504	5	34.7 – 39.7	43	60	66.5	16.5	6	1500	4	31.267	183.5	102.5	81	30.8	48	M 12
FVZ-TR 5	510.000.505	5	34.7 – 39.7	43	60	66.5	16.5	6	1500	5	44.399	202.5	129.5	73	30.8	48	M 12
FVZ-TR 6	510.000.603	6	39.7 – 44.7	48	60	66.5	16.5	6	1500	3	23.825	160.5	81	79.5	23.8	41	M 12
FVZ-TR 6	510.000.604	6	39.7 – 44.7	48	60	66.5	16.5	6	1500	4	31.267	184.5	102.5	82	26.3	48	M 12
FVZ-TR 6	510.000.605	6	39.7 – 44.7	48	60	66.5	16.5	6	1500	5	44.399	210.5	129.5	81	23.5	48	M 14
FVZ-TR 7	510.000.703	7	44.7 – 54.7	58	80	92	25	12	2000	3	23.825	187	81	106	26.3	48	M 14
FVZ-TR 7	510.000.704	7	44.7 – 54.7	58	80	92	25	12	2000	4	31.267	210	102.5	107.5	23.5	48	M 14
FVZ-TR 7	510.000.705	7	44.7 – 54.7	58	80	92	25	12	2000	5	44.399	238	129.5	108.5	23.5	48	M 14

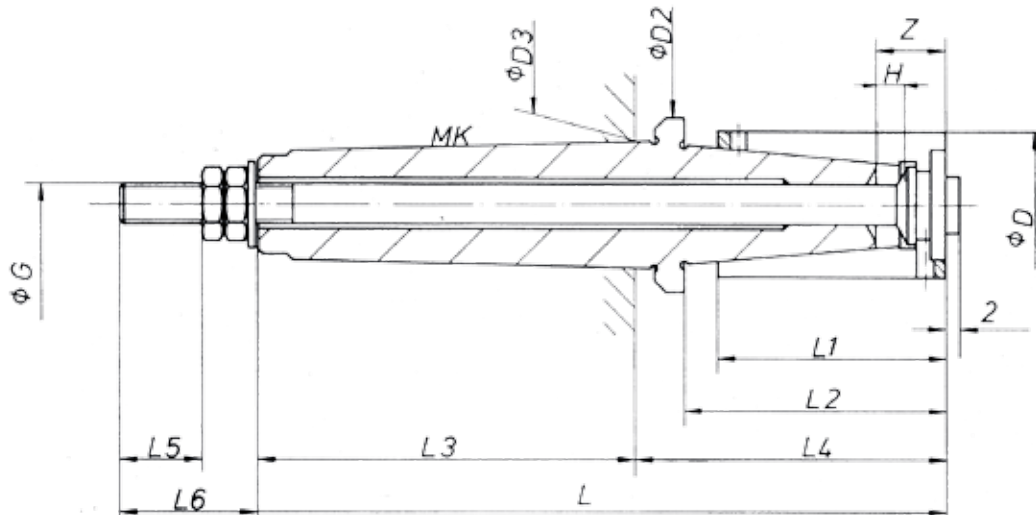


Type No.	Order No.	Product group	Price group	Price per piece Euro	
FVZ-TR 1	510.000.102	734	01		
FVZ-TR 1	510.000.103	734	01		
FVZ-TR 1	510.000.104	734	01		
FVZ-TR 2	510.000.202	734	01		
FVZ-TR 2	510.000.203	734	01		
FVZ-TR 2	510.000.204	734	01		
FVZ-TR 3	510.000.302	734	01		
FVZ-TR 3	510.000.303	734	01		
FVZ-TR 3	510.000.304	734	01		
FVZ-TR 3	510.000.305	734	01		
FVZ-TR 4	510.000.403	734	01		
FVZ-TR 4	510.000.404	734	01		
FVZ-TR 4	510.000.405	734	01		
FVZ-TR 5	510.000.503	734	01		
FVZ-TR 5	510.000.504	734	01		
FVZ-TR 5	510.000.505	734	01		
FVZ-TR 6	510.000.603	734	01		
FVZ-TR 6	510.000.604	734	01		
FVZ-TR 6	510.000.605	734	01		
FVZ-TR 7	510.000.703	734	01		
FVZ-TR 7	510.000.704	734	01		
FVZ-TR 7	510.000.705	734	01		

Prices upon request

D Clamping mandrels and sleeves

Mandrel FVZ-TR



Basic mandrel

Collet: go to page 71 – 73

Clamping bolt: go to page 64

Type No.	Order No.	Mandrel size	Clamping range ϕD	D2 mm	L1 mm	L2 mm	Z	H	F max. da N	MK	D3	L mm	L3 mm
FVZ-TR 8	510.000.803	8	54.7 – 64.7	68	90	102	27	12	2000	3	23.825	200	81
FVZ-TR 8	510.000.804	8	54.7 – 64.7	68	90	102	27	12	2000	4	31.267	223	102.5
FVZ-TR 8	510.000.805	8	54.7 – 64.7	68	90	102	27	12	2000	5	44.399	250	129.5
FVZ-TR 9	510.000.904	9	64.7 – 82.7	86	100	112	26.5	12	2500	4	31.267	235	102.5
FVZ-TR 9	510.000.905	9	64.7 – 82.7	86	100	112	26.5	12	2500	5	44.399	264	129.5
FVZ-TR 10	510.001.004	10	81.7 – 101.7	106	122	134	28.5	12	2500	4	31.267	261	102.5
FVZ-TR 10	510.001.005	10	81.7 – 101.7	106	122	134	28.5	12	2500	5	44.399	286	129.5
FVZ-TR 11	510.001.105	11	100.7 – 120.7	120	140	152	28.5	12	2500	5	44.399	304	129.5
FVZ-TR 12	510.001.205	12	119.7 – 141.7	140	180	192	29	12	2500	5	44.399	344	129.5

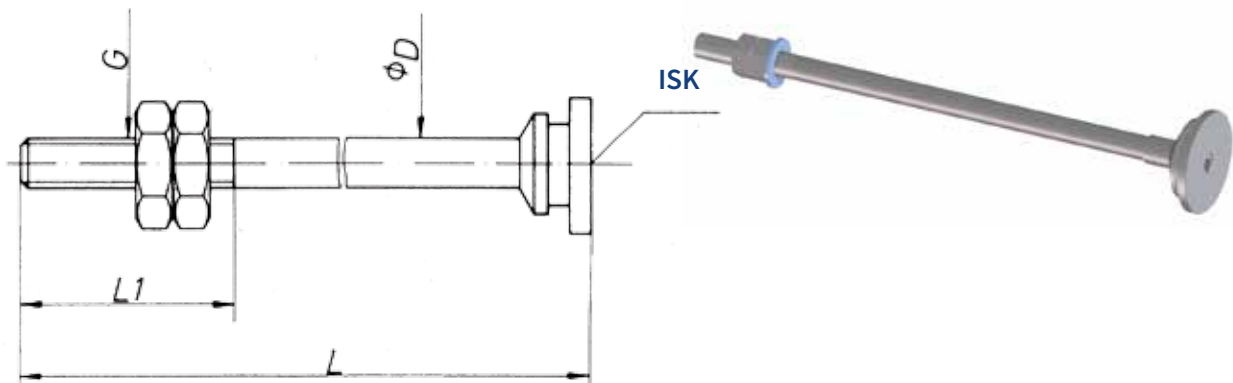


Type No.	Order No.	L4 mm	L5 mm	L6 mm	G	Product group	Price group	Price per piece Euro	
FVZ-TR 8	510.000.803	119	26.3	48	M 14	734	01		
FVZ-TR 8	510.000.804	120.5	24.5	50	M 14	734	01		
FVZ-TR 8	510.000.805	120.5	24.5	50	M 14	734	01		
FVZ-TR 9	510.000.904	132.5	25.5	50	M 14	734	01		
FVZ-TR 9	510.000.905	134.5	25.5	50	M 14	734	01		
FVZ-TR 10	510.001.004	158.5	29.5	54	M 14	734	01		
FVZ-TR 10	510.001.005	156.5	13	49	M 18	734	01		
FVZ-TR 11	510.001.105	174.5	36	51	M 18	734	01		
FVZ-TR 12	510.001.205	214.5	36	54	M 18	734	01		

Prices upon request

D Clamping mandrels and sleeves

Clamping bolt FVZ-TR



Basic mandrel: go to page 54 – 57

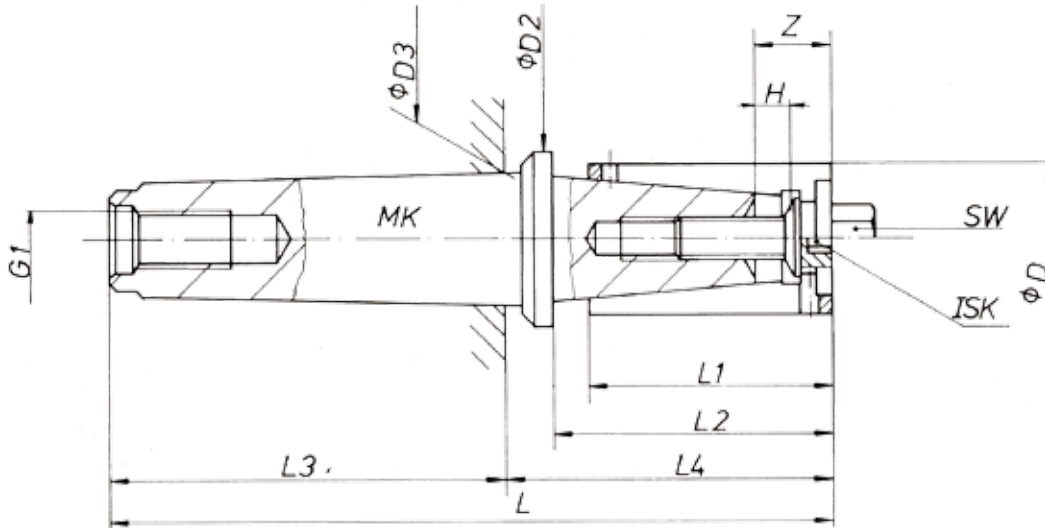
Type No.	Order No.	Mandrel size	MK	D	G	L mm	L1 mm	ISK	Product group	Price group	Price per piece Euro	
FVZ-TR 1	510.010.209	1	2	6	M 6	150.5	40	4	734	01		
FVZ-TR 1	510.010.309	1	3	6	M 6	161.5	40	4	734	01		
FVZ-TR 1	510.010.409	1	4	6	M 6	184.5	40	4	734	01		
FVZ-TR 2	510.020.209	2	2	8	M 8	158.5	40	4	734	01		
FVZ-TR 2	510.020.309	2	3	8	M 8	173.5	40	4	734	01		
FVZ-TR 2	510.020.409	2	4	8	M 8	191.5	40	4	734	01		
FVZ-TR 3	510.030.209	3	2	8	M 8	163.5	45	6	734	01		
FVZ-TR 3	510.030.309	3	3	10	M 10	187.5	45	6	734	01		
FVZ-TR 3	510.030.409	3	4	10	M 10	202.5	45	6	734	01		
FVZ-TR 3	510.030.509	3	5	10	M 10	229.5	45	6	734	01		
FVZ-TR 4	510.040.309	4	3	10	M 10	191.5	45	8	734	01		
FVZ-TR 4	510.040.409	4	4	10	M 10	213.5	45	8	734	01		
FVZ-TR 4	510.040.509	4	5	10	M 10	233.5	45	8	734	01		
FVZ-TR 5	510.050.309	5	3	12	M 12	201.5	60	8	734	01		
FVZ-TR 5	510.050.409	5	4	12	M 12	231.5	60	8	734	01		
FVZ-TR 5	510.050.509	5	5	12	M 12	250.5	60	8	734	01		
FVZ-TR 6	510.060.309	6	3	12	M 12	201.5	60	8	734	01		
FVZ-TR 6	510.060.409	6	4	14	M 12	232.5	60	8	734	01		
FVZ-TR 6	510.060.509	6	5	14	M 14	258.5	60	8	734	01		
FVZ-TR 7	510.070.309	7	3	14	M 14	235	60	8	734	01		
FVZ-TR 7	510.070.409	7	4	14	M 14	258	60	8	734	01		
FVZ-TR 7	510.070.509	7	5	14	M 14	286	60	8	734	01		
FVZ-TR 8	510.080.309	8	3	14	M 14	248	60	10	734	01		
FVZ-TR 8	510.080.409	8	4	14	M 14	273	60	10	734	01		
FVZ-TR 8	510.080.509	8	5	16	M 14	300	60	10	734	01		
FVZ-TR 9	510.090.409	9	4	14	M 14	285	60	10	734	01		
FVZ-TR 9	510.090.509	9	5	16	M 14	314	60	10	734	01		
FVZ-TR 10	510.100.409	10	4	14	M 14	315	60	10	734	01		
FVZ-TR 10	510.100.509	10	5	18	M 18	335	60	10	734	01		
FVZ-TR 11	510.110.509	11	5	18	M 18	355	60	10	734	01		
FVZ-TR 12	510.120.509	12	5	18	M 18	398	60	10	734	01		

Prices upon request

For your notes

D Clamping mandrels and sleeves

Mandrel FV-TR



Collet: go to page 71 – 73

Basic mandrel

Clamping bolt: go to page 64

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	D2 mm	L1 mm	L2 mm	Z	SW	ISK	Stroke H mm	MK	D3 mm	G
FV-TR 1	460.000.102	1	14.7 – 19.7	24	35	41.5	12.5	8	4	6	2	17.78	M 10
FV-TR 1	460.000.103	1	14.7 – 19.7	24	35	41.5	12.5	8	4	6	3	23.825	M 12
FV-TR 1	460.000.104	1	14.7 – 19.7	31.6	35	41.5	12.5	8	4	6	4	31.267	M 16
FV-TR 2	460.000.202	2	19.7 – 24.7	27	40	46.5	14.5	11	4	6	2	17.78	M 10
FV-TR 2	460.000.203	2	19.7 – 24.7	27	40	46.5	14.5	11	4	6	3	23.825	M 12
FV-TR 2	460.000.204	2	19.7 – 24.7	31.6	40	46.5	14.5	11	4	6	4	31.267	M 16
FV-TR 3	460.000.302	3	24.7 – 29.7	32	46	52.5	14.5	13	6	6	2	17.78	M 10
FV-TR 3	460.000.303	3	24.7 – 29.7	32	46	52.5	14.5	13	6	6	3	23.825	M 12
FV-TR 3	460.000.304	3	24.7 – 29.7	31.6	46	52.5	14.5	13	6	6	4	31.267	M 16
FV-TR 3	460.000.305	3	24.7 – 29.7	45	46	52.5	14.5	13	6	6	5	44.399	M 20
FV-TR 4	460.000.403	4	29.7 – 34.7	38	50	56.5	15.5	17	8	6	3	23.825	M 12
FV-TR 4	460.000.404	4	29.7 – 34.7	38	50	56.5	15.5	17	8	6	4	31.267	M 16
FV-TR 4	460.000.405	4	29.7 – 34.7	45	50	56.5	15.5	17	8	6	5	44.399	M 20
FV-TR 5	460.000.503	5	34.7 – 39.7	43	60	66.5	16.5	17	8	6	3	23.825	M 12
FV-TR 5	460.000.504	5	34.7 – 39.7	43	60	66.5	16.5	17	8	6	4	31.267	M 16
FV-TR 5	460.000.505	5	34.7 – 39.7	45	60	66.5	16.5	17	8	6	5	44.399	M 20
FV-TR 6	460.000.603	6	39.7 – 44.7	48	60	66.5	16.5	19	8	6	3	23.825	M 12
FV-TR 6	460.000.604	6	39.7 – 44.7	48	60	66.5	16.5	19	8	6	4	31.267	M 16
FV-TR 6	460.000.605	6	39.7 – 44.7	48	60	66.5	16.5	19	8	6	5	44.399	M 20
FV-TR 7	460.000.703	7	44.7 – 54.7	58	80	92	25	22	8	12	3	23.825	M 12
FV-TR 7	460.000.704	7	44.7 – 54.7	58	80	92	25	22	8	12	4	31.267	M 16
FV-TR 7	460.000.705	7	44.7 – 54.7	58	80	92	25	22	8	12	5	44.399	M 20

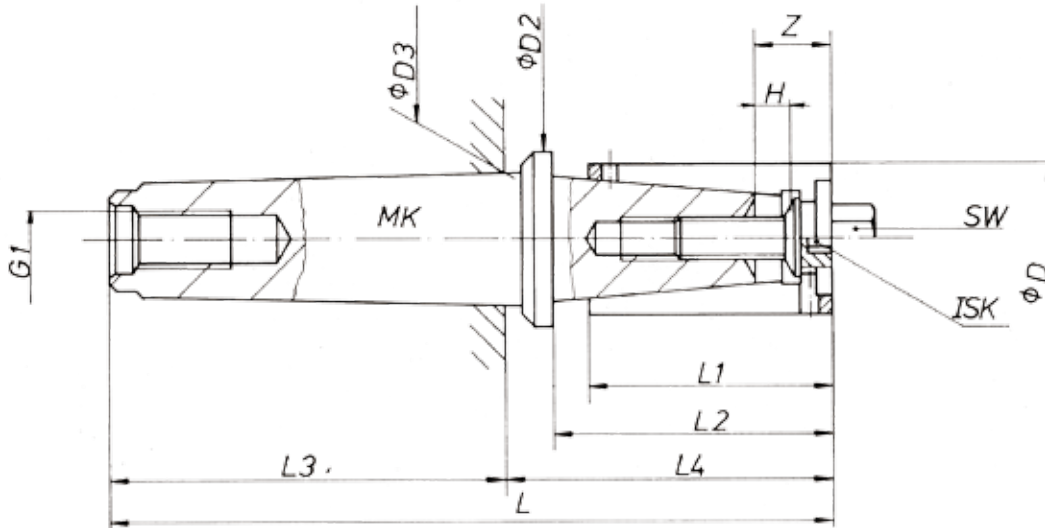


Type No.	Order No.	L mm	L3 mm	L4 mm	Product group	Price group	Price per piece Euro	
FV-TR 1	460.000.102	116.5	64	52.5	734	01		
FV-TR 1	460.000.103	127.5	81	46.5	734	01		
FV-TR 1	460.000.104	150.5	102.5	48	734	01		
FV-TR 2	460.000.202	122.5	64	58.5	734	01		
FV-TR 2	460.000.203	137.5	81	26.5	734	01		
FV-TR 2	460.000.204	155.5	102.5	53	734	01		
FV-TR 3	460.000.302	129.5	64	65.5	734	01		
FV-TR 3	460.000.303	146.5	81	65.5	734	01		
FV-TR 3	460.000.304	161.5	102.5	59	734	01		
FV-TR 3	460.000.305	188.5	129.5	59	734	01		
FV-TR 4	460.000.403	150.5	81	69.5	734	01		
FV-TR 4	460.000.404	172.5	102.5	70	734	01		
FV-TR 4	460.000.405	192.5	129.5	63	734	01		
FV-TR 5	460.000.503	160.5	81	79.5	734	01		
FV-TR 5	460.000.504	183.5	102.5	81	734	01		
FV-TR 5	460.000.505	202.5	129.5	73	734	01		
FV-TR 6	460.000.603	160.5	81	79.5	734	01		
FV-TR 6	460.000.604	184.5	102.5	82	734	01		
FV-TR 6	460.000.605	210.5	129.5	81	734	01		
FV-TR 7	460.000.703	187	81	106	734	01		
FV-TR 7	460.000.704	210	102.5	107.5	734	01		
FV-TR 7	460.000.705	238	129.5	108.5	734	01		

Prices upon request

D Clamping mandrels and sleeves

Mandrel FV-TR



Collet: go to page 71 – 73

Basic mandrel

Clamping bolt: go to page 64

Type No.	Order No.	Mandrel size	Clamping range ØD	D2 mm	L1 mm	L2 mm	Z	SW	ISK	Stroke H mm	MK	D3 mm	G
FV-TR 8	460.000.803	8	54.7- 64.7	68	90	102	27	27	10	12	3	23.825	M 12
FV-TR 8	460.000.804	8	54.7- 64.7	68	90	102	27	27	10	12	4	31.267	M 16
FV-TR 8	460.000.805	8	54.7- 64.7	68	90	102	27	27	10	12	5	44.399	M 20
FV-TR 9	460.000.904	9	64.7- 82.7	86	100	112	26.5	32	10	12	4	31.267	M 16
FV-TR 9	460.000.905	9	64.7- 82.7	86	100	112	26.5	32	10	12	5	44.399	M 20
FV-TR 10	460.001.004	10	81.7- 101.7	106	122	134	28.5	36	10	12	4	31.267	M 16
FV-TR 10	460.001.005	10	81.7- 101.7	106	122	134	28.5	36	10	12	5	44.399	M 20
FV-TR 11	460.001.105	11	100.7- 120.7	120	140	152	28.5	36	10	12	5	44.399	M 20
FV-TR 12	460.001.205	12	119.7- 141.7	140	180	192	29	36	10	12	5	44.399	M 20

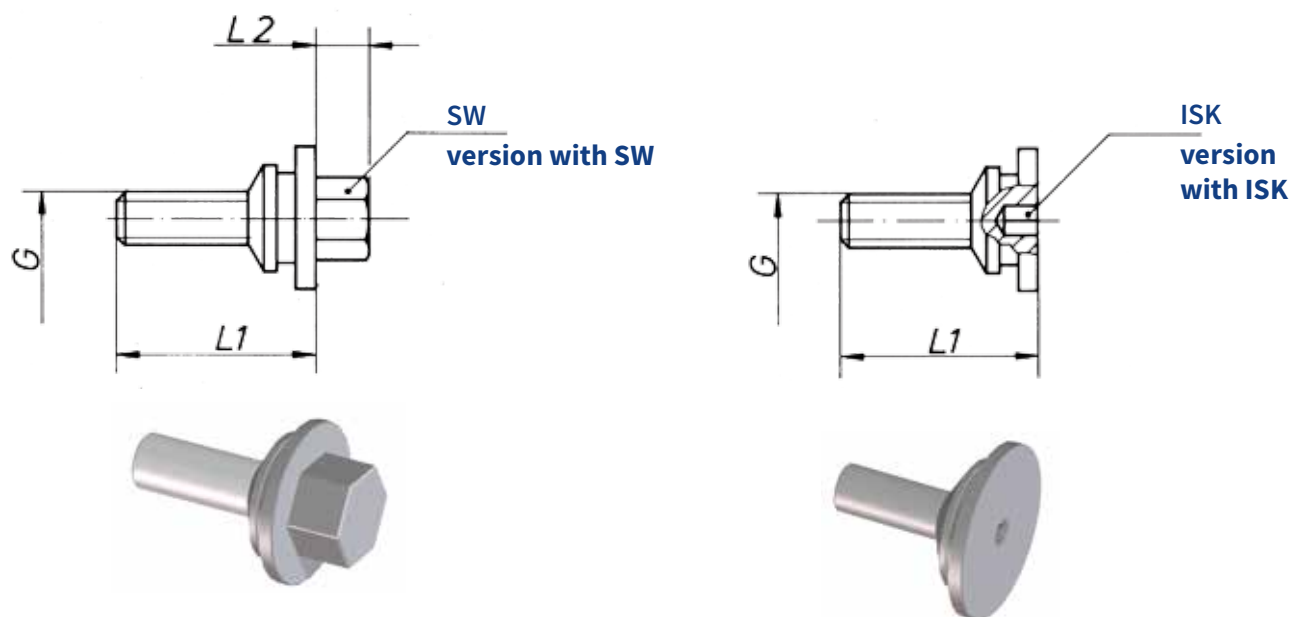


Type No.	Order No.	L mm	L3 mm	L4 mm	Product group	Price group	Price per piece Euro	
FV-TR 8	460.000.803	200	81	119	734	01		
FV-TR 8	460.000.804	223	102.5	120.5	734	01		
FV-TR 8	460.000.805	250	129.5	120.5	734	01		
FV-TR 9	460.000.904	235	102.5	132.5	734	01		
FV-TR 9	460.000.905	264	129.5	134.5	734	01		
FV-TR 10	460.001.004	261	102.5	158.5	734	01		
FV-TR 10	460.001.005	286	129.5	156.5	734	01		
FV-TR 11	460.001.105	304	129.5	174.5	734	01		
FV-TR 12	460.001.205	344	129.5	214.5	734	01		

Prices upon request

D Clamping mandrels and sleeves

Clamping bolt FV-TR



Basic mandrel: go to page 60 – 63

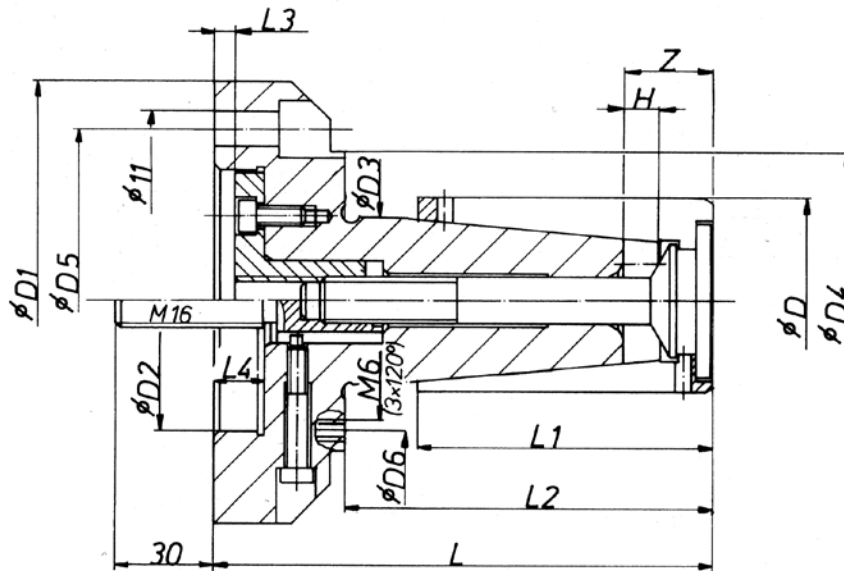
Type No.	Order No.	Mandrel size	G	L 1 mm	SW	ISK	L 2 mm	Product group	Price group	Price per piece Euro
FV-TR 1	460.000.109	1	M 6	26	8	–	9	734	01	
FV-TR 1	460.000.110	1	M 6	26	–	4	–	734	01	
FV-TR 2	460.000.209	2	M 8	30	11	–	9	734	01	
FV-TR 2	460.000.210	2	M 8	30	–	4	–	734	01	
FV-TR 3	460.000.309	3	M 10	35	13	–	10	734	01	
FV-TR 3	460.000.310	3	M 10	35	–	6	–	734	01	
FV-TR 4	460.000.409	4	M 11 x 1.5	37	17	–	12	734	01	
FV-TR 4	460.000.410	4	M 11 x 1.5	37	–	8	–	734	01	
FV-TR 5	460.000.509	5	M 12	40	17	–	12	734	01	
FV-TR 5	460.000.510	5	M 12	40	–	8	–	734	01	
FV-TR 6	460.000.609	6	M 14	44	19	–	14	734	01	
FV-TR 6	460.000.610	6	M 14	44	–	8	–	734	01	
FV-TR 7	460.000.709	7	M 14	52	22	–	15	734	01	
FV-TR 7	460.000.710	7	M 14	52	–	8	–	734	01	
FV-TR 8	460.000.809	8	M 16	58	27	–	18	734	01	
FV-TR 8	460.000.810	8	M 16	58	–	10	–	734	01	
FV-TR 9	460.000.909	9	M 20	65	32	–	20	734	01	
FV-TR 9	460.000.910	9	M 20	65	–	10	–	734	01	
FV-TR 10	460.001.009	10	M 20	69	36	–	20	734	01	
FV-TR 10	460.001.010	10	M 20	69	–	10	–	734	01	
FV-TR 11	460.001.109	11	M 20	76	36	–	20	734	01	
FV-TR 11	460.001.110	11	M 20	76	–	10	–	734	01	
FV-TR 12	460.001.209	12	M 20	85	36	–	20	734	01	
FV-TR 12	460.001.210	12	M 20	85	–	10	–	734	01	

Prices upon request

For your notes

D Clamping mandrels and sleeves

Flange mandrel FVF-TR



Collet: go to page 72 – 74
 Clamping bolt: go to page 68
 Draw tube: go to page 70
 Threaded part: go to page 69

Basic mandrel

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	D1 (h 6) mm	D2 (H 6) mm	D3 (H 6) mm	D4 mm	D5 mm	D6 mm	L mm	L1 mm	L2 mm
FVF-TR 1	260.000.101	1	14.7 – 19.7	102	51.5	14	56	75	40	91	35	51
FVF-TR 2	260.000.201	2	19.7 – 24.7	102	51.5	19	56	75	40	96	40	56
FVF-TR 3	260.000.301	3	24.7 – 29.7	102	51.5	23	56	75	40	102	46	62
FVF-TR 4	260.000.401	4	29.7 – 34.7	112	61	27	66	85	54	106	50	66
FVF-TR 5	260.000.501	5	34.7 – 39.7	112	61	31.5	66	85	54	116	60	76
FVF-TR 6	260.000.601	6	39.7 – 44.7	112	61	36	66	85	54	116	60	76
FVF-TR 7	260.000.701	7	44.7 – 54.7	135	80	42	88	104.8	78	142	80	102
FVF-TR 8	260.000.801	8	54.7 – 64.7	135	80	51	88	104.8	78	152	90	112
FVF-TR 9	260.000.901	9	64.7 – 82.7	135	80	60	88	104.8	78	162	100	122
FVF-TR 10	260.001.001	10	81.7 – 101.7	135	80	73	–	104.8	100	184	122	144
FVF-TR 11	260.001.101	11	100.7 – 120.7	135	80	88	–	104.8	110	202	140	167

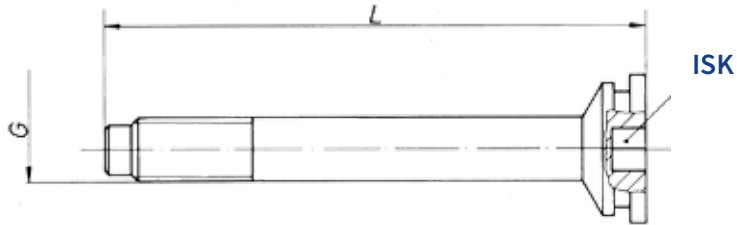


Type No.	Order No.	L4 mm	Stroke H mm	Z	F max da N	Product group	Price group	Price per piece Euro	
FVF-TR 1	260.000.101	15	6	12.5	700	734	01		
FVF-TR 2	260.000.201	15	6	14.5	900	734	01		
FVF-TR 3	260.000.301	15	6	14.5	1200	734	01		
FVF-TR 4	260.000.401	15	6	15.5	1200	734	01		
FVF-TR 5	260.000.501	15	6	16.5	1500	734	01		
FVF-TR 6	260.000.601	15	6	16.5	1500	734	01		
FVF-TR 7	260.000.701	15	12	25	2000	734	01		
FVF-TR 8	260.000.801	15	12	27	2000	734	01		
FVF-TR 9	260.000.901	15	12	26.5	1500	734	01		
FVF-TR 10	260.001.001	18	12	28.5	2500	734	01		
FVF-TR 11	260.001.101	18	12	28.5	2500	734	01		

Prices upon request

D Clamping mandrels and sleeves

Clamping bolt FVF-TR



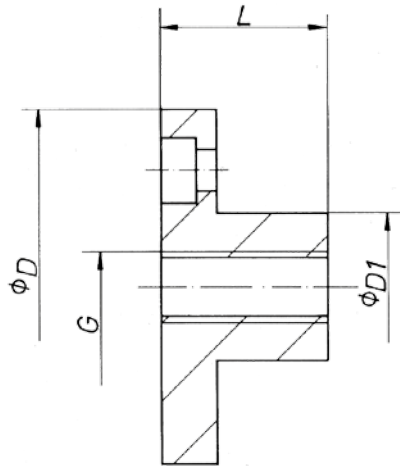
Basic mandrel: go to page 66 – 67

Type No.	Order No.	Mandrel size	G	L mm	ISK	Product group	Price group	Price per piece Euro	
FVF-TR 1	260.000.109	1	M 6	75.5	4	734	01		
FVF-TR 2	260.000.209	2	M 8	80	4	734	01		
FVF-TR 3	260.000.309	3	M 10	86.5	6	734	01		
FVF-TR 4	260.000.409	4	M 11 x 1.5	92	8	734	01		
FVF-TR 5	260.000.509	5	M 12	102	8	734	01		
FVF-TR 6	260.000.609	6	M 14	102	8	734	01		
FVF-TR 7	260.000.709	7	M 14	116	8	734	01		
FVF-TR 8	260.000.809	8	M 14	126	10	734	01		
FVF-TR 9	260.000.909	9	M 14	136	10	734	01		
FVF-TR 10	260.001.009	10	M 20	164	10	734	01		
FVF-TR 11	260.001.109	11	M 20	186	10	734	01		

Prices upon request

D Clamping mandrels and sleeves

Accessory parts for mandrel and sleeve FVF-TR



Threaded part for manual actuation



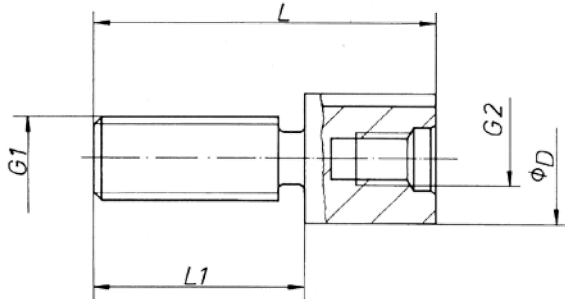
Basic mandrel: go to page 66 – 67

Type No.	Order No.	Mandrel size	D mm	D1 mm	G	L mm	Product group	Price group	Price per piece Euro	
FVF-TR 1	260.000.106-SZ	1	51.3	20	M 6	23	734	01		
FVF-TR 2	260.000.206-SZ	2	51.3	20	M 8	23	734	01		
FVF-TR 3	260.000.306-SZ	3	51.3	20	M 10	23	734	01		
FVF-TR 4	260.000.406-SZ	4	60.8	25	M 11 x 1.5	28	734	01		
FVF-TR 5	260.000.506-SZ	5	60.8	25	M 12	28	734	01		
FVF-TR 6	260.000.606-SZ	6	60.8	25	M 14	28	734	01		
FVF-TR 7	260.000.706-SZ	7	79.8	25	M 14	40	734	01		
FVF-TR 8	260.000.806-SZ	8	79.8	25	M 14	40	734	01		
FVF-TR 9	260.000.906-SZ	9	79.8	25	M 14	40	734	01		
FVF-TR 10	260.001.006-SZ	10	79.8	40	M 20	42	734	01		
FVF-TR 11	260.001.106-SZ	11	79.8	40	M 20	42	734	01		

Prices upon request

D Clamping mandrels and sleeves

Accessory parts for mandrel and sleeve FVF-TR



Draw tube for power operated version



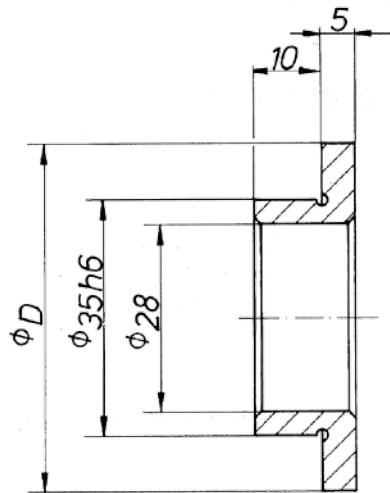
Basic mandrel: go to page 66 – 67

Type No.	Order No.	Mandrel size	D mm	G1	G	L mm	L1 mm	Product group	Price group	Price per piece Euro	
FVF-TR 1	280.000.107-SZ	1	20	M 16	M 6	65	40	734	01		
FVF-TR 2	280.000.207-SZ	2	20	M 16	M 8	65	40	734	01		
FVF-TR 3	280.000.307-SZ	3	20	M 16	M 10	65	40	734	01		
FVF-TR 4	280.000.407-SZ	4	25	M 16	M 11 x 1.5	65	40	734	01		
FVF-TR 5	280.000.507-SZ	5	25	M 16	M 12	65	40	734	01		
FVF-TR 6	280.000.607-SZ	6	25	M 16	M 14	65	40	734	01		
FVF-TR 7	280.000.707-SZ	7	25	M 16	M 14	82	48	734	01		
FVF-TR 8	280.000.807-SZ	8	25	M 16	M 14	82	48	734	01		
FVF-TR 9	280.000.907-SZ	9	25	M 16	M 14	82	48	734	01		
FVF-TR 10	280.001.007-SZ	10	40	M 16	M 20	83	40	734	01		
FVF-TR 11	280.001.107-SZ	11	40	M 16	M 20	83	40	734	01		

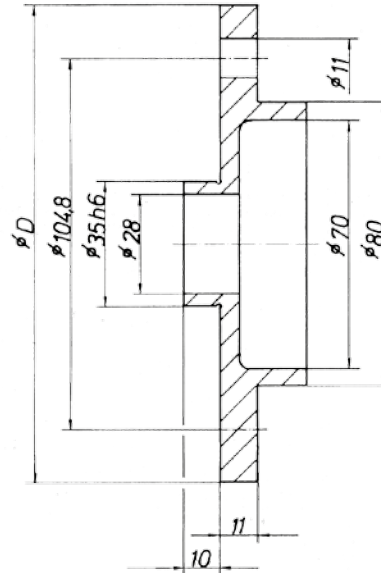
D Clamping mandrels and sleeves

Centring ring FVF-Z-TR for mandrel FVF-TR

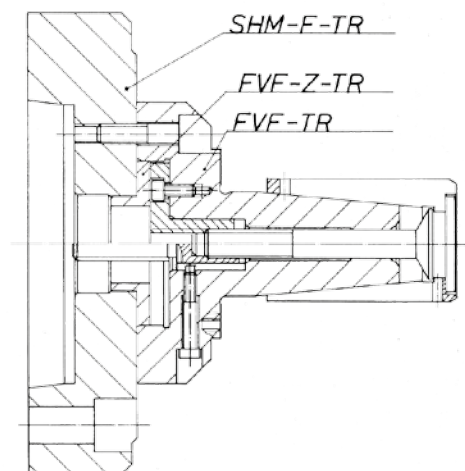
Size 1 – 9



Size 10 + 11



Type No.	Order No.	Mandrel size	Centring ring size	D g5 mm	Product group	Price group	Price per piece Euro	
FVF-Z-TR	281.000.013	1 – 3	1	51.5	734	01		
FVF-Z-TR	282.000.046	4 – 6	2	61	734	01		
FVF-Z-TR	283.000.079	7 – 9	3	80	734	01		
FVF-Z-TR	284.001.011	10 + 11	4	135	734	01		

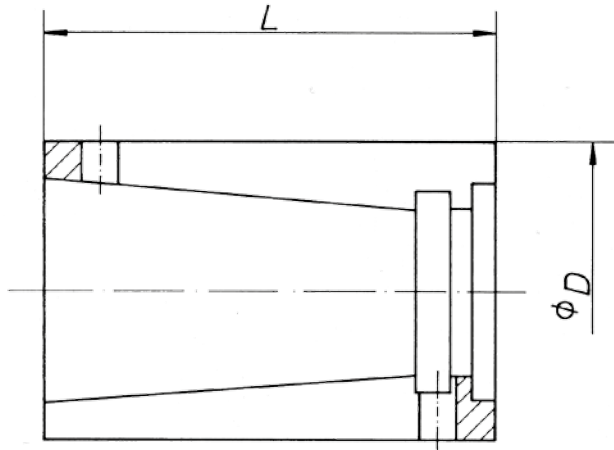


example for application

Prices upon request

D Clamping mandrels and sleeves

Collet FV-TR



For mandrels

FV-TR: go to page 60 – 63

FVM-TR: go to page 50 – 51

FVF-TR: go to page 65 – 66

FVZ-TR: go to page 54 – 57

Note

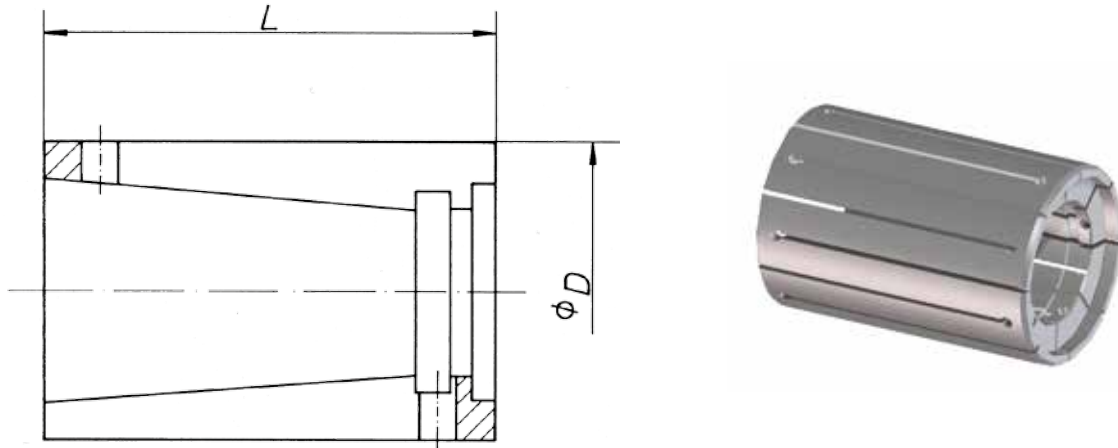
Due to the difficult assembly and risk of breakage we deliver collets solely with the corresponding clamping device. Hence we ask you to order these as well.

Collet

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FV-TR 1	461.470.106	1	14.7	35	1	734	01		
FV-TR 1	461.570.106	1	15.7	35	1	734	01		
FV-TR 1	461.670.106	1	16.7	35	1	734	01		
FV-TR 1	461.770.106	1	17.7	35	1	734	01		
FV-TR 1	461.870.106	1	18.7	35	1	734	01		
FV-TR 2	461.970.206	2	19.7	40	1	734	01		
FV-TR 2	462.070.206	2	20.7	40	1	734	01		
FV-TR 2	462.170.206	2	21.7	40	1	734	01		
FV-TR 2	462.270.206	2	22.7	40	1	734	01		
FV-TR 2	462.370.206	2	23.7	40	1	734	01		
FV-TR 3	462.470.306	3	24.7	46	1	734	01		
FV-TR 3	462.570.306	3	25.7	46	1	734	01		
FV-TR 3	462.670.306	3	26.7	46	1	734	01		
FV-TR 3	462.770.306	3	27.7	46	1	734	01		
FV-TR 3	462.870.306	3	28.7	46	1	734	01		
FV-TR 4	462.970.406	4	29.7	50	1	734	01		
FV-TR 4	463.070.406	4	30.7	50	1	734	01		
FV-TR 4	463.170.406	4	31.7	50	1	734	01		
FV-TR 4	463.270.406	4	32.7	50	1	734	01		
FV-TR 4	463.370.406	4	33.7	50	1	734	01		
FV-TR 5	463.470.506	5	34.7	60	1	734	01		
FV-TR 5	463.570.506	5	35.7	60	1	734	01		
FV-TR 5	463.670.506	5	36.7	60	1	734	01		
FV-TR 5	463.770.506	5	37.7	60	1	734	01		
FV-TR 5	463.870.506	5	38.7	60	1	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request



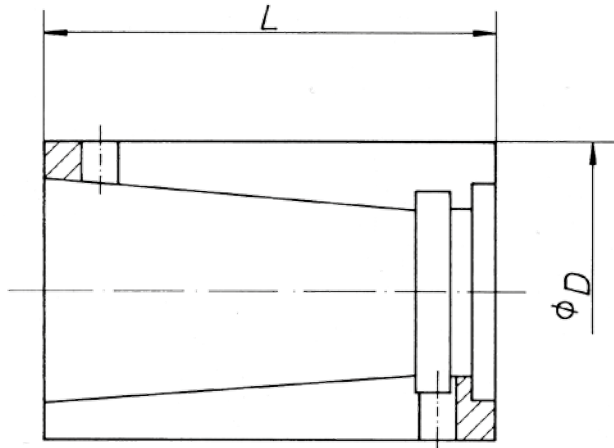
Type No.	Order No.	Mandrel size	Clamping range ØD	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FV-TR 6	463.970.606	6	39.7	60	1	734	01		
FV-TR 6	464.070.606	6	40.7	60	1	734	01		
FV-TR 6	464.170.606	6	41.7	60	1	734	01		
FV-TR 6	464.270.606	6	42.7	60	1	734	01		
FV-TR 6	464.370.606	6	43.7	60	1	734	01		
FV-TR 7	464.470.706	7	44.7	80	2	734	01		
FV-TR 7	464.670.706	7	46.7	80	2	734	01		
FV-TR 7	464.870.706	7	48.7	80	2	734	01		
FV-TR 7	464.970.706	7	49.7	80	2	734	01		
FV-TR 7	465.070.706	7	50.7	80	2	734	01		
FV-TR 7	465.270.706	7	52.7	80	2	734	01		
FV-TR 8	465.470.806	8	54.7	90	2	734	01		
FV-TR 8	465.670.806	8	56.7	90	2	734	01		
FV-TR 8	465.870.806	8	58.7	90	2	734	01		
FV-TR 8	465.970.806	8	59.7	90	2	734	01		
FV-TR 8	466.070.806	8	60.7	90	2	734	01		
FV-TR 8	466.270.806	8	62.7	90	2	734	01		
FV-TR 9	466.470.906	9	64.7	100	2	734	01		
FV-TR 9	466.670.906	9	66.7	100	2	734	01		
FV-TR 9	466.870.906	9	68.7	100	2	734	01		
FV-TR 9	466.970.906	9	69.7	100	2	734	01		
FV-TR 9	467.070.906	9	70.7	100	2	734	01		
FV-TR 9	467.270.906	9	72.7	100	2	734	01		
FV-TR 9	467.470.906	9	74.7	100	2	734	01		
FV-TR 9	467.670.906	9	76.7	100	2	734	01		
FV-TR 9	467.870.906	9	78.7	100	2	734	01		
FV-TR 9	468.070.906	9	80.7	100	2	734	01		
FV-TR 10	468.171.006	10	81.7	122	2	734	01		
FV-TR 10	468.371.006	10	83.7	122	2	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet FV-TR



For mandrels

FV-TR: go to page 60 – 63

FVM-TR: go to page 50 – 51

FVF-TR: go to page 65 – 66

FVZ-TR: go to page 54 – 57

Note

Due to the difficult assembly and risk of breakage we deliver collets solely with the corresponding clamping device. Hence we ask you to order these as well.

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FV-TR 10	468.571.006	10	85.7	122	2	734	01		
FV-TR 10	468.771.006	10	87.7	122	2	734	01		
FV-TR 10	468.971.006	10	89.7	122	2	734	01		
FV-TR 10	469.171.006	10	91.7	122	2	734	01		
FV-TR 10	469.371.006	10	93.7	122	2	734	01		
FV-TR 10	469.571.006	10	95.7	122	2	734	01		
FV-TR 10	469.771.006	10	97.7	122	2	734	01		
FV-TR 10	469.971.006	10	99.7	122	2	734	01		
FV-TR 11	470.071.106	11	100.7	140	2	734	01		
FV-TR 11	470.271.106	11	102.7	140	2	734	01		
FV-TR 11	470.471.106	11	104.7	140	2	734	01		
FV-TR 11	470.671.106	11	106.7	140	2	734	01		
FV-TR 11	470.871.106	11	108.7	140	2	734	01		
FV-TR 11	471.071.106	11	110.7	140	2	734	01		
FV-TR 11	471.271.106	11	112.7	140	2	734	01		
FV-TR 11	471.471.106	11	114.7	140	2	734	01		
FV-TR 11	471.671.106	11	116.7	140	2	734	01		
FV-TR 11	471.871.106	11	118.7	140	2	734	01		
FV-TR 12	471.971.206	12	119.7	180	2	734	01		
FV-TR 12	472.171.206	12	121.7	180	2	734	01		
FV-TR 12	472.371.206	12	123.7	180	2	734	01		
FV-TR 12	472.571.206	12	125.7	180	2	734	01		
FV-TR 12	472.771.206	12	127.7	180	2	734	01		
FV-TR 12	472.971.206	12	129.7	180	2	734	01		
FV-TR 12	473.171.206	12	131.7	180	2	734	01		
FV-TR 12	473.371.206	12	133.7	180	2	734	01		
FV-TR 12	473.571.206	12	135.7	180	2	734	01		
FV-TR 12	473.771.206	12	137.7	180	2	734	01		
FV-TR 12	473.971.206	12	139.7	180	2	734	01		

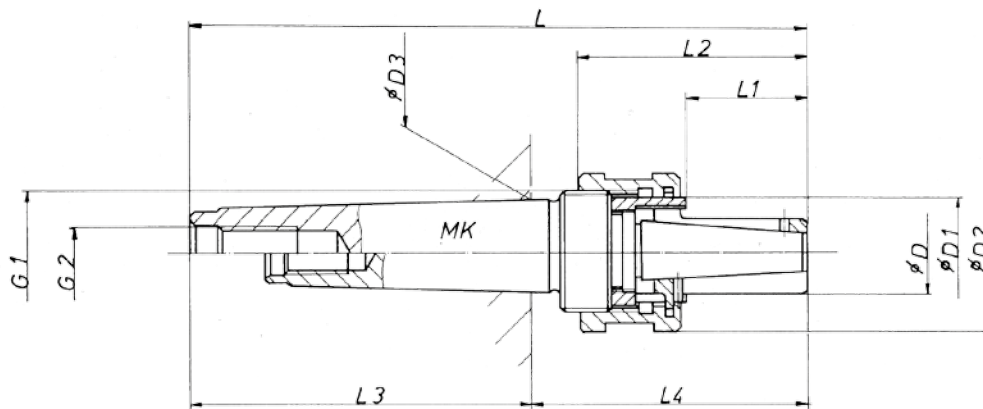
can also be ordered vulcanised or with custom ground design

Prices upon request

For your notes

D Clamping mandrels and sleeves

Mandrel FH-TR



Collet: go to page 87 – 89
Workpiece end-stop: go to page 83
Clamping nut: go to page 82

Basic mandrel

Type No.	Order No.	Mandrel size	Clamping range ϕD	D1 mm	D2 mm	G1	L1 mm	L2 mm	Stroke	MK	D3 mm
FH-TR 1	360.000.102	1	5.5 – 7.5	10.8	19.5	M 14 x 1.5	12	35.5	5.5	2	17.78
FH-TR 1	360.000.103	1	5.5 – 7.5	10.8	19.5	M 14 x 1.5	12	35.5	5.5	3	23.825
FH-TR 1	360.000.104	1	5.5 – 7.5	10.8	19.5	M 14 x 1.5	12	35.5	5.5	4	31.267
FH-TR 2	360.000.202	2	7.5 – 9.5	13.8	23	M 16 x 1.5	16	43.5	5.5	2	17.78
FH-TR 2	360.000.203	2	7.5 – 9.5	13.8	23	M 16 x 1.5	16	43.5	5.5	3	23.825
FH-TR 2	360.000.204	2	7.5 – 9.5	13.8	23	M 16 x 1.5	16	43.5	5.5	4	31.267
FH-TR 3	360.000.302	3	9.5 – 12	16.8	28	M 20 x 1.5	20	48.5	5.5	2	17.78
FH-TR 3	360.000.303	3	9.5 – 12	16.8	28	M 20 x 1.5	20	48.5	5.5	3	23.825
FH-TR 3	360.000.304	3	9.5 – 12	16.8	28	M 20 x 1.5	20	48.5	5.5	4	31.267
FH-TR 4	360.000.402	4	12 – 15	20.8	31	M 24 x 1.5	26	56.5	5.5	2	17.78
FH-TR 4	360.000.403	4	12 – 15	20.8	31	M 24 x 1.5	26	56.5	5.5	3	23.825
FH-TR 4	360.000.404	4	12 – 15	20.8	31	M 24 x 1.5	26	56.5	5.5	4	31.267
FH-TR 5	360.000.502	5	14.5 – 19.5	26.8	38	M 30 x 1.5	30	61.5	5.5	2	17.78
FH-TR 5	360.000.503	5	14.5 – 19.5	26.8	38	M 30 x 1.5	30	61.5	5.5	3	23.825
FH-TR 5	360.000.504	5	14.5 – 19.5	26.8	38	M 30 x 1.5	30	61.5	5.5	4	31.267
FH-TR 6	360.000.603	6	19.5 – 25	31.8	47	M 36 x 1.5	36	67.5	5.5	3	23.825
FH-TR 6	360.000.604	6	19.5 – 25	31.8	47	M 36 x 1.5	36	67.5	5.5	4	31.267
FH-TR 7	360.000.703	7	24.7 – 29.7	36.8	69	M 42 x 1.5	42.5	84	6	3	23.825
FH-TR 7	360.000.704	7	24.7 – 29.7	36.8	69	M 42 x 1.5	42.5	84	6	4	31.267
FH-TR 7	360.000.705	7	24.7 – 29.7	36.8	69	M 42 x 1.5	42.5	84	6	5	44.399
FH-TR 8	360.000.803	8	29.7 – 34.7	41.8	72	M 45 x 1.5	46	87.5	6	3	23.825
FH-TR 8	360.000.804	8	29.7 – 34.7	41.8	72	M 45 x 1.5	46	87.5	6	4	31.267
FH-TR 8	360.000.805	8	29.7 – 34.7	41.8	72	M 45 x 1.5	46	87.5	6	5	44.399
FH-TR 9	360.000.903	9	34.7 – 39.7	47.8	79	M 52 x 1.5	52.5	94	6	3	23.825
FH-TR 9	360.000.904	9	34.7 – 39.7	47.8	79	M 52 x 1.5	52.5	94	6	4	31.267
FH-TR 9	360.000.905	9	34.7 – 39.7	47.8	79	M 52 x 1.5	52.5	94	6	5	44.399

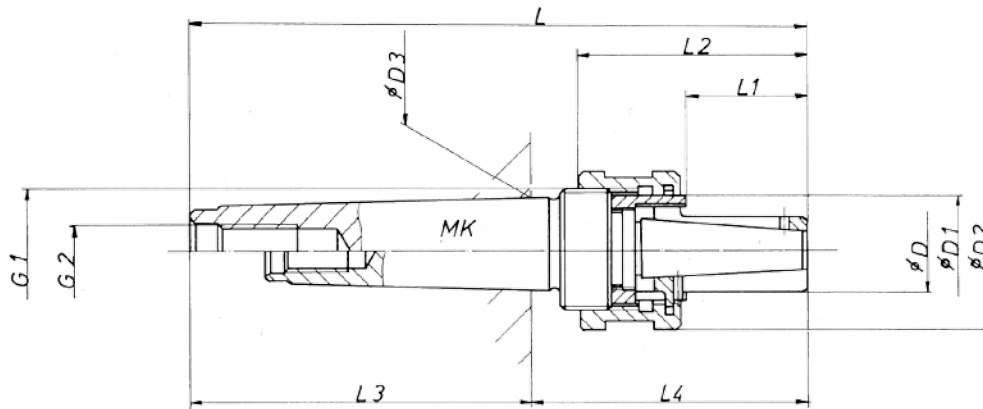


Type No.	Order No.	G2	L mm	L3 mm	L4 mm	Product group	Price group	Price per piece Euro	
FH-TR 1	360.000.102	M 10	110	64	46	734	01		
FH-TR 1	360.000.103	M 12	127	81	46	734	01		
FH-TR 1	360.000.104	M 16	150	102.5	47.5	734	01		
FH-TR 2	360.000.202	M 10	118.5	64	54.5	734	01		
FH-TR 2	360.000.203	M 12	135.5	81	54.5	734	01		
FH-TR 2	360.000.204	M 16	158.5	102.5	56	734	01		
FH-TR 3	360.000.302	M 10	123.5	64	59.5	734	01		
FH-TR 3	360.000.303	M 12	140.5	81	59.5	734	01		
FH-TR 3	360.000.304	M 16	163.5	102.5	61	734	01		
FH-TR 4	360.000.402	M 10	131.5	64	67.5	734	01		
FH-TR 4	360.000.403	M 12	148.5	81	67.5	734	01		
FH-TR 4	360.000.404	M 16	171.5	102.5	69	734	01		
FH-TR 5	360.000.502	M 10	136.5	64	72.5	734	01		
FH-TR 5	360.000.503	M 12	153.5	81	72.5	734	01		
FH-TR 5	360.000.504	M 16	176.5	102.5	74	734	01		
FH-TR 6	360.000.603	M 12	159.5	81	78.5	734	01		
FH-TR 6	360.000.604	M 16	182.5	102.5	80	734	01		
FH-TR 7	360.000.703	M 12	177	81	96	734	01		
FH-TR 7	360.000.704	M 16	200	102.5	97.5	734	01		
FH-TR 7	360.000.705	M 20	227	129.5	97.5	734	01		
FH-TR 8	360.000.803	M 12	180.5	81	99.5	734	01		
FH-TR 8	360.000.804	M 16	203.5	102.5	101	734	01		
FH-TR 8	360.000.805	M 20	230.5	129.5	101	734	01		
FH-TR 9	360.000.903	M 12	187	81	106	734	01		
FH-TR 9	360.000.904	M 16	210	102.5	107.5	734	01		
FH-TR 9	360.000.905	M 20	237	129.5	107.5	734	01		

Prices upon request

D Clamping mandrels and sleeves

Mandrel FH-TR



Collet: go to page 87 – 89
Workpiece end-stop: go to page 83
Clamping nut: go to page 82

Basic mandrel

Type No.	Order No.	Mandrel size	Clamping range ϕD	D1 mm	D2 mm	G1	L1 mm	L2 mm	Stroke	MK	D3 mm
FH-TR 10	360.001.004	10	39.7 – 44.7	52.8	87	M 56 x 1.5	58	99.5	6	4	31.267
FH-TR 10	360.001.005	10	39.7 – 44.7	52.8	87	M 56 x 1.5	58	99.5	6	5	44.399
FH-TR 11	360.001.104	11	44.7 – 54.7	61.8	96	M 65 x 2	76.5	123	6	4	31.267
FH-TR 11	360.001.105	11	44.7 – 54.7	61.8	96	M 65 x 2	76.5	123	6	5	44.399
FH-TR 12	360.001.204	12	54.7 – 64.7	71.8	107	M 75 x 2	85	134.5	6	4	31.267
FH-TR 12	360.001.205	12	54.7 – 64.7	71.8	107	M 75 x 2	85	134.5	6	5	44.399
FH-TR 13	360.001.304	13	64.7 – 79.7	90.8	130	M 95 x 2	96	147.5	6	4	31.267
FH-TR 13	360.001.305	13	64.7 – 79.7	90.8	130	M 95 x 2	96	147.5	6	5	44.399

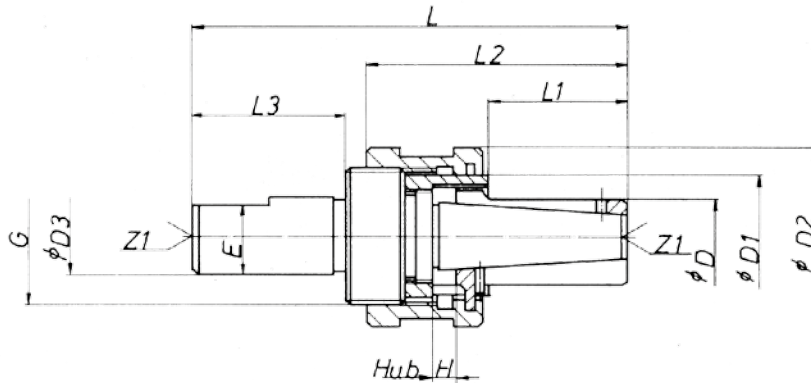


Type No.	Order No.	G2	L mm	L3 mm	L4 mm	Product group	Price group	Price per piece Euro	
FH-TR 10	360.001.004	M 16	215.5	102.5	113	734	01		
FH-TR 10	360.001.005	M 20	242.5	129.5	113	734	01		
FH-TR 11	360.001.104	M 16	239	102.5	136.5	734	01		
FH-TR 11	360.001.105	M 20	266	129.5	136.5	734	01		
FH-TR 12	360.001.204	M 16	250.5	102.5	148	734	01		
FH-TR 12	360.001.205	M 20	277.5	129.5	148	734	01		
FH-TR 13	360.001.304	M 16	263.5	102.5	161	734	01		
FH-TR 13	360.001.305	M 20	290.5	129.5	161	734	01		

Prices upon request

D Clamping mandrels and sleeves

Mandrel SH-TR



Basic mandrel

Collet: go to page 95 – 98
 Workpiece end-stop: go to page 83
 Clamping nut: go to page 82

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	D1 mm	D2 mm	D3 h9	L mm	L1 mm	L2 mm	L3 mm	E	Z1 DIN 322
SH-TR 1	410.000.101	1	5.5 – 7.5	10.8	19.5	10	74.5	12	35.5	30	8.5	B 2 x 4.25
SH-TR 2	410.000.201	2	7.5 – 9.5	13.8	23	12	79.5	16	43.5	30	10	B 2 x 4.25
SH-TR 3	410.000.301	3	9.5 – 12	16.8	28	12	89.5	20	48.5	35	10	B 2 x 4.25
SH-TR 4	410.000.401	4	12 – 15	20.8	31	14	97.5	26	56.5	35	12	B 2 x 4.25
SH-TR 5	410.000.501	5	14.5 – 19.5	26.8	38	18	102.5	30	61.5	35	16	B 2 x 4.25
SH-TR 6	410.000.601	6	19.5 – 25	31.8	47	20	113.5	36	67.5	40	18	B 2 x 4.25
SH-TR 7	410.000.701	7	24.7 – 29.7	36.8	69	25	136	42.5	84	45	23	B 2 x 4.25
SH-TR 8	410.000.801	8	29.7 – 34.7	41.8	72	30	144.5	46	87.5	50	25	B 2.5 x 5.3
SH-TR 9	410.000.901	9	34.7 – 39.7	47.8	79	40	156	52.5	94	55	35	B 2.5 x 5.3
SH-TR 10	410.001.001	10	39.7 – 44.7	52.8	87	40	166.5	58	99.5	60	35	B 3.15 x 6.7
SH-TR 11	410.001.101	11	44.7 – 54.7	61.8	96	45	197	76.5	123	67	40	B 3.15 x 6.7
SH-TR 12	410.001.201	12	54.7 – 64.7	71.8	107	50	208.5	85	134.5	67	45	B 4 x 8.5
SH-TR 13	410.001.301	13	64.7 – 79.7	90.8	130	50	221.5	96	147.5	67	45	B 4 x 8.5

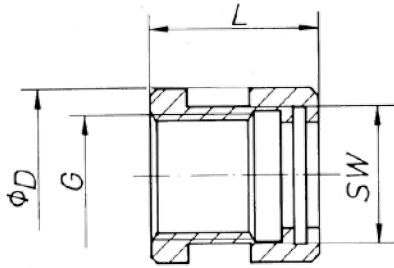
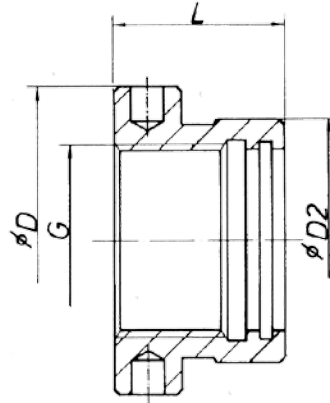


Type No.	Order No.	Z2 DIN 322	G	Stroke	Product group	Price group	Price per piece Euro	
SH-TR 1	410.000.101	Spitze 60°	M 14 x 1.5	5.5	734	01		
SH-TR 2	410.000.201	B 0.8 x 1.7	M 16 x 1.5	5.5	734	01		
SH-TR 3	410.000.301	B 1 x 2.12	M 20 x 1.5	5.5	734	01		
SH-TR 4	410.000.401	B 2 x 4.25	M 24 x 1.5	5.5	734	01		
SH-TR 5	410.000.501	B 2 x 4.25	M 30 x 1.5	5.5	734	01		
SH-TR 6	410.000.601	B 2 x 4.25	M 36 x 1.5	5.5	734	01		
SH-TR 7	410.000.701	B 2 x 4.25	M 42 x 1.5	6	734	01		
SH-TR 8	410.000.801	B 2.5 x 5.3	M 45 x 1.5	6	734	01		
SH-TR 9	410.000.901	B 2.5 x 5.3	M 52 x 1.5	6	734	01		
SH-TR 10	410.001.001	B 3.15 x 6.7	M 56 x 1.5	6	734	01		
SH-TR 11	410.001.101	B 3.15 x 6.7	M 65 x 2	6	734	01		
SH-TR 12	410.001.201	B 4 x 8.5	M 75 x 2	6	734	01		
SH-TR 13	410.001.301	B 4 x 8.5	M 95 x 2	6	734	01		

Prices upon request

D Clamping mandrels and sleeves

Clamping nut FH-SH


Size 1 – 6

Size 7 – 13

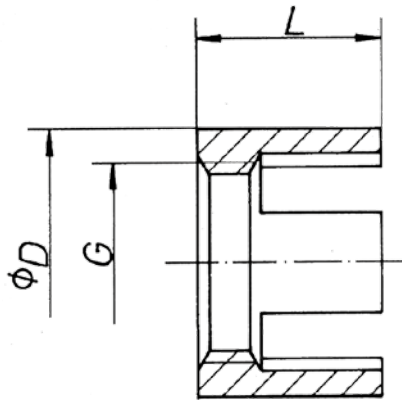

Basic mandrel size 1 – 6: go to page 76 – 79
Basic mandrel size 7 – 13: go to page 80 – 81

Type No.	Order No.	Mandrel size	D mm	D2 mm	G	SW	L mm	Product group	Price group	Price per piece Euro	
FH-SH 1	360.000.108	1	19.5	-	M 14 x 1.5	17	22	734	01		
FH-SH 2	360.000.208	2	23	-	M 16 x 1.5	19	26	734	01		
FH-SH 3	360.000.308	3	28	-	M 20 x 1.5	22	27	734	01		
FH-SH 4	360.000.408	4	31	-	M 24 x 1.5	27	29	734	01		
FH-SH 5	360.000.508	5	38	-	M 30 x 1.5	32	30	734	01		
FH-SH 6	360.000.608	6	47	-	M 36 x 1.5	41	30	734	01		
FH-SH 7	360.000.708	7	69	54	M 42 x 1.5	-	40	734	01		
FH-SH 8	360.000.808	8	72	57.5	M 45 x 1.5	-	40	734	01		
FH-SH 9	360.000.908	9	79	66	M 52 x 1.5	-	40	734	01		
FH-SH 10	360.001.008	10	87	74	M 56 x 1.5	-	40	734	01		
FH-SH 11	360.001.108	11	96	83	M 65 x 2	-	45	734	01		
FH-SH 12	360.001.208	12	107	93	M 75 x 2	-	48	734	01		
FH-SH 13	360.001.308	13	130	108	M 95 x 2	-	50	734	01		

Prices upon request

D Clamping mandrels and sleeves

Workpiece end-stop FH-SH



Basic mandrel FH-TR: go to page 76 – 79

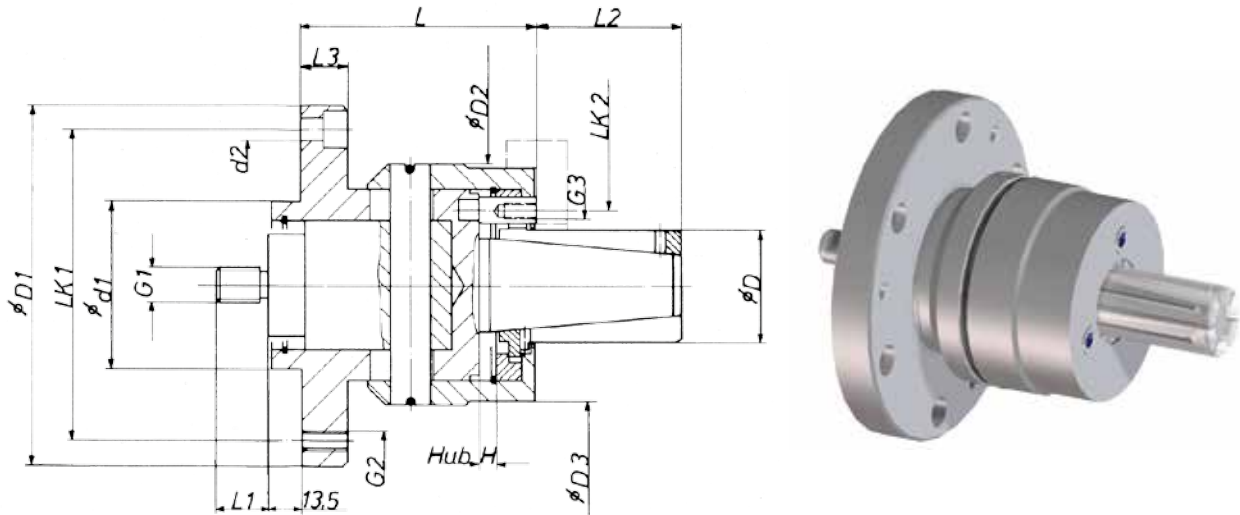
Basic mandrel SH-TR: go to page 80 – 81

Type No.	Order No.	Mandrel size	D mm	G	L mm	Product group	Price group	Price per piece Euro	
FH-SH 1	360.000.110	1	10.8	M 7 x 1	16	734	01		
FH-SH 2	360.000.210	2	13.8	M 9 x 1	19	734	01		
FH-SH 3	360.000.310	3	16.8	M 11 x 1	19	734	01		
FH-SH 4	360.000.410	4	20.8	M 14 x 1	21	734	01		
FH-SH 5	360.000.510	5	26.8	M 18 x 1.5	22	734	01		
FH-SH 6	360.000.610	6	31.8	M 24 x 1.5	22	734	01		
FH-SH 7	360.000.710	7	36.8	M 30 x 1.5	24.5	734	01		
FH-SH 8	360.000.810	8	41.8	M 34 x 1.5	24.5	734	01		
FH-SH 9	360.000.910	9	47.8	M 36 x 1.5	27.5	734	01		
FH-SH 10	360.001.010	10	52.8	M 40 x 1.5	27.5	734	01		
FH-SH 11	360.001.110	11	61.8	M 52 x 2	30	734	01		
FH-SH 12	360.001.210	12	71.8	M 62 x 2	33	734	01		
FH-SH 13	360.001.310	13	90.8	M 75 x 2	33.5	734	01		

Prices upon request

D Clamping mandrels and sleeves

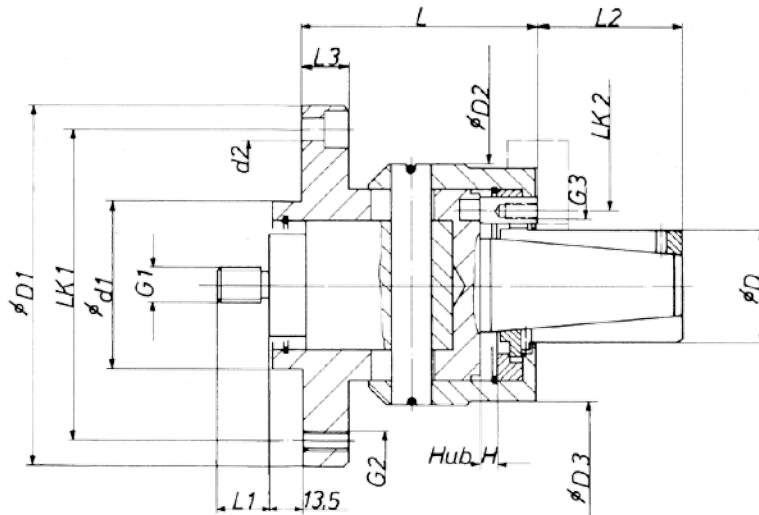
Flange mandrel SHK-TR



Basic mandrel (size 6+ mandrels on request)

Collet: go to page 95 – 98

Type No.	Order No.	Mandrel size	Clamping range ϕD	D1 (h6) mm	d1 (h6) mm	D2 mm	d2 (6x60°) mm	D3 (f7)	L mm	L1 mm	L2 mm	L3 mm
SHK-TR 1	560.000.101	1	5.5 – 7.5	65	30	37.5	4.5	32	59	15	11.5	12
SHK-TR 2	560.000.201	2	7.5 – 9.5	65	30	40.5	4.5	38	61	15	15.5	12
SHK-TR 3	560.000.301	3	9.5 – 12	80	40	42.5	5.5	40	64.5	15	19.5	12
SHK-TR 4	560.000.401	4	12 – 15	80	40	52.5	5.5	50	67	15	25	12
SHK-TR 5	560.000.501	5	14.5 – 19.5	100	20	58	6.6	55	71.5	20	29	15
SHK-TR 6	560.000.601	6	19.5 – 25	100	20	63	6.6	60	75.5	20	35	15
SHK-TR 7	560.000.701	7	24.7 – 9.7	120	60	73	6.6	70	79.5	20	41	15
SHK-TR 8	560.000.801	8	29.7 – 34.7	120	60	78	9	75	82.5	20	44.5	15
SHK-TR 9	560.000.901	9	34.7 – 39.7	120	60	83	9	80	85.5	20	51	15
SHK-TR 10	560.001.001	10	39.7 – 44.7	140	65	93	9	90	90.5	20	57	20
SHK-TR 11	560.001.101	11	44.7 – 54.7	140	65	103	9	100	91.5	20	74.5	20
SHK-TR 12	560.001.201	12	54.7 – 64.7	170	94	118	9	115	95.5	25	83	20
SHK-TR 13	560.001.301	13	64.7 – 80.7	170	94	128	9	125	106	25	94.5	20



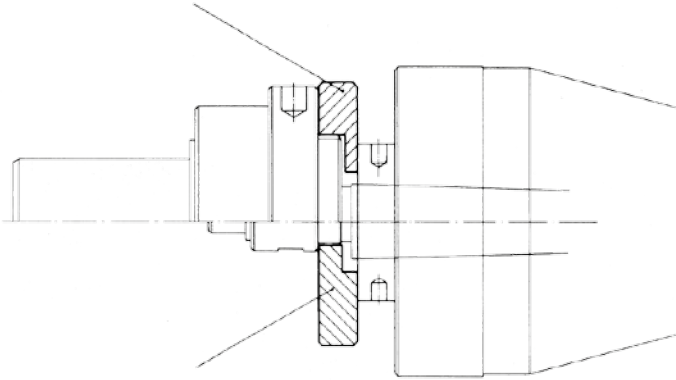
Type No.	Order No.	LK1	LK2	G1	G2	G3	Stroke	F max da N	Product group	Price group	Price per piece Euro	
SHK-TR 1	560.000.101	54	16.5	M 8	M 4	M 3	6	360	734	01		
SHK-TR 2	560.000.201	54	19	M 8	M 4	M 3	6	780	734	01		
SHK-TR 3	560.000.301	67	21	M 10	M 5	M 3	6	1200	734	01		
SHK-TR 4	560.000.401	67	26.5	M 10	M 5	M 5	6	1400	734	01		
SHK-TR 5	560.000.501	80	30.5	M 12	M 6	M 5	6	1800	734	01		
SHK-TR 6	560.000.601	80	35.5	M 12	M 6	M 5	6	2000	734	01		
SHK-TR 7	560.000.701	100	43	M 12	M 6	M 6	6.5	2000	734	01		
SHK-TR 8	560.000.801	100	47	M 12	M 8	M 6	6.5	2200	734	01		
SHK-TR 9	560.000.901	100	53	M 12	M 8	M 6	6.5	2200	734	01		
SHK-TR 10	560.001.001	122	58	M 14	M 8	M 6	6.5	2500	734	01		
SHK-TR 11	560.001.101	122	67.5	M 14	M 8	M 6	6.5	2500	734	01		
SHK-TR 12	560.001.201	150	80	M 16	M 8	M 6	6.5	2800	734	01		
SHK-TR 13	560.001.301	150	93	M 16	M 8	M 6	6.5	2800	734	01		

Prices upon request

D Clamping mandrels and sleeves

Withdrawal disk ADS-TR

Withdrawal disk ADS-TR 6 to 10
 Size 11 – 13 not marked



Withdrawal disk ADS-TR 1 to 5

Type No.	Order No.	ADS-TR size	usable for	Product group	Price group	Price per piece Euro	
ADS-TR 1	920.000.100	1	FH-TR 1	734	01		
ADS-TR 2	920.000.200	2	FH-TR 2	734	01		
ADS-TR 3	920.000.300	3	FH-TR 3	734	01		
ADS-TR 4	920.000.400	4	FH-TR 4	734	01		
ADS-TR 5	920.000.500	5	FH-TR 5	734	01		
ADS-TR 6	920.000.600	6	FH-TR 6	734	01		
ADS-TR 7	920.000.700	7	FH-TR 7	734	01		
ADS-TR 8	920.000.800	8	FH-TR 8	734	01		
ADS-TR 9	920.000.900	9	FH-TR 9	734	01		
ADS-TR 10	920.001.000	10	FH-TR 10	734	01		
ADS-TR 11	920.001.100	11	FH-TR 11	734	01		
ADS-TR 12	920.001.200	12	FH-TR 12	734	01		
ADS-TR 13	920.001.300	13	FH-TR 13	734	01		

Application

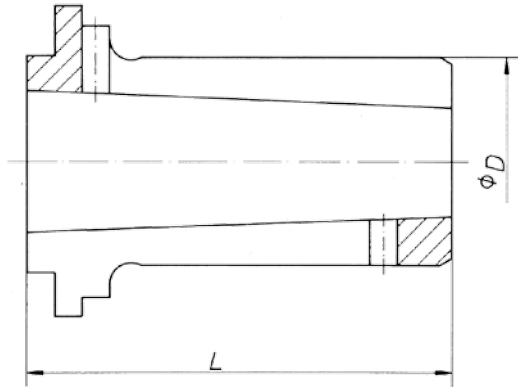
To retract a FH-TR – mandrel from the continuous tailstock coupling (MRA-TR 1 to 6)

Feature

Universally adaptable bei MRA-TR 1 to 6

D Clamping mandrels and sleeves

Collet FH-TR



For mandrels

FH-TR: go to page 76 – 79

SH-TR: go to page 80 – 81

SHK-TR: go to page 84 – 85

Note

Due to the difficult assembly and risk of breakage we deliver collets solely with the corresponding clamping device. Hence we ask you to order these as well.

Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FH-TR 1	360.550.106	1	5.5	17.5	0.5	734	01		
FH-TR 1	360.600.106	1	6	17.5	0.5	734	01		
FH-TR 1	360.650.106	1	6.5	17.5	0.5	734	01		
FH-TR 1	360.700.106	1	7	17.5	0.5	734	01		
FH-TR 2	360.750.206	2	7.5	23.5	0.5	734	01		
FH-TR 2	360.800.206	2	8	23.5	0.5	734	01		
FH-TR 2	360.850.206	2	8.5	23.5	0.5	734	01		
FH-TR 2	360.900.206	2	9	23.5	0.5	734	01		
FH-TR 3	360.950.306	3	9.5	27.5	0.5	734	01		
FH-TR 3	361.000.306	3	10	27.5	0.5	734	01		
FH-TR 3	361.050.306	3	10.5	27.5	0.5	734	01		
FH-TR 3	361.100.306	3	11	27.5	0.5	734	01		
FH-TR 3	361.150.306	3	11.5	27.5	0.5	734	01		
FH-TR 4	361.200.406	4	12	35	0.5	734	01		
FH-TR 4	361.250.406	4	12.5	35	0.5	734	01		
FH-TR 4	361.300.406	4	13	35	0.5	734	01		
FH-TR 4	361.350.406	4	13.5	35	0.5	734	01		
FH-TR 4	361.400.406	4	14	35	0.5	734	01		
FH-TR 4	361.450.406	4	14.5	35	0.5	734	01		
FH-TR 5	361.450.506	5	14.5	39	0.5	734	01		
FH-TR 5	361.500.506	5	15	39	0.5	734	01		
FH-TR 5	361.550.506	5	15.5	39	0.5	734	01		
FH-TR 5	361.600.506	5	16	39	0.5	734	01		
FH-TR 5	361.650.506	5	16.5	39	0.5	734	01		
FH-TR 5	361.700.506	5	17	39	0.5	734	01		
FH-TR 5	361.750.506	5	17.5	39	0.5	734	01		
FH-TR 5	361.800.506	5	18	39	0.5	734	01		
FH-TR 5	361.850.506	5	18.5	39	0.5	734	01		
FH-TR 5	361.900.506	5	19	39	0.5	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet FH-TR



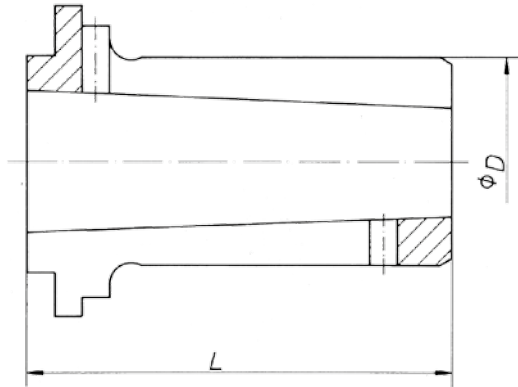
Type No.	Order No.	Mandrel size	Clamping range Ø D	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FH-TR 6	361.950.606	6	19.5	45	0.5	734	01		
FH-TR 6	362.000.606	6	20	45	0.5	734	01		
FH-TR 6	362.050.606	6	20.5	45	0.5	734	01		
FH-TR 6	362.100.606	6	21	45	0.5	734	01		
FH-TR 6	362.150.606	6	21.5	45	0.5	734	01		
FH-TR 6	362.200.606	6	22	45	0.5	734	01		
FH-TR 6	362.250.606	6	22.5	45	0.5	734	01		
FH-TR 6	362.300.606	6	23	45	0.5	734	01		
FH-TR 6	362.350.606	6	23.5	45	0.5	734	01		
FH-TR 6	362.400.606	6	24	45	0.5	734	01		
FH-TR 6	362.450.606	6	24.5	45	0.5	734	01		
FH-TR 7	362.470.706	7	24.7	53	1	734	01		
FH-TR 7	362.570.706	7	25.7	53	1	734	01		
FH-TR 7	362.670.706	7	26.7	53	1	734	01		
FH-TR 7	362.770.706	7	27.7	53	1	734	01		
FH-TR 7	362.870.706	7	28.7	53	1	734	01		
FH-TR 8	362.970.806	8	29.7	56.5	1	734	01		
FH-TR 8	363.070.806	8	30.7	56.5	1	734	01		
FH-TR 8	363.170.806	8	31.7	56.5	1	734	01		
FH-TR 8	363.270.806	8	32.7	56.5	1	734	01		
FH-TR 8	363.370.806	8	33.7	56.5	1	734	01		
FH-TR 9	363.470.906	9	34.7	66	1	734	01		
FH-TR 9	363.570.906	9	35.7	66	1	734	01		
FH-TR 9	363.670.906	9	36.7	66	1	734	01		
FH-TR 9	363.770.906	9	37.7	66	1	734	01		
FH-TR 9	363.870.906	9	38.7	66	1	734	01		
FH-TR 10	363.971.006	10	39.7	71.5	1	734	01		
FH-TR 10	364.071.006	10	40.7	71.5	1	734	01		
FH-TR 10	364.171.006	10	41.7	71.5	1	734	01		
FH-TR 10	364.271.006	10	42.7	71.5	1	734	01		
FH-TR 10	364.371.006	10	43.7	71.5	1	734	01		
FH-TR 11	364.471.106	11	44.7	90	1	734	01		
FH-TR 11	364.571.106	11	45.7	90	1	734	01		
FH-TR 11	364.671.106	11	46.7	90	1	734	01		
FH-TR 11	364.771.106	11	47.7	90	1	734	01		
FH-TR 11	364.871.106	11	48.7	90	1	734	01		
FH-TR 11	364.971.106	11	49.7	90	1	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet FH-TR



For Mandrels

FH-TR: go to page 76 – 79

SH-TR: go to page 80 – 81

SHK-TR: go to page 84 – 85

Note

Due to the difficult assembly and risk of breakage we deliver collets solely with the corresponding clamping device. Hence we ask you to order these as well.

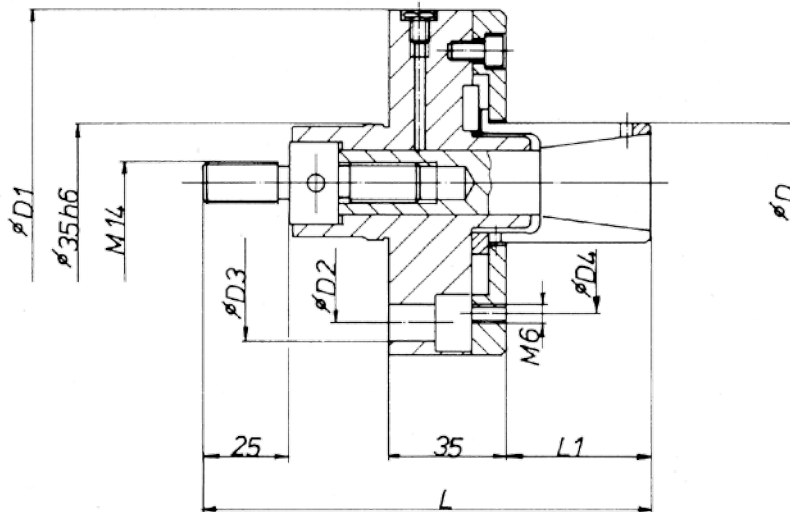
Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
FH-TR 11	365.071.106	11	50.7	90	1	734	01		
FH-TR 11	365.171.106	11	51.7	90	1	734	01		
FH-TR 11	365.271.106	11	52.7	90	1	734	01		
FH-TR 11	365.371.106	11	53.7	90	1	734	01		
FH-TR 12	365.471.206	12	54.7	101.5	1	734	01		
FH-TR 12	365.571.206	12	55.7	101.5	1	734	01		
FH-TR 12	365.671.206	12	56.7	101.5	1	734	01		
FH-TR 12	365.771.206	12	57.7	101.5	1	734	01		
FH-TR 12	365.871.206	12	58.7	101.5	1	734	01		
FH-TR 12	365.971.206	12	59.7	101.5	1	734	01		
FH-TR 12	366.071.206	12	60.7	101.5	1	734	01		
FH-TR 12	366.171.206	12	61.7	101.5	1	734	01		
FH-TR 12	366.271.206	12	62.7	101.5	1	734	01		
FH-TR 12	366.371.206	12	63.7	101.5	1	734	01		
FH-TR 13	366.471.306	13	64.7	112.5	1	734	01		
FH-TR 13	366.571.306	13	65.7	112.5	1	734	01		
FH-TR 13	366.671.306	13	66.7	112.5	1	734	01		
FH-TR 13	366.771.306	13	67.7	112.5	1	734	01		
FH-TR 13	366.871.306	13	68.7	112.5	1	734	01		
FH-TR 13	366.971.306	13	69.7	112.5	1	734	01		
FH-TR 13	367.071.306	13	70.7	112.5	1	734	01		
FH-TR 13	367.171.306	13	71.7	112.5	1	734	01		
FH-TR 13	367.271.306	13	72.7	112.5	1	734	01		
FH-TR 13	367.371.306	13	73.7	112.5	1	734	01		
FH-TR 13	367.471.306	13	74.7	112.5	1	734	01		
FH-TR 13	367.571.306	13	75.7	112.5	1	734	01		
FH-TR 13	367.671.306	13	76.7	112.5	1	734	01		
FH-TR 13	367.771.306	13	77.7	112.5	1	734	01		
FH-TR 13	367.871.306	13	78.7	112.5	1	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Flange mandrel SHM-TR



Collet: go to page 95 – 99
Retaining plate: go to page 92
Clamping taper: go to page 91
Adaptor: go to page 93

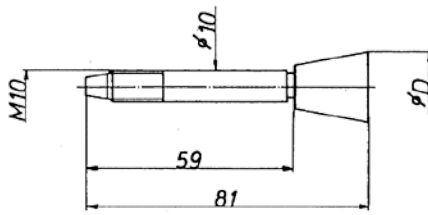
Basic mandrel

Type No.	Order No.	Mandrel size	Clamping range ϕD	D	D1 mm	D2 mm	D3 h9 mm	D4 mm	L mm	L1 mm	F max da N	Product group	Price group	Price per piece Euro
SHM-TR0	580.000.101	0	20 – 40.5	20 – 40	80	60	6.6	60	121	30	1200	734	01	
SHM-TR1	580.000.201	1	35 – 60.5	35 – 60	105	85	11	80	136	45	2000	734	01	
SHM-TR2	580.000.301	2	55 – 81	55 – 80	120	85	11	105	151	60	2000	734	01	

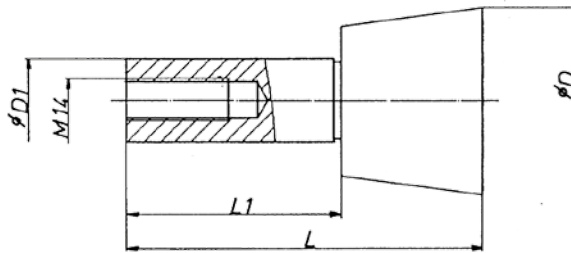
Prices upon request

D Clamping mandrels and sleeves

Clamping taper SHM-TR



Size 010 – 030



Size 110 – 230



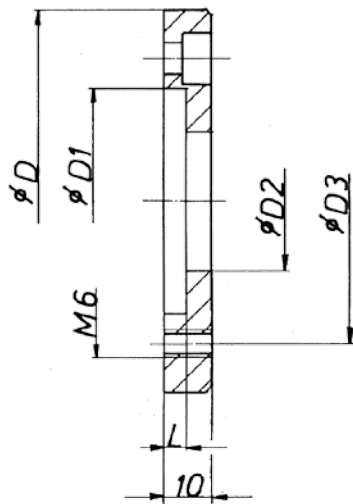
Basic mandrel: go to page 90

Type No.	Order No.	Mandrel size	Taper size	Clamping range ϕD	D1 h3 mm	D mm	L mm	L1 mm	G	Product group	Price group	Price per piece Euro	
SHM-TR0	590.000.001	0	010	20 – 25	–	16	–	–	M 10	734	01		
SHM-TR0	590.000.002	0	020	25.5 – 35	–	20	–	–	M 10	734	01		
SHM-TR0	590.000.003	0	030	35.5 – 40	–	30	–	–	M 10	734	01		
SHM-TR1	590.000.011	1	110	35 – 40	20	30	96	62	M 14	734	01		
SHM-TR1	590.000.012	1	120	40.5 – 50	20	35	96	62	M 14	734	01		
SHM-TR1	590.000.013	1	130	50.5 – 60	20	45	96	62	M 14	734	01		
SHM-TR2	590.000.021	2	210	55 – 60	25	48	106	64	M 14	734	01		
SHM-TR2	590.000.022	2	220	61 – 70	25	55	106	64	M 14	734	01		
SHM-TR2	590.000.023	2	220	71 – 80	25	65	106	64	M 14	734	01		

Prices upon request

D Clamping mandrel and sleeves

Retaining plate SHM-TR



Retaining plate



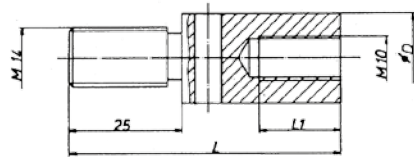
Basic mandrel: go to page 90

Type No.	Order No.	Mandrel size	Plate size	max. clamping ϕD	D mm	D1 mm	D2 mm	D3 mm	L mm	Product group	Price group	Price per piece Euro	
SHM-TR 0	590.001.011	0	011	21	80	47.5	22	60	5	734	01		
SHM-TR 0	590.001.012	0	012	23.5	80	47.5	24.5	60	5	734	01		
SHM-TR 0	590.001.013	0	013	25	80	47.5	26	60	5	734	01		
SHM-TR 0	590.001.014	0	014	28	80	47.5	29	60	5	734	01		
SHM-TR 0	590.001.015	0	015	31.5	80	47.5	32.5	60	5	734	01		
SHM-TR 0	590.001.016	0	016	35	80	47.5	36	60	5	734	01		
SHM-TR 0	590.001.017	0	017	37.5	80	47.5	38.5	60	5	734	01		
SHM-TR 0	590.001.018	0	018	40	80	47.5	41	60	5	734	01		
SHM-TR 1	590.001.111	1	111	37	105	67	38	80	5	734	01		
SHM-TR 1	590.001.112	1	112	40	105	67	41	80	5	734	01		
SHM-TR 1	590.001.113	1	113	43	105	67	44	80	5	734	01		
SHM-TR 1	590.001.114	1	114	46	105	67	47	80	5	734	01		
SHM-TR 1	590.001.115	1	115	50	105	67	51	80	5	734	01		
SHM-TR 1	590.001.116	1	116	53	105	67	54	80	5	734	01		
SHM-TR 1	590.001.117	1	117	56	105	67	57	80	5	734	01		
SHM-TR 1	590.001.118	1	118	60	105	67	61	80	5	734	01		
SHM-TR 2	590.001.211	2	211	58	120	90	59	105	5	734	01		
SHM-TR 2	590.001.212	2	212	60	120	90	62	105	5	734	01		
SHM-TR 2	590.001.213	2	213	63	120	90	65	105	5	734	01		
SHM-TR 2	590.001.214	2	214	66	120	90	68	105	5	734	01		
SHM-TR 2	590.001.215	2	215	70	120	90	72	105	5	734	01		
SHM-TR 2	590.001.216	2	216	73	120	90	75	105	5	734	01		
SHM-TR 2	590.001.217	2	217	76	120	90	78	105	5	734	01		
SHM-TR 2	590.001.218	2	218	80	120	90	82	105	5	734	01		

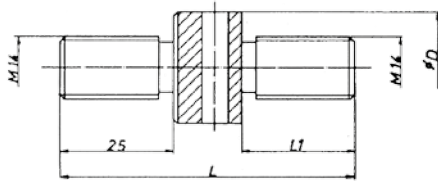
Prices upon request

D Clamping mandrel and sleeves

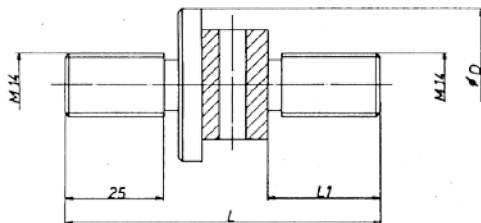
Adaptor SHM-TR



Size 0



Size 1



Size 2



Basic mandrel: go to page 90

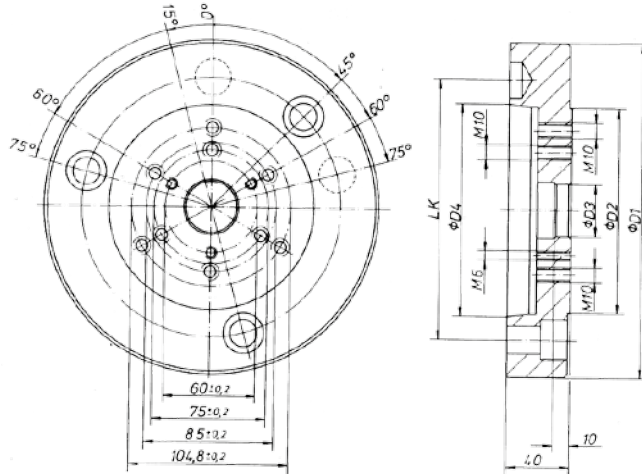
Type No.	Order No.	Mandrel size	D mm	L mm	L1 mm	Product group	Price group	Price per piece Euro	
SHM-TR 0	590.002.000	0	20	60	16	734	01		
SHM-TR 1	590.002.001	1	24.5	65	25	734	01		
SHM-TR 2	590.002.002	2	34	70	25	734	01		

Prices upon request

D Clamping mandrels and sleeves

Spacer flange for mandrel SHM-TR

For spindle heads DIN 55021 version B and DIN 55026 version A and B

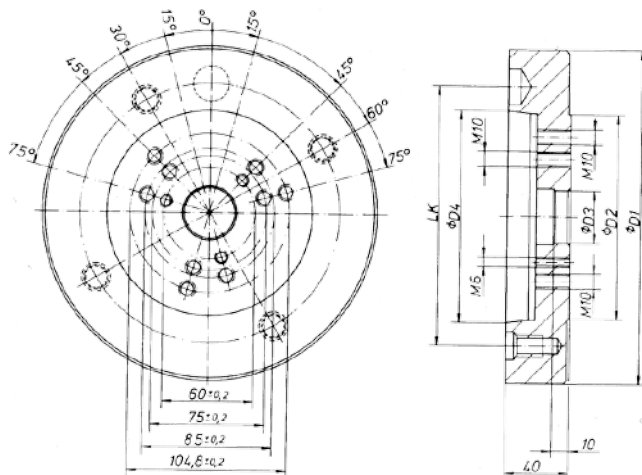


Connecting dimensions
in accordance with
DIN 55028 version A

Fastening screws not included
in the scope of delivery.

Type SHMFA-TR

Type No.	Order No.	Size	D1 mm	D2 mm	D3 G5 mm	D4 + 0.015 mm	LK ± 0.2 mm	Product group	Price group	Price per piece Euro
SHM-TR A5	600.000.005	A5	135	-	35	82.563	104.8	734	01	
SHM-TR A6	600.000.006	A6	167	135	35	106.375	133.4	734	01	
SHM-TR A8	600.000.008	A8	212	135	35	136.719	171.4	734	01	



For spindle heads
DIN 55022 and DIN 55027

Connecting dimensions
in accordance with
DIN 55028 version C

Adjustable bolt and collar nut
included in the scope of delivery.

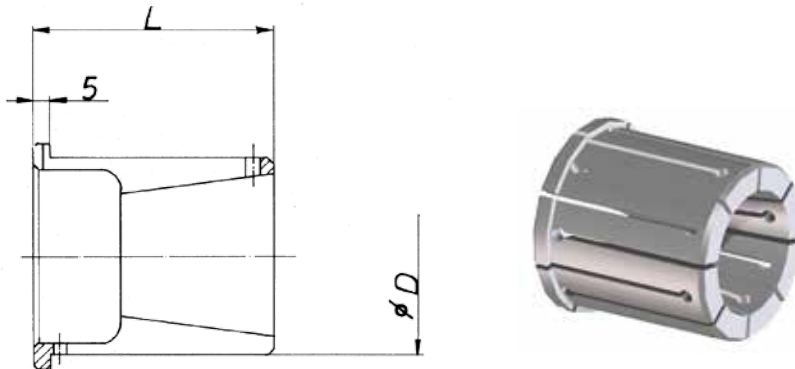
Type SHMFC-TR

Type No.	Order No.	Size	D1 mm	D2 mm	D3 G5 mm	D4 + 0.015 mm	LK ± 0.2 mm	Product group	Price group	Price per piece Euro
SHM-TR C5	600.000.015	C5	137	-	35	82.563	104.8	734	01	
SHM-TR C6	600.000.016	C6	172	135	35	106.375	133.4	734	01	
SHM-TR C8	600.000.018	C8	222	135	35	136.719	171.4	734	01	

Prices upon request

D Clamping mandrels and sleeves

Collet SHM-TR



Basic mandrel: go to page 90

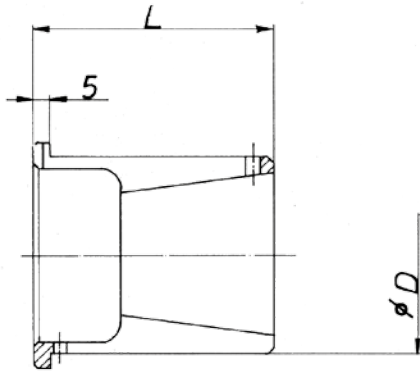
Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	Taper	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SHM-TR 0	582.000.106	0	20	010	40	0.5	734	01		
SHM-TR 0	582.050.106	0	20.5	010	40	0.5	734	01		
SHM-TR 0	582.100.106	0	21	010	40	0.5	734	01		
SHM-TR 0	582.150.106	0	21.5	010	40	0.5	734	01		
SHM-TR 0	582.200.106	0	22	010	40	0.5	734	01		
SHM-TR 0	582.250.106	0	22.5	010	40	0.5	734	01		
SHM-TR 0	582.300.106	0	23	010	40	0.5	734	01		
SHM-TR 0	582.350.106	0	23.5	010	40	0.5	734	01		
SHM-TR 0	582.400.106	0	24	010	40	0.5	734	01		
SHM-TR 0	582.450.106	0	24.5	010	40	0.5	734	01		
SHM-TR 0	582.500.106	0	25	010	40	0.5	734	01		
SHM-TR 0	582.550.106	0	25.5	020	40	0.5	734	01		
SHM-TR 0	582.600.106	0	26	020	40	0.5	734	01		
SHM-TR 0	582.650.106	0	26.5	020	40	0.5	734	01		
SHM-TR 0	582.700.106	0	27	020	40	0.5	734	01		
SHM-TR 0	582.750.106	0	27.5	020	40	0.5	734	01		
SHM-TR 0	582.800.106	0	28	020	40	0.5	734	01		
SHM-TR 0	582.850.106	0	28.5	020	40	0.5	734	01		
SHM-TR 0	582.900.106	0	29	020	40	0.5	734	01		
SHM-TR 0	582.950.106	0	29.5	020	40	0.5	734	01		
SHM-TR 0	583.000.106	0	30	020	40	0.5	734	01		
SHM-TR 0	583.050.106	0	30.5	020	40	0.5	734	01		
SHM-TR 0	583.100.106	0	31	020	40	0.5	734	01		
SHM-TR 0	583.150.106	0	31.5	020	40	0.5	734	01		
SHM-TR 0	583.200.106	0	32	020	40	0.5	734	01		
SHM-TR 0	583.250.106	0	32.5	020	40	0.5	734	01		
SHM-TR 0	583.300.106	0	33	020	40	0.5	734	01		
SHM-TR 0	583.350.106	0	33.5	020	40	0.5	734	01		
SHM-TR 0	583.400.106	0	34	020	40	0.5	734	01		
SHM-TR 0	583.450.106	0	34.5	020	40	0.5	734	01		
SHM-TR 0	583.500.106	0	35	020	40	0.5	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet SHM-TR



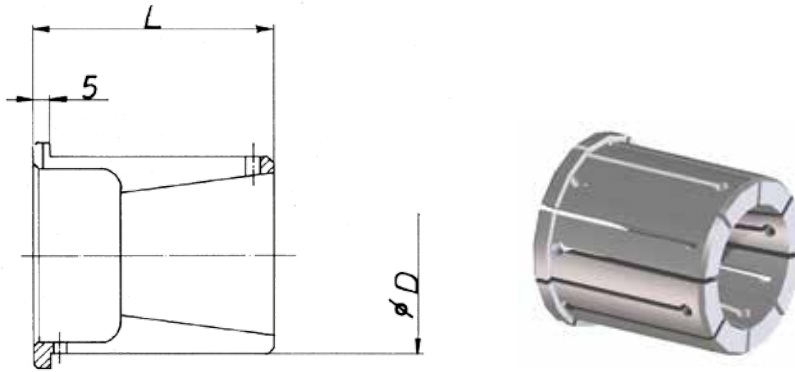
Type No.	Order No.	Mandrel size	Clamping range Ø D	Taper	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SHM-TR 0	583.550.106	0	35.5	030	40	0.5	734	01		
SHM-TR 0	583.600.106	0	36	030	40	0.5	734	01		
SHM-TR 0	583.650.106	0	36.5	030	40	0.5	734	01		
SHM-TR 0	583.700.106	0	37	030	40	0.5	734	01		
SHM-TR 0	583.750.106	0	37.5	030	40	0.5	734	01		
SHM-TR 0	583.800.106	0	38	030	40	0.5	734	01		
SHM-TR 0	583.850.106	0	38.5	030	40	0.5	734	01		
SHM-TR 0	583.900.106	0	39	030	40	0.5	734	01		
SHM-TR 0	583.950.106	0	39.5	030	40	0.5	734	01		
SHM-TR 0	584.000.106	0	40	030	40	0.5	734	01		
SHM-TR 1	583.600.206	0	35	110	55	0.5	734	01		
SHM-TR 1	583.500.206	1	35.5	110	55	0.5	734	01		
SHM-TR 1	583.550.206	1	36	110	55	0.5	734	01		
SHM-TR 1	583.650.206	1	36.5	110	55	0.5	734	01		
SHM-TR 1	583.700.206	1	37	110	55	0.5	734	01		
SHM-TR 1	583.750.206	1	37.5	110	55	0.5	734	01		
SHM-TR 1	583.800.206	1	38	110	55	0.5	734	01		
SHM-TR 1	583.850.206	1	38.5	110	55	0.5	734	01		
SHM-TR 1	583.900.206	1	39	110	55	0.5	734	01		
SHM-TR 1	583.950.206	1	39.5	110	55	0.5	734	01		
SHM-TR 1	584.000.206	1	40	110	55	0.5	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet SHM-TR



Basic mandrel: go to page 90

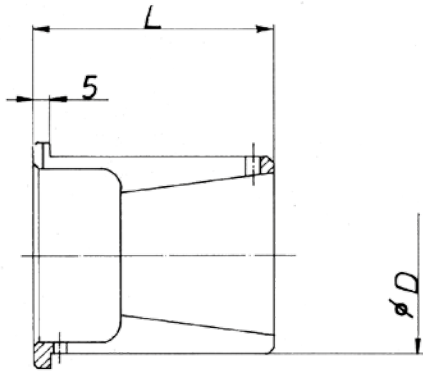
Type No.	Order No.	Mandrel size	Clamping range Ø D	Taper	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SHM-TR 1	584.050.206	1	40.5	120	55	0.5	734	01		
SHM-TR 1	584.100.206	1	41	120	55	0.5	734	01		
SHM-TR 1	584.150.206	1	41.5	120	55	0.5	734	01		
SHM-TR 1	584.200.206	1	42	120	55	0.5	734	01		
SHM-TR 1	584.250.206	1	42.5	120	55	0.5	734	01		
SHM-TR 1	584.300.206	1	43	120	55	0.5	734	01		
SHM-TR 1	584.350.206	1	43.5	120	55	0.5	734	01		
SHM-TR 1	584.400.206	1	44	120	55	0.5	734	01		
SHM-TR 1	584.450.206	1	44.5	120	55	0.5	734	01		
SHM-TR 1	584.500.206	1	45	120	55	0.5	734	01		
SHM-TR 1	584.550.206	1	45.5	120	55	0.5	734	01		
SHM-TR 1	584.600.206	1	46	120	55	0.5	734	01		
SHM-TR 1	584.650.206	1	46.5	120	55	0.5	734	01		
SHM-TR 1	584.700.206	1	47	120	55	0.5	734	01		
SHM-TR 1	584.750.206	1	47.5	120	55	0.5	734	01		
SHM-TR 1	584.800.206	1	48	120	55	0.5	734	01		
SHM-TR 1	584.850.206	1	48.5	120	55	0.5	734	01		
SHM-TR 1	584.900.206	1	49	120	55	0.5	734	01		
SHM-TR 1	584.950.206	1	49.5	120	55	0.5	734	01		
SHM-TR 1	585.000.206	1	50	120	55	0.5	734	01		

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet SHM-TR



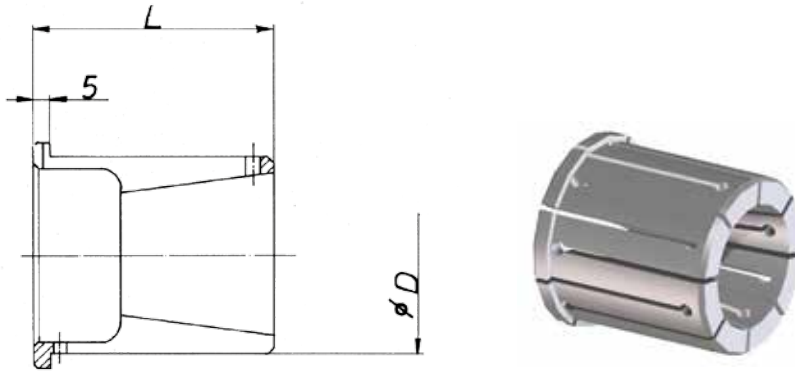
Type No.	Order No.	Mandrel size	Clamping range $\varnothing D$	Taper	L mm	Expansion mm	Product group	Price group	Price per piece Euro
SHM-TR 1	585.050.206	1	50.5	130	55	0.5	734	01	
SHM-TR 1	585.100.206	1	51	130	55	0.5	734	01	
SHM-TR 1	585.150.206	1	51.5	130	55	0.5	734	01	
SHM-TR 1	585.200.206	1	52	130	55	0.5	734	01	
SHM-TR 1	585.250.206	1	52.5	130	55	0.5	734	01	
SHM-TR 1	585.300.206	1	53	130	55	0.5	734	01	
SHM-TR 1	585.350.206	1	53.5	130	55	0.5	734	01	
SHM-TR 1	585.400.206	1	54	130	55	0.5	734	01	
SHM-TR 1	585.450.206	1	54.5	130	55	0.5	734	01	
SHM-TR 1	585.500.206	1	55	130	55	0.5	734	01	
SHM-TR 1	585.550.206	1	55.5	130	55	0.5	734	01	
SHM-TR 1	585.600.206	1	56	130	55	0.5	734	01	
SHM-TR 1	585.650.206	1	56.5	130	55	0.5	734	01	
SHM-TR 1	585.700.206	1	57	130	55	0.5	734	01	
SHM-TR 1	585.750.206	1	57.5	130	55	0.5	734	01	
SHM-TR 1	585.800.206	1	58	130	55	0.5	734	01	
SHM-TR 1	585.850.206	1	58.5	130	55	0.5	734	01	
SHM-TR 1	585.900.206	1	59	130	55	0.5	734	01	
SHM-TR 1	585.950.206	1	59.5	130	55	0.5	734	01	
SHM-TR 1	586.000.206	1	60	130	55	0.5	734	01	
SHM-TR 2	585.500.306	2	55	210	70	1	734	01	
SHM-TR 2	585.600.306	2	56	210	70	1	734	01	
SHM-TR 2	585.700.306	2	57	210	70	1	734	01	

can also be ordered vulcanised or with custom ground design

Prices upon request

D Clamping mandrels and sleeves

Collet SHM-TR



Basic mandrel: go to page 90

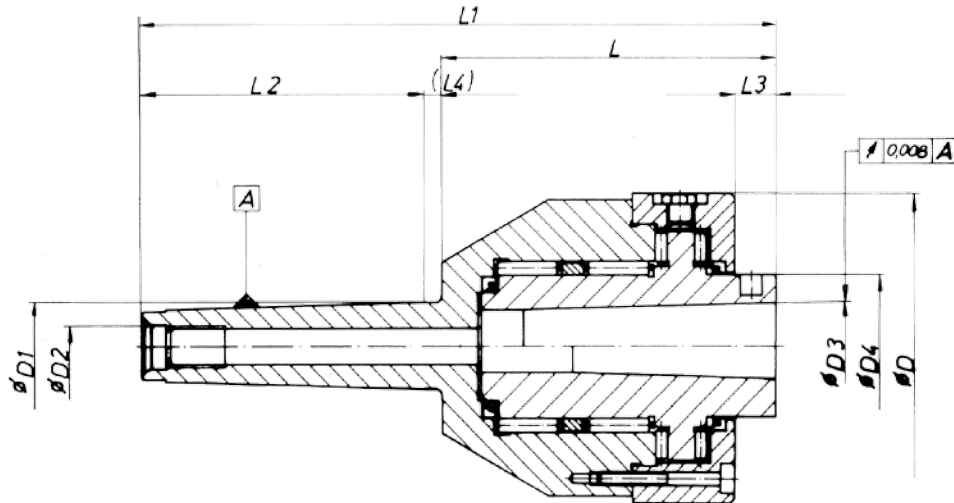
Type No.	Order No.	Man-drel size	Clamping range $\varnothing D$	Taper	L mm	Expansion mm	Product group	Price group	Price per piece Euro	
SHM-TR 2	585.800.306	2	58	210	70	1	734	01		
SHM-TR 2	585.900.306	2	59	210	70	1	734	01		
SHM-TR 2	586.000.306	2	60	210	70	1	734	01		
SHM-TR 2	586.100.306	2	61	220	70	1	734	01		
SHM-TR 2	586.200.306	2	62	220	70	1	734	01		
SHM-TR 2	586.300.306	2	63	220	70	1	734	01		
SHM-TR 2	586.400.306	2	64	220	70	1	734	01		
SHM-TR 2	586.500.306	2	65	220	70	1	734	01		
SHM-TR 2	586.600.306	2	66	220	70	1	734	01		
SHM-TR 2	586.700.306	2	67	220	70	1	734	01		
SHM-TR 2	586.800.306	2	68	220	70	1	734	01		
SHM-TR 2	586.900.306	2	69	220	70	1	734	01		
SHM-TR 2	587.000.306	2	70	220	70	1	734	01		
SHM-TR 2	587.100.306	2	71	230	70	1	734	01		
SHM-TR 2	587.200.306	2	72	230	70	1	734	01		
SHM-TR 2	587.300.306	2	73	230	70	1	734	01		
SHM-TR 2	587.400.306	2	74	230	70	1	734	01		
SHM-TR 2	587.500.306	2	75	230	70	1	734	01		
SHM-TR 2	587.600.306	2	76	230	70	1	734	01		
SHM-TR 2	587.700.306	2	77	230	70	1	734	01		
SHM-TR 2	587.800.306	2	78	230	70	1	734	01		
SHM-TR 2	587.900.306	2	79	230	70	1	734	01		
SHM-TR 2	588.000.306	2	80	230	70	1	734	01		

can also be ordered vulcanised or with custom ground design

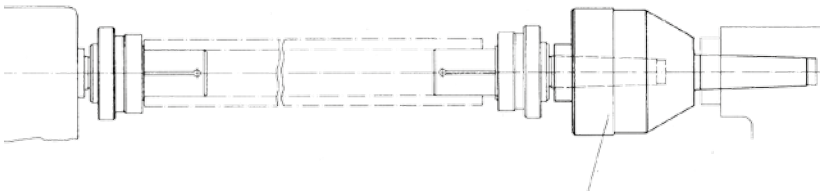
Prices upon request

D Clamping mandrels and sleeves

Continuous tailstock coupling MRA-TR



Size 1 – 2 n max. 4000 1/min.
 Size 3 – 6 n max. 3000 1/min.



Continuous tailstock coupling MRA – TR 1 to 6

Type No.	Order No.	Size.	Shaft MK	Nose MK	D mm	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	D1 mm	D2 mm	D3 mm	D4 mm
MRA-TR 1	910.000.100	1	3	2	86	95	181	81	12	5	23.825	M 12	17.780	40
MRA-TR 2	910.000.200	2	3	3	56	95	181	81	12	5	23.825	M 12	23.825	40
MRA-TR 3	910.000.300	3	4	3	100	125	234	102.5	13	6.5	31.267	M 16	23.825	50
MRA-TR 4	910.000.400	4	4	4	100	125	234	102.5	13	6.5	31.267	M 16	31.267	50
MRA-TR 5	910.000.500	5	5	3	100	125	261	129.5	13	6.5	44.399	M 20	23.825	50
MRA-TR 6	910.000.600	6	5	4	100	125	261	129.5	13	6.5	44.399	M 20	31.267	50

Type No.	Order No.	Product group	Price group	Price per piece Euro
MRA-TR 1	910.000.100	734	01	
MRA-TR 2	910.000.200	734	01	
MRA-TR 3	910.000.300	734	01	
MRA-TR 4	910.000.400	734	01	
MRA-TR 5	910.000.500	734	01	
MRA-TR 6	910.000.600	734	01	

Application

Picking up a second mandrel type FH-TR for long workpieces

Features

Concentricity 0.008 mm

Prices upon request

E Standard and special collet applications



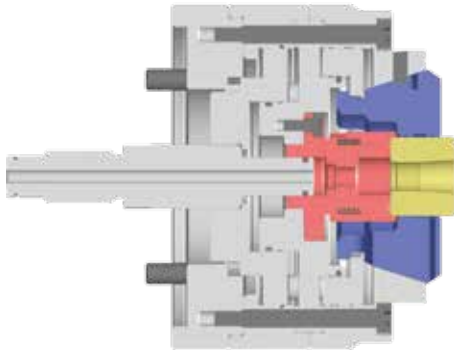
As complete solutions we offer standard and special clamping devices “Made in Germany”. Our solutions include design/development, manufacturing and assembly, all on our own. The comprehensive service on site ensures the long lifetime of our products.

Concept phase and project management ensure compliance with the objectives. Highest reproducibility of our products is a matter of course.

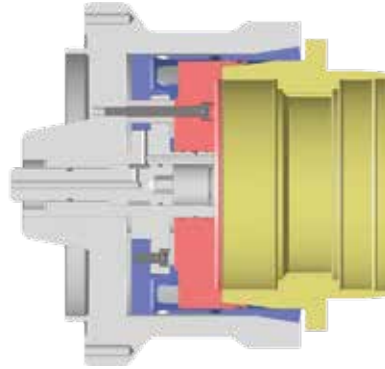
Some examples of our range of approximately 400 own designs include inter alia:

- Diaphragm jaw chucks
- Friction welding systems
- Optimised set-up time clamping solutions
- Needle-nose Collet chucks
- Segmented collet chucks
- Special design clamping chucks
- Precision collet systems for highest concentricity demands ($< 3\mu\text{m}$)
- 0 point clamping fixtures

E Standard and special collet applications






Special chucks SKSE






**Special collet chucks SZFE
for small spaces SKSE**

Standard clamping systems

	Diaphragm chucks	MSF	104
	Clamping chucks pull-back	FSK-AZ	105
	Clamping chucks deadlength	FSK-AF	106

Special clamping systems

	Collet chucks high precision	SZF-HP	107
	Collet chucks high precision gear cutting	SZF-HPS	108
	Collet chucks high precision 2 clamping Ø	SZF-HP2	109

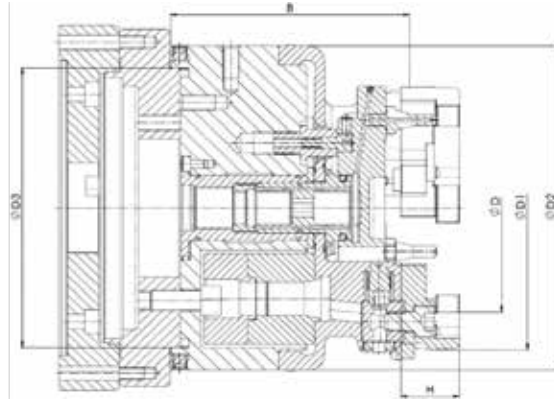
E Standard and special collet applications

Special clamping systems

	Quick-change collet chucks	SZF-SW	110
	Chucks for stationary machines	FSK-ST2	111
	Needle-nose collet chucks	SZF-SZ	112
	Friction welding collet chucks	SZF-RS	113
	Center drive collet chucks	SZF-MA	114
	Chucks in special design	FSK-S	115
	Hydraulic chucks special design	HDS-S	116
	Clamping claw chucks for machining impeller		117
	Two jaw, low shear force compensating chucks		118
	Bolt chucks		119

E Standard and special collet applications

Original SWS High performance precision membrane chucks MSF



Type No.	Order No.	Dia-phragm mm	Jaws No. mm	D1 mm	D2 mm	D3 mm	B mm	H mm	clamping Ø range [D] mm	n -1 Max. U/ min	Weight g	Product group	Price group	Price per piece Euro
200-43	510.367	4	3	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
200-44	510.545	4	4	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
200-53	510.369	5	3	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
200-54	521.412	5	4	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
200-63	500.160	6	3	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
200-64	521.419	6	4	175	200	172	142.5	<= 47	30 - 145	3500		51	E	
315-53	521.840	5	3	302.5	315	287	142.5	<= 47	48 - 245	1500		51	E	
315-56	521.841	5	6	302.5	315	287	142.5	<= 47	48 - 245	1500		51	E	
315-63	500.351	6	3	302.5	315	287	142.5	<= 47	48 - 245	1500		51	E	
315-66	500.706	6	6	302.5	315	287	142.5	<= 47	48 - 245	1500		51	E	
400-66	500.739	6	6	387.5	400	372	142.5	<= 47	140 - 345	800		51	E	

FEATURES

WORKPIECES (Examples):

- gear wheels
- wheel hubs

LOCATION:

- turning, grinding, gear cutting

TAPER TYPE:

- with SWS quick-change system (page 122)
- cylindric taper

ACTUATION:

- release is power-operated with drawbar

ADVANTAGES AND BENEFITS:

- large clamping range
- nearly maintenance-free
- concentricity < 10µm
- large opening stroke
- jaws removable up to 5 times.

WHEN ORDERING

state the order number: Example:
 Type No. 200-43
 Order No. 510.367

NOTE

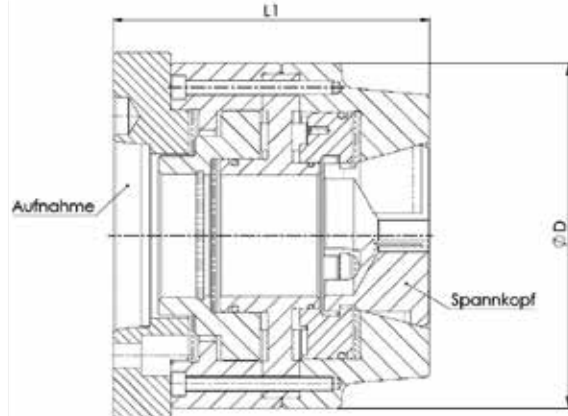
- Ø range flexible end-stop for MFS 200 for 3 and 6 jaws possible
- clamping distance in regard to the Ø = 1.5 mm, when jaw height = 35 mm
- the permissible speed may not be exceeded
- other diaphragm thickness layers on request
- integrated centrifugal compensation

Prices upon request

E Standard and special collet applications

Original SWS High performance precision chuck system FSK

Original SWS High performance precision chuck pull-back FSK-AZ



Type No.	Order No.	Size	Taper	Chucks SK. SKS. SKG	Weight g	Product group	Price group	Price per piece Euro	
FSK032-AZ-A4	501.287	32	A4	32		51	B		
FSK032-AZ-A5	530.335	32	A5	32		51	B		
FSK042-AZ-A5	500.899	42	A5	42		51	B		
FSK042-AZ-A6	501.334	42	A6	42		51	B		
FSK052-AZ-A5	530.464	52	A5	52		51	B		
FSK052-AZ-A6	501.289	52	A6	52		51	B		
FSK065-AZ-A5	501.291	65	A5	65		51	B		
FSK065-AZ-A6	501.292	65	A6	65		51	B		
FSK065-AZ-A8	501.333	65	A8	65		51	B		
FSK080-AZ-A6	511.349	80	A6	80		51	B		
FSK080-AZ-A8	501.326	80	A8	80		51	B		
FSK100-AZ-A6	501.329	100	A6	100		51	B		
FSK100-AZ-A8	501.330	100	A8	100		51	B		
FSK100-AZ-A11	501.331	100	A11	100		51	B		

FEATURES

LOCATION:

- turning, grinding, gear cutting

WORKPIECES (Examples):

- gear wheels
- wheel hubs

TAPER TYPE:

- with SWS quick-change system (page 122)
- cylindric taper

ACTUATION:

- release is power-operated with drawbar

ADVANTAGES AND BENEFITS:

- large clamping range
- nearly maintenance-free
- concentricity < 10µm m

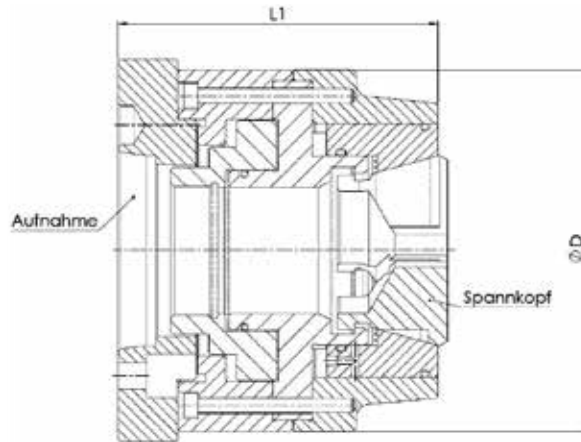
WHEN ORDERING

state the order number: Example:
Order No. 501.287 (without chuck)

Prices upon request

E Standard and special collet applications

Original SWS High performance precision chuck deadlength FSK-AF



Type Nr.	Order No.	Size	Taper	Chucks SK. SKS. SKG	Weight g	Product group	Price group	Price per piece Euro	
FSK032-AF-A4	501.286	32	A4	32		51	B		
FSK032-AF-A5	530.319	32	A5	32		51	B		
FSK042-AF-A5	500.890	42	A5	42		51	B		
FSK042-AF-A6	501.280	42	A6	42		51	B		
FSK052-AF-A5	530.332	52	A5	52		51	B		
FSK052-AF-A6	501.288	52	A6	52		51	B		
FSK065-AF-A5	501.046	65	A5	65		51	B		
FSK065-AF-A6	501.290	65	A6	65		51	B		
FSK065-AF-A8	501.332	65	A8	65		51	B		
FSK080-AF-A6	511.170	80	A5	80		51	B		
FSK080-AF-A8	501.275	80	A8	80		51	B		
FSK100-AF-A6	501.327	100	A6	100		51	B		
FSK100-AF-A8	501.328	100	A8	100		51	B		

FEATURES

LOCATION:

- turning, grinding, gear cutting

WORKPIECES (Examples):

- gear wheels
- wheel hubs

TAPER TYPE:

- with SWS quick-change system (page 122)
- cylindric taper

ACTUATION:

- release is power-operated with drawbar

ADVANTAGES AND BENEFITS:

- large clamping range
- nearly maintenance-free
- concentricity < 10µm

WHEN ORDERING

state the order number: Example:
Order No. 501.286 (without chuck)

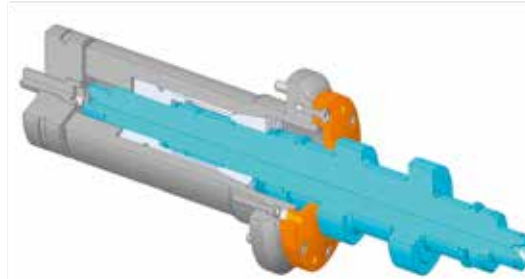
Prices upon request

E Standard and special collet applications

Original SWS High performance precision special clamping systems

Original SWS High performance precision chucks

High Precision SZF-HP



Clamping range \varnothing : 20 – 100 mm

Workpiece height: 50 – 250 mm

Concentricity: 0.003 mm

Run-out accuracy: 0.005 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

As an alternative to the hydraulic expansion collet, the high precision chuck SZF-HP stands out with its durability and great accuracies. The relatively large opening stroke pardons clamping without workpiece. Additionally, the high-precision collet is confined in its clamping distance during unintentional clamping without workpiece and will not be damaged.

Highest demands on concentricity and reliability play an integral part of gearbox manufacturing, where our SZF-HP is used throughout the world. Also highly recommended is the use of our collets, when safe workpiece clamping is required with great accuracy on the outer diameter.

APPLICATION – examples:

- turning; milling; honing; circular grinding; superfinish/microfinish; gear cutting; gear honing; tool grinding; gear skiving

WORKPIECES – Examples:

- transmission shafts
- cam shaft
- shafts

Advantages and benefits:

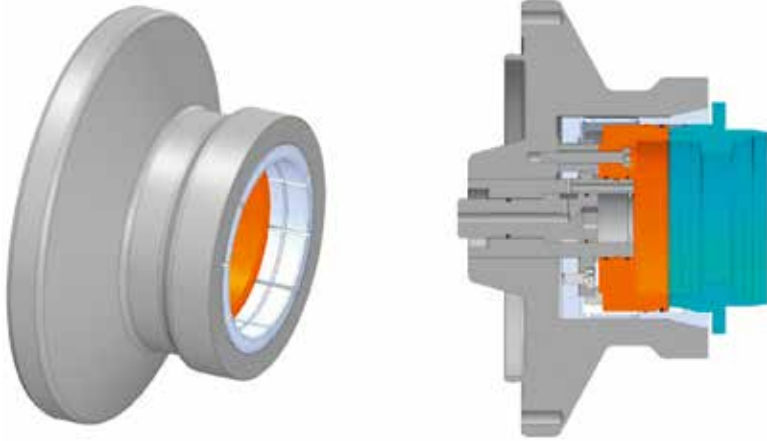
- large opening stroke 0.500 mm
- better loading and unloading safety
- reliable processes for gear wheel manufacturing
- no collet damage during clamping without workpiece
- extremely less fatigue for sleeves
- easy set-up with easy collet replacement

Prices upon request

E Standard and special collet applications

Original SWS High performance precision collet chucks

High Precision SZF-HPS – special design for geared parts



Clamping range \varnothing : 50 – 200 mm

Workpiece height: 40 – 120 mm

Concentricity: 0.005 mm

Run-out accuracy: 0.003 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

For workpiece clamping of toothed parts with a clamping diameter of up to 200mm our special collet chucks SZF-HPS guarantees highest precision. Fitted with integrated ventilation control and internal cooling, there is hardly a clamping task in the gearing sector that our SZF-HPS does not meet.

Precision, reliability and durability are important criteria for the gearing industry. The integrated SWS quick-change system guarantees accuracy of 5 μm for exchanges and thus increases easy production setup.

APPLICATION – examples:

- turning; milling; honing; circular grinding; superfinish/microfinish; gear cutting; gear honing; tool grinding; gear skiving

WORKPIECES – Examples:

- gear wheels
- toothed components

Advantages and benefits:

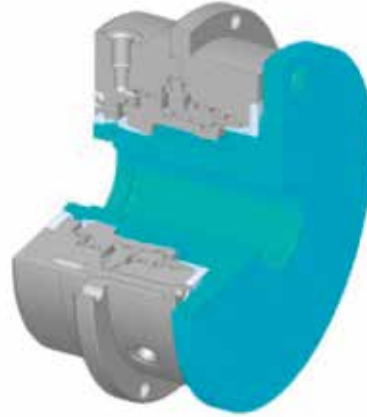
- large opening stroke 0.500 mm
- large clamping range
- better loading and unloading safety
- reliable processes for gear wheel manufacturing
- no collet damage during clamping without workpiece
- extremely less fatigue of collets

Prices upon request

E Standard and special collet applications

Original SWS High performance precision chucks

High Precision SZF-HP2



Clamping range Ø: 20 – 100 mm

Workpiece height: 10 – 150 mm

Concentricity: 0.010 mm

Run-out accuracy: 0.005 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

We guarantee high-precision workpiece clamping on a component with two differing clamping diameters when using our high precision chucks SZF-HP2. Only one pneumatic-powered medium feed clamps both diameters at the same time. This guarantees a cost-effective precision clamping for complex components.

For longer workpieces with two different clamping diameters, the tolerance field of these diameters often are not correlated, which is prone to cause clamping problems for conventional collet solutions. Our SZF-HP2 addresses this challenge and guarantees secure and precise workpiece clamping in most confined space with only one medium feed.

APPLICATION – examples:

- turning; milling; drilling

WORKPIECES – Examples:

- gear wheels
- toothed components
- flanges

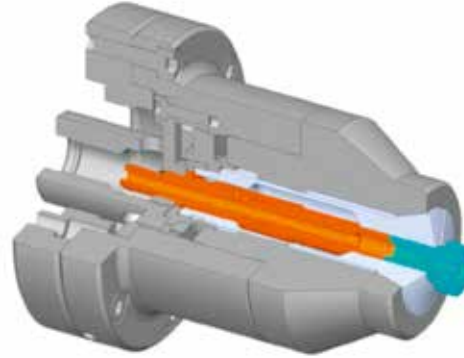
Advantages and benefits:

- clamping of two differing clamping diameters with varying tolerances
- precision clamping in smallest spaces
- economical medium supply
- clamping of both Ø with one supply line

Prices upon request

E Standard and special collet applications

Original SWS High performance precision quick-change Collet chucks SZF-SW



Clamping range \varnothing : 4 – 100 mm
Workpiece height: 10 – 150 mm

Concentricity: 0.005 mm
Run-out accuracy: 0.005 mm

Workpiece loading:
 – manual loading
 – automatic loading

FEATURES

For clamping rotation symmetric workpieces with small production volumes we recommend our quick-change collet chucks SZF-SW. The collet's time saving bayonet quick release reduces set-up of a new workpiece to a minimum. We use only hardened and ground collet made of high quality material with highest accuracy requirements.

The workpiece end-stop is quick to assemble and can be fitted with integrated ventilation control on request. A built-in ejection device for optimized workpiece discharge or an integrated internal cooling system round off a nearly optimal external clamping system. Available on request.

APPLICATION – examples:

- turning; honing; friction welding; circular grinding; superfinish/microfinish; tool grinding

WORKPIECES – Examples:

- thin cylindric workpieces
- milling cutter
- thread-cutting tap

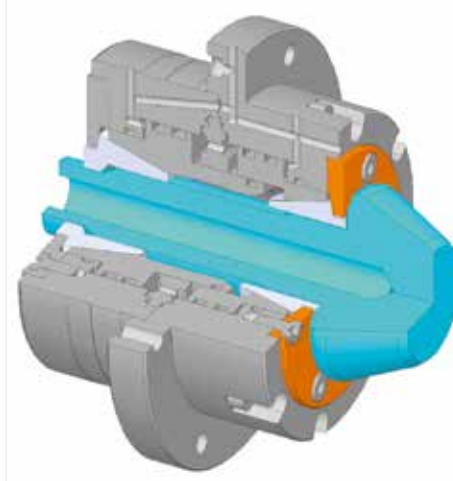
Advantages and benefits:

- collet with quick-change system
- short set-up times
- high-precision collets application
- integrated ventilation control
- internal cooling
- including ejection fixture

Prices upon request

E Standard and special collet applications

Original SWS High performance precision collet chucks FSZ-ST2 for stationary machines



Clamping range \varnothing : 10 – 120 mm

Workpiece height: 80 – 300 mm

Concentricity: 0.010 mm

Run-out accuracy: 0.010 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Our clamping head chuck SKS-ST was developed for use in stationary machines particularly for clamping of forging and extrusion blanks.

Large variations in the clamping diameter range and the slightly tapered geometry of the clamping points demand high requirements for the clamping device. The solid design ensures stable workpiece clamping at both clamping points via medium feed, with concentricity within the machined areas of 0.010 mm .

APPLICATION – examples:

- drilling; milling; turning

WORKPIECES – Examples:

- impact extrusion blanks
- forging blanks
- gear shafts
- bevel shafts
- pinion shafts
- rotation symmetric workpieces

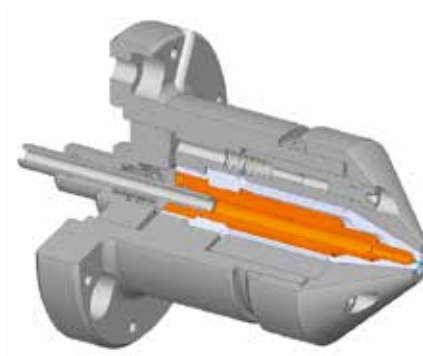
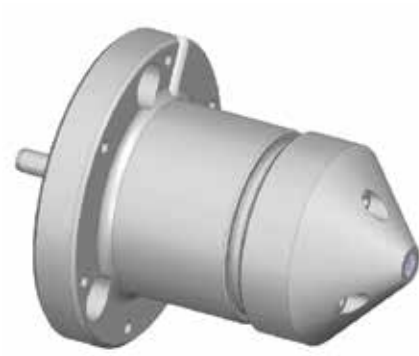
Advantages and benefits:

- clamping of slightly tapered workpieces; lifting geometry
- medium feed for both clamping areas
- robust design
- concentricity within the areas

Prices upon request

E Standard and special collet applications

Original SWS High performance precision needle nose chuck SZF-SZ



Clamping range Ø: 0.5 – 3.5 mm

Concentricity: 0.010 mm

Workpiece loading:

Workpiece height: 10 – 40 mm

- manual loading
- automatic loading

FEATURES

Even for the smallest clamping diameters SWS has a tried and tested clamping solution. Our needle nose chuck securely clamps the smallest workpieces with Ø 0.5 mm with highest accuracy. Additionally integrated is an end-stop with ventilation control. Therefore positioning is ideal for fully automatic loading.

The integrated release of the collet reduces the non-productive time to a minimum and this for the production of highly precise concentricity requirements.

APPLICATION – examples:

- turning; honing; circular grinding; superfinish/microfinish; drilling; internal grinding

WORKPIECES – Examples:

- needles
- injectors
- injection housing

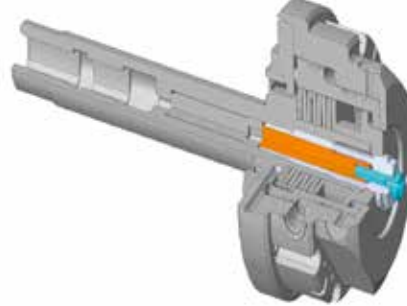
Advantages and benefits:

- clamping of smallest diameters
- integrated end-stop with KSS internal cooling
- reduction of non-productive times

Prices upon request

E Standard and special collet applications

Original SWS High performance precision friction welding chucks SZF-RS



Clamping range \varnothing : 2 – 13 mm
Workpiece height: 4 – 60 mm

Concentricity: 0.050 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Maximum precision friction welding requires the use of our friction welding chuck SZF-RS. The solid design for high loads ensures highest machining results. The workpieces attach automatically, granting consistent machining results. This guarantees secure workpiece clamping in case of unwanted media failure.

Hydraulic actuation triggers the release. The friction welding chuck SZF-RS is designed in such a way that no alignment or reference point search is required when changing the chuck. This reduces the non-productive time to a minimum.

The heat generated by friction welding has no influence on the clamping reliability and the machining outcome.

APPLICATION – examples:

- friction welding

WORKPIECES – Examples:

- motor: valves
- shafts

Advantages and benefits:

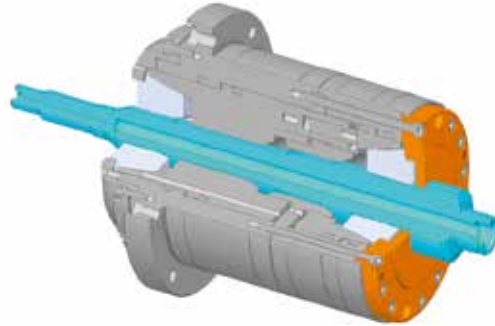
- solid compact design
- spring assembly clamping
- chuck exchange without alignment
- no additional safety features required: Clamping with media pressure=0
- low weight, low mass of the chuck

Prices upon request

E Standard and special collet applications

Original SWS High performance precision center drive

Collet chucks SZF-MA



Clamping range Ø: 10 – 300 mm

Concentricity: 0.010 mm

Workpiece loading:

Workpiece height: 150 – 1.500 mm

Run-out accuracy: 0.010 mm

- manual loading
- automatic loading

FEATURES

SWS is one of the leading suppliers of clamping solutions for center drive machining. High precision requirements, which our center drive collet chucks SZF-MA guarantees, ensures a great range of applications for simultaneous machining of the ends when turning, grinding and honing.

The spring loaded inherent clamping of the chucks guarantees uniform workpiece clamping even at two different clamping diameters and thus consistent machining results are achieved.

Depending on the machine concept, the compact design ensures low-maintenance use in center drive machining.

APPLICATION – examples:

- turning; machining of the ends; milling; honing; internal grinding; micro finish; circular grinding; superfinish; gun drilling

WORKPIECES – Examples:

- axles
- driveshafts
- pressure tanks
- print cylinders
- gear shafts
- cardan shafts
- pipes
- torsion bars
- shafts

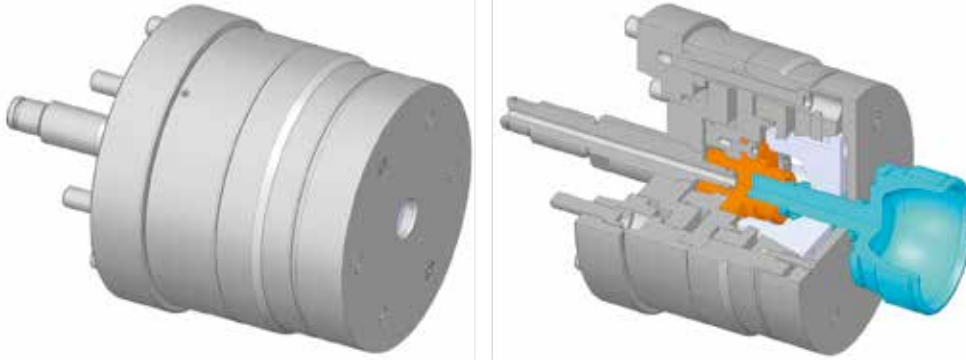
Advantages and benefits:

- reliable mounting radially and axially
- robust clamping positions on both sides of the chuck flanges
- secure clamping even when contour is tapered

Prices upon request

E Standard and special collet applications

Original SWS High performance precision chuck special design FSK-S



Clamping range \varnothing : 5 – 260 mm

Workpiece height: 5 – 300 mm

Concentricity: 0.010 mm

Run-out accuracy: 0.010 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

Our special design chucks are used for various applications. Whether when clamping cylindrical workpieces or for gear cutting we meet all customer requirements. Our standard clamping chucks of the SK series or special clamping chucks with a wide range of geometric requirements or designs are applied.

The robust construction meets all demands. When positioning the workpieces for clamping of toothed components, our clamping chuck supports loading without the necessity that workpieces have to be fed in the correct position. A specially designed spring loaded feeding support plate ensures trouble-free chuck insertion. This saves costs during loading and ensures flexible production for older machine tools.

APPLICATION – examples:

- drilling; turning; friction welding; circular grinding; superfinish/micro finish; gear cutting; gear skiving

WORKPIECES – Examples:

- wheel hubs
- rotation symmetric workpieces
- toothed components

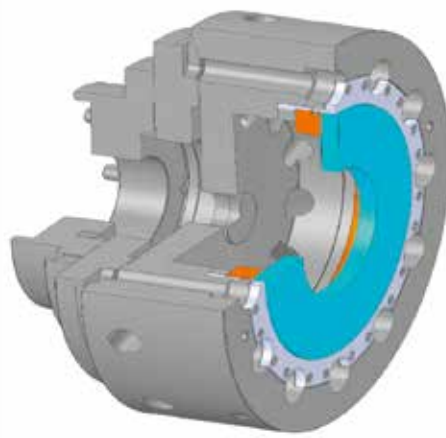
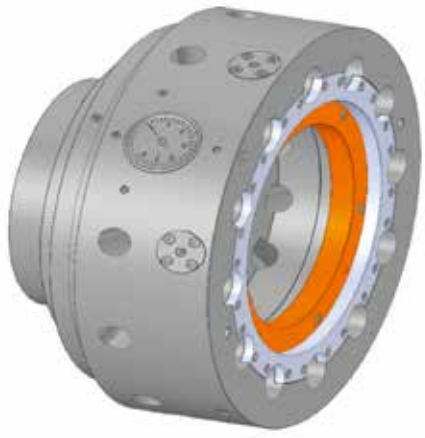
Advantages and benefits:

- use of standard chucks SK
- use of special chucks
- integrated positioning for toothed components
- highest requirements for accuracy
- individual opening stroke for the chuck can be produced

Prices upon request

E Standard and special collet applications

Original SWS High performance precision hydraulic expansion special clamping device HDS-S



Clamping range Ø: 100 – 400 mm

Workpiece height: 20 – 100 mm

Concentricity: 0.010 mm

Run-out accuracy: 0.020 mm

Workpiece loading:

– manual loading

FEATURES

For sensitive clamping even with large workpieces we recommend our hydraulic expansion special clamping device HDS-S. In this case, with the hydraulic expansion chuck grinding disks will be gently clamped. The clamping force is adjusted manually and can be regulated individually. The applied clamping force can be read out and adjusted on the integrated manometer. A minimum clamping force of 0.5 Nm ensures versatile use.

When grinding the clamping diameter in the machine, concentricity of <math><5\mu\text{m}</math> can be achieved. This is required for workpiece clamping of thin-walled workpieces with outstanding machining results.

If a fully automated workpiece clamping is required, we supply of course the appropriate solution. Please contact us.

APPLICATION – examples:

- turning; circular grinding; surface grinding ; micro finish; hard milling

WORKPIECES – Examples:

- abrasive disks
- thin-walled workpieces
- bearing rings

Advantages and benefits:

- individually adjustable clamping force
- easy to read applied clamping force
- usable for large workpieces

Prices upon request

E Standard and special collet applications

Claw chucks for machining impeller



Clamping range \varnothing : 35 – 200 mm

Opening stroke: > 2mm

Concentricity: 0.01 mm

Run-out accuracy: 0.005 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

The workpieces are inserted in a carbide holder. The claw chucks pivot and the workpiece is pressed against the claw chucks along the tool holder by means of a second pressure tube. The clamping is axial. The shaft is centered “flying” and then supported by the tailstock.

APPLICATION – examples:

- turning; grinding

WORKPIECES – Examples:

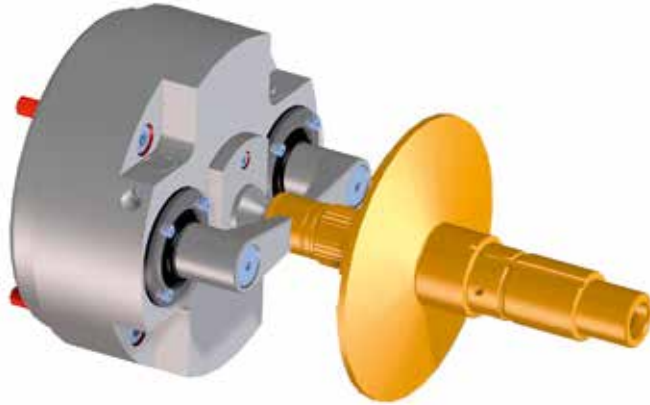
- impeller
- amature shaft

Advantages and benefits:

- high reproducibility
- short cycle times

E Standard and special collet applications

Two jaw, low shear force compensating chuck



Clamping range \varnothing : 10 – 70 mm

Opening stroke: 2 – 5 mm

Concentricity: < 0.002 mm

Reproducibility: 0.002

Workpiece loading:

- manual loading
- automatic loading

FEATURES

The SWS two jaw, low shear force compensating chuck is specifically designed for applications where workpieces are picked up between the points and must be transferred. It is particularly important that the workpiece's position is not altered.

The chuck is spring actuated and released by the cylinder on the machine. This ensures that the clamping cylinder has no impact on the clamping.

If less force is required, for instance due to the workpiece contour, the clamping spring can be easily exchanged. The clamping force can therefore be easily adjusted within minutes.

APPLICATION – examples:

- turning; grinding

WORKPIECES – Examples:

- cam shafts
- gear shafts

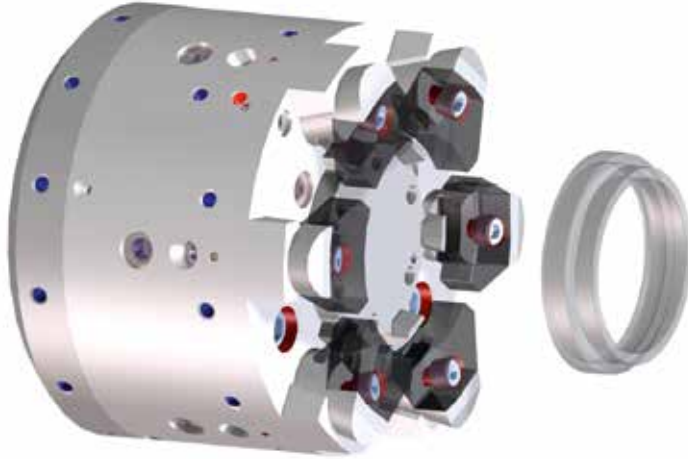
Advantages and benefits:

- extremely high accuracy
- completely sealed

Prices upon request

E Standard and special collet applications

Bolt chucks with and without compensation featuring 3, 4 and 6 jaws



Clamping range \varnothing : 50 – 250 mm
Repeatability: 0.002

Concentricity: 0.005 mm
Run-out accuracy: 0.005

Opening stroke: 0.5 – 1.0 mm

Workpiece loading:

- manual loading
- automatic loading

FEATURES

The SWS bolt chuck was specially designed for users with small production volumes but similar components. Due to specially manufactured change jaws, we can achieve concentricity spanning workpieces <0,005.

APPLICATION – examples:

- turning; grinding; gear cutting

WORKPIECES – Examples:

- sliding collars
- bearing rings

Advantages and benefits:

- high concentricity
- impervious to contamination due to metallicly sealed construction
- short cycle times due to short strokes
- aktive pull-down
- fast converting to other parts

Prices upon request

F Standard jaw chucks or special design

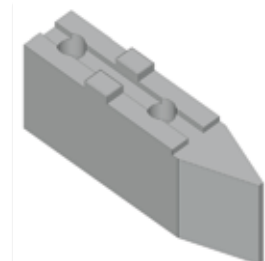
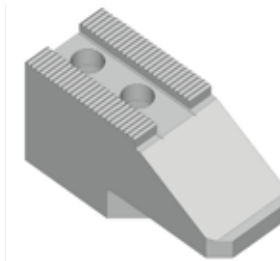
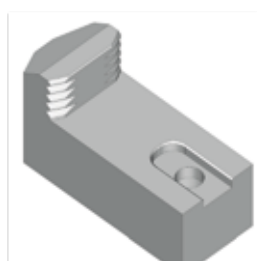


For decades our customers have appreciated the high precision of our clamping jaws.

The combination of selected material and our in-house heat treatment is the guarantee for high-quality clamping jaws. For these application-specific properties of our jaws we use high-quality materials in our production.

For optimal repeatability when changing jaws, we grind the jaw location (grooves or fine serrations). This guarantees optimal manufacturing results for our customer's production. We manufacture clamping jaws in special design:

- Top jaws fine serrations (hart/soft)
- Top jaws with groove (hart/soft)
- Special jaws



For your notes

G Machine equipment

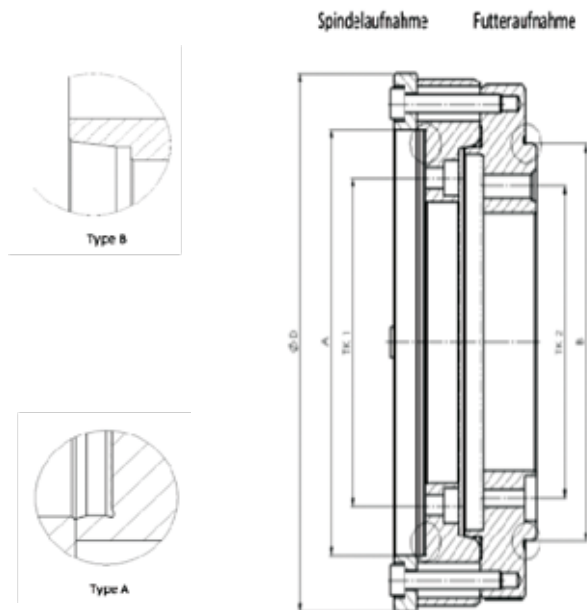


For efficient use in production, high-performance clamping devices require appropriate accessories. Here, we provide solutions wherever the focus is on set-up optimizing or ensuring quality to improve the OEE key figures.

- Slip rings
- Machine interfaces
- Measuring equipment and gauges
- Assembly accessory
- Quick-change system, applicable for all clamping devices (non-proprietary)
- Clamping cylinder interfaces
- Spindle flanges
- Fixtures in the area of automated loading and unloading
- Special design center points

G Machine equipment

Precision quick-change system



Spindle taper

Type	Type No.	Order No.	D mm	A mm	TK1 mm	Weight kg	Product group	Price group	Price per piece Euro
Type A	SWS-SA-A1	510.843	220	130	142		71	B	
Type A	SWS-SA-A2	510.846	220	165	180		71	B	
Type A	SWS-SA-A3	520.045	220	182	140		71	B	
Type A	SWS-SA-A4	510.849	315	206	226		71	B	
Type A	SWS-SA-A5	510.852	315	260	285		71	B	
Type B	SWS-SA-B1	510.855	220	A5	104		71	B	
Type B	SWS-SA-B2	500.771	220	A6	133.4		71	B	
Type B	SWS-SA-B3	510.858	220	A8	171.4		71	B	

Futteraufnahme

Type	Type No.	Order No.	B mm	TK2 mm	Weight kg	Product group	Price group	Price per piece Euro
Type C	SWS-FA-C1	500.624	140	133.4		71	B	
Type C	SWS-FA-C2	500.495	170	133.4		71	B	
Type C	SWS-FA-C3	500.551	172	114		71	B	
Type C	SWS-FA-C4	510.861	182	140		71	B	
Type C	SWS-FA-C5	510.862	300	266		71	B	
Type D	SWS-FA-D1	510.863	A5	104.8		71	B	
Type D	SWS-FA-D2	500.497	A6	133.4		71	B	

When ordering state the order number: example
 Order No.
 510.843

Prices upon request

H Service and maintenance



SWS Service.

Our service package includes design, production, assembly and service on site. Our inhouse maintenance area is second to none. A professional project management ensures compliance with the design requirements, the production processes and on-time delivery.

We do not promise – we guarantee.

One of our particularly sought-after services is the non-proprietary and highly accurate maintenance of deployed collets, clamping sleeves, chucks and mandrels. With refurbished clamping devices, we achieve up to 60% cost savings for our customers compared to new purchases. Another focus is the optimization and modernization of existing or deregistered clamping devices.

Herewith we focus on the individual requirements of our customers' production. Together with our customers, the specialists of SWS – Spannwerkzeuge work on-site to create solutions to improve productivity.

Our highest priority is preventing mistakes. Due to consistent cause elimination and further development we have attained a very high quality level.

H Service and maintenance



Overhaul of clamping devices

Your employees can reach our helpline daily during business hours from 7 am - 5 pm at 0049 - (0) 6661-9622-0. Also for unexpected problems on holidays or issues, which don't arise during office hours we are providing a 24/7 hotline.

Flexible, fast, customer-oriented.

Customer service:

On site – support by our technical sales team and service technicians.

Flexibility:

Special clamping devices from design to on-site set-up all from one single source.

High degree of added value:

Nearly 100% vertical range of manufacture with almost 100 years of experience in the clamping devices sector.

Warehousing:

All our products are stocked on customer's request.

Fast delivery:

Short delivery times; when machine is down within one week.

Saving by overhauling:

In our service department we overhaul clamping devices, non-proprietary, at low cost. This saves you money and time and this with a replacement value guarantee.

I Special Hirth joints and series



Hirth couplings

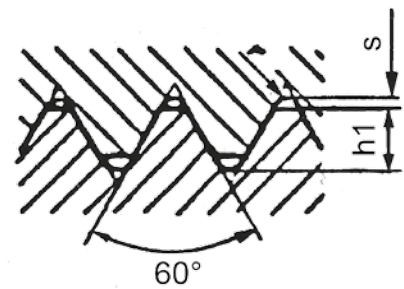
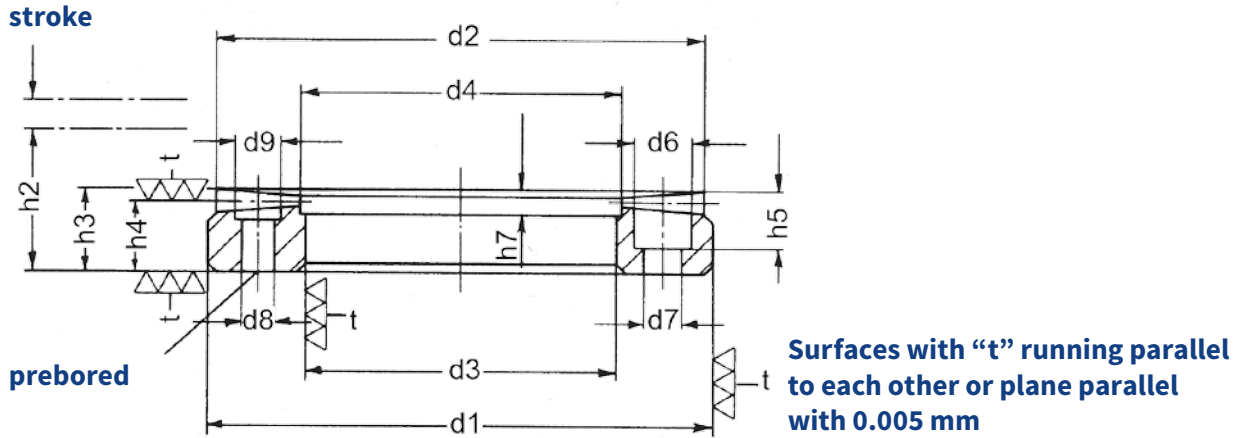
Positive connection and the capacity of self-centering are the features of the SWS Hirth couplings. These qualities designate our gear rings for use as space-saving element for high torques or for indexing with highest reproducibility.

We can guarantee for all areas of application for our product the high demands that are placed on our gear rings during use in machine tools. This includes a highly accurate reproducibility of positioning and transmission of extremely high torques with long lifetime.

Additionally, we produce Hirth couplings in accordance with customer drawings at the highest level.

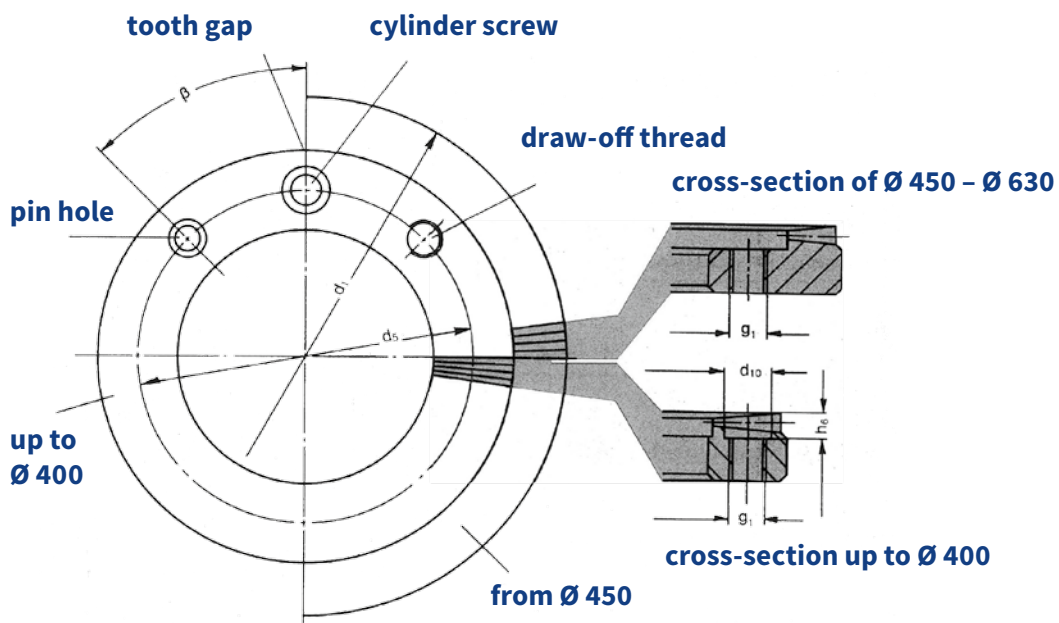
We will be happy to help.

I Special Hirth joints and series

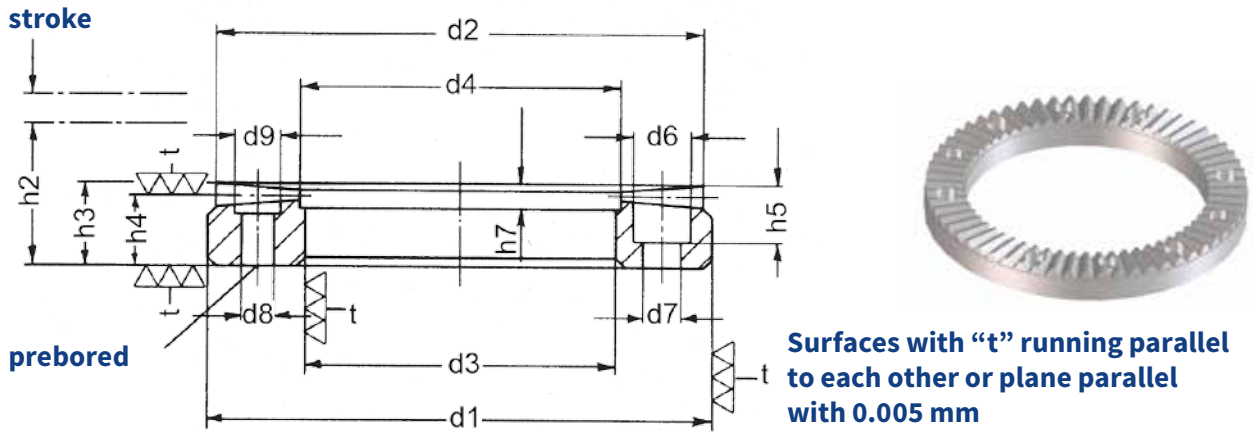


Accuracy $\pm 3''$ (bzw.) $\pm 2''$

Hardened serration, HRC 54 \pm 2

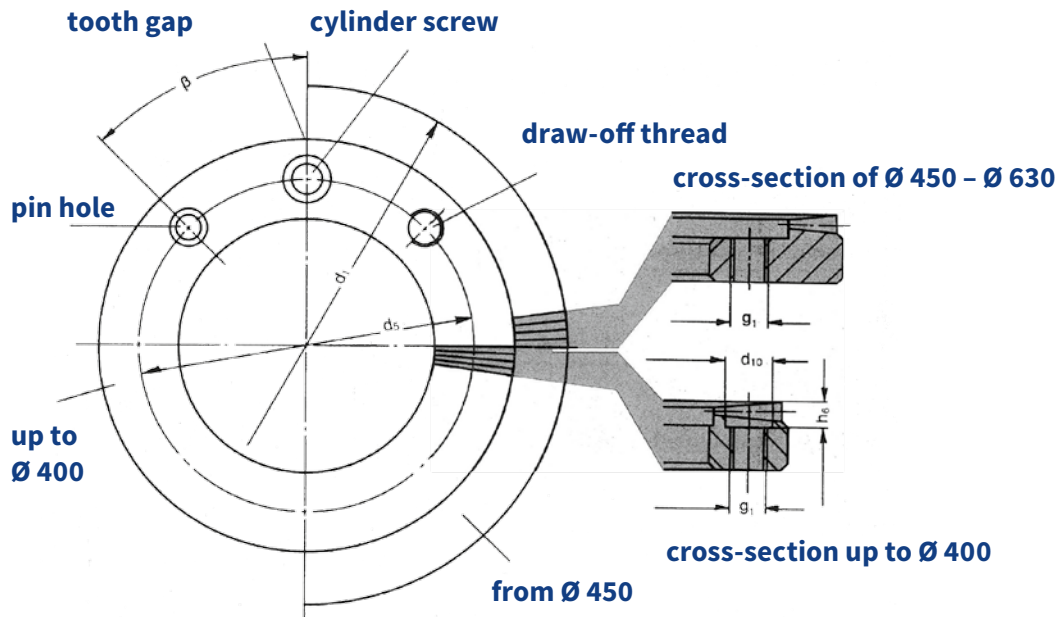


I Special Hirth joints and series



Type No.	Order No.	Tooth No.	d1 Ø h6 mm	d2 Ø mm	Stroke min mm	Height h1 mm	Mount bore	Pin hole	β	Draw- off thread	r mm	s mm	d3 Ø H6 mm	d4 Ø mm	d5 Ø ± 0.2 mm	d6 Ø mm	d7 Ø mm
KN 20/24	020.002.024	24	50	49	3.5	3.75	4x90°	2x180°	45°	2x180°	0.6	0.6	20	21	35	11	6.6
KN 20/36	020.002.036	36	50	49	2.5	2.70	4x90°	2x180°	45°	2x180°	0.3	0.4	20	21	35	11	6.6
KN 21/36	020.002.136	36	100	99	4.0	4.77	6x60°	2x180°	30°	2x180°	0.9	0.9	60	61	80	11	6.6
KN 21/48	020.002.148	48	100	99	3.5	3.81	6x60°	2x180°	30°	2x180°	0.6	0.6	60	61	80	11	6.6
KN 21/72	020.002.172	72	100	99	2.5	2.74	6x60°	2x180°	30°	2x180°	0.3	0.4	60	61	80	11	6.6
KN 22/48	020.002.248	48	125	124	3.6	4.32	6x60°	2x180°	30°	2x180°	0.9	0.9	85	86	105	11	6.6
KN 22/72	020.002.272	72	125	124	3.5	2.90	6x60°	2x180°	30°	2x180°	0.6	0.6	85	86	105	11	6.6
KN 22/96	020.002.296	96	125	124	3.3	2.51	6x60°	2x180°	30°	2x180°	0.3	0.4	85	86	105	11	6.6
KN 23/60	020.002.360	60	160	159	3.8	4.52	6x60°	2x180°	30°	2x180°	0.9	0.9	120	121	140	11	6.6
KN 23/72	020.002.372	72	160	159	3.8	4.21	6x60°	2x180°	30°	2x180°	0.6	0.6	120	121	140	11	6.6
KN 23/96	020.002.396	96	160	159	3.4	3.52	6x60°	2x180°	30°	2x180°	0.3	0.4	120	121	140	11	6.6
KN 24/72	020.002.472	72	200	199	4.2	4.83	6x60°	2x180°	30°	2x180°	0.9	0.9	150	151	175	15	9
KN 24/96	020.002.496	96	200	199	3.5	3.84	6x60°	2x180°	30°	2x180°	0.6	0.6	150	151	175	15	9
KN 24/120	020.024.120	120	200	199	3.3	3.51	6x60°	2x180°	30°	2x180°	0.3	0.4	150	151	175	15	9
KN 25/96	020.002.596	96	250	249	3.7	4.36	10x36°	2x180°	54°	2x180°	0.9	0.9	200	201	225	15	9
KN 25/120	020.025.120	120	250	249	3.5	3.85	10x36°	2x180°	54°	2x180°	0.6	0.6	200	201	225	15	9
KN 25/144	020.025.144	144	250	249	2.5	2.91	10x36°	2x180°	54°	2x180°	0.6	0.6	200	201	225	15	9
KN 26/96	020.002.696	96	280	279	4.5	5.21	10x36°	2x180°	54°	2x180°	0.9	0.9	230	231	255	15	9
KN 26/120	020.026.120	120	280	279	3.0	3.63	10x36°	2x180°	54°	2x180°	0.6	0.6	230	231	255	15	9
KN 26/144	020.026.144	144	280	279	3.2	3.47	10x36°	2x180°	54°	2x180°	0.6	0.6	230	231	255	15	9
KN 27/96	020.002.796	96	320	319	4.5	5.45	10x36°	2x180°	54°	2x180°	1.2	1.2	260	261	290	15	9
KN 27/120	020.027.120	120	320	319	5.0	5.43	10x36°	2x180°	54°	2x180°	0.6	0.6	260	261	290	15	9
KN 27/144	020.027.144	144	320	319	4.0	4.23	10x36°	2x180°	54°	2x180°	0.6	0.6	260	261	290	15	9

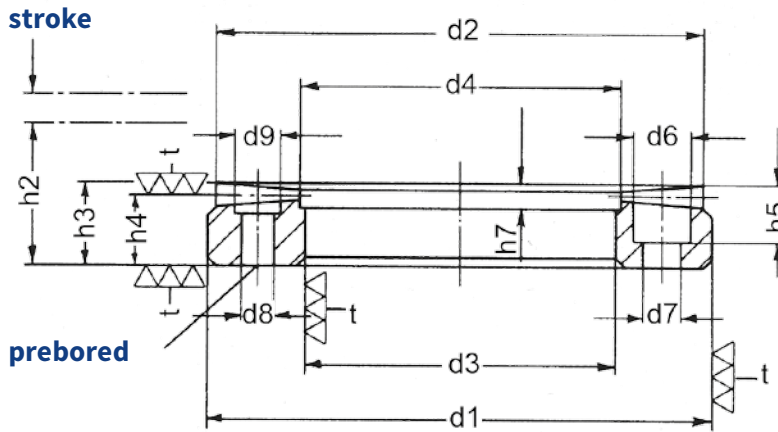
Prices upon request



Type No.	Order No.	d8 Ø mm	d9 Ø mm	d10 Ø mm	g1	h2 ± 0.2 mm	h3 mm	h4 ± 0.1 mm	h5 mm	h6 mm	h7 mm	Product group	Price group	Price per piece Euro	
KN 20/24	020.002.024	5	7	7	M 6	20	11.6	10	8.5	4	4	707	01		
KN 20/36	020.002.036	5	7	7	M 6	20	11.2	10	8.5	4	4	707	01		
KN 21/36	020.002.136	5	7	7	M 6	25	14.5	12.5	9.5	5	5	707	01		
KN 21/48	020.002.148	5	7	7	M 6	25	14.1	12.5	9.5	5	5	707	01		
KN 21/72	020.002.172	5	7	7	M 6	25	13.7	12.5	9.5	5	5	707	01		
KN 22/48	020.002.248	7	10	10	M 6	30	16.7	15	12	5	5	707	01		
KN 22/72	020.002.272	7	10	10	M 6	30	16.1	15	12	5	5	707	01		
KN 22/96	020.002.296	7	10	10	M 6	30	16.05	15	12	5	5	707	01		
KN 23/60	020.002.360	7	10	10	M 6	30	16.8	15	12	6	5	707	01		
KN 23/72	020.002.372	7	10	10	M 6	30	16.8	15	12	6	5	707	01		
KN 23/96	020.002.396	7	10	10	M 6	30	16.6	15	12	6	5	707	01		
KN 24/72	020.002.472	7	10	12	M 8	35	19.5	17.5	14	6	5	707	01		
KN 24/96	020.002.496	7	10	12	M 8	35	19.1	17.5	14	6	5	707	01		
KN 24/120	020.024.120	7	10	12	M 8	35	19.1	17.5	14	6	5	707	01		
KN 25/96	020.002.596	7	10	12	M 8	35	19.2	17.5	13.5	5	5	707	01		
KN 25/120	020.025.120	7	10	12	M 8	35	19.1	17.5	13.5	5	5	707	01		
KN 25/144	020.025.144	7	10	12	M 8	35	18.7	17.5	13.5	5	5	707	01		
KN 26/96	020.002.696	7	10	12	M 8	40	22.15	20	14	6	5.5	707	01		
KN 26/120	020.026.120	7	10	12	M 8	40	21.4	20	14	6	5.5	707	01		
KN 26/144	020.026.144	7	10	12	M 8	40	21.4	20	14	6	5.5	707	01		
KN 27/96	020.002.796	7	10	12	M 8	40	22.1	20	14.5	6.5	5.5	707	01		
KN 27/120	020.027.120	7	10	12	M 8	40	22.4	20	14.5	6.5	5.5	707	01		
KN 27/144	020.027.144	7	10	12	M 8	40	21.8	20	14.5	6.5	5.5	707	01		

Prices upon request

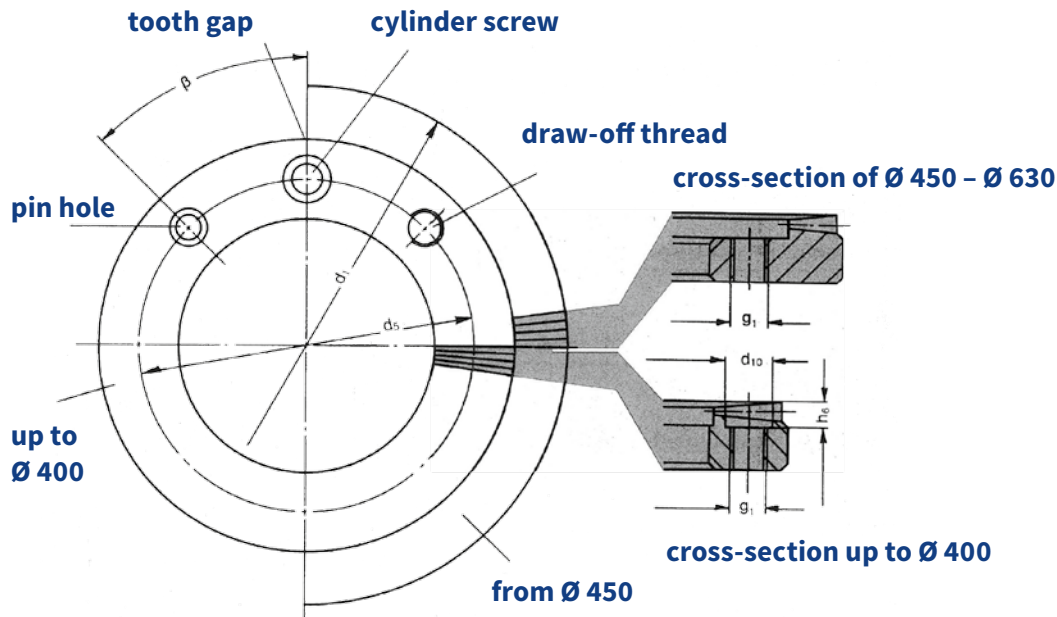
I Special Hirth joints and series



surfaces with “t” running parallel to each other or plane parallel with 0.005 mm

Type No.	Order No.	Tooth No.	d1 Ø h6 mm	d2 Ø mm	Stroke min mm	Height h1 mm	Mount bore	Pin hole	β	Draw- off thread	r mm	s mm	d3 Ø H6 mm	d4 Ø mm	d5 Ø ± 0.2 mm	d6 Ø mm
KN 28/144	020.028.144	144	360	359	4.5	4.98	10x36°	2x180°	54°	2x180°	0.6	0.6	300	301	330	18
KN 28/180	020.028.180	180	360	359	3.5	3.63	10x36°	2x180°	54°	2x180°	0.6	0.6	300	301	330	18
KN 28/240	020.028.240	240	360	359	3.0	3.04	10x36°	2x180°	54°	2x180°	0.3	0.4	300	301	330	18
KN 29/144	020.029.144	144	400	399	4.2	4.84	10x36°	2x180°	54°	2x180°	0.9	0.9	340	341	370	18
KN 29/180	020.029.180	180	400	399	4.0	4.23	10x36°	2x180°	54°	2x180°	0.6	0.6	340	341	370	18
KN 29/240	020.029.240	240	400	399	2.4	2.72	10x36°	2x180°	54°	2x180°	0.6	0.6	340	341	370	18
KN 30/144	020.030.144	144	450	449	4.0	4.89	12x30°	4x90°	15°	4x90°	1.2	1.2	350	400	380	18
KN 30/180	020.030.180	180	450	449	3.5	4.09	12x30°	4x90°	15°	4x90°	0.9	0.9	350	400	380	18
KN 30/240	020.030.240	240	450	449	3.0	3.29	12x30°	4x90°	15°	4x90°	0.6	0.6	350	400	380	18
KN 31/180	020.031.180	180	500	499	5.4	5.74	12x30°	4x90°	15°	4x90°	0.6	0.6	400	450	430	18
KN 31/240	020.031.240	240	500	499	3.5	3.86	12x30°	4x90°	15°	4x90°	0.6	0.6	400	450	430	18
KN 31/360	020.031.360	360	500	499	2.6	2.78	12x30°	4x90°	15°	4x90°	0.3	0.4	400	450	430	18
KN 32/240	020.032.240	240	560	559	4.2	4.54	12x30°	4x90°	15°	4x90°	0.6	0.6	450	502	480	20
KN 32/288	020.032.288	288	560	559	3.2	3.48	12x30°	4x90°	15°	4x90°	0.6	0.6	450	502	480	20
KN 32/360	020.032.360	360	560	559	3.2	3.22	12x30°	4x90°	15°	4x90°	0.3	0.4	450	502	480	20
KN 33/240	020.033.240	240	630	629	5.0	5.33	12x30°	4x90°	15°	4x90°	0.6	0.6	520	580	550	20
KN 33/288	020.033.288	288	630	629	3.8	4.14	12x30°	4x90°	15°	4x90°	0.6	0.6	520	580	550	20
KN 33/360	020.033.360	360	630	629	3.6	3.75	12x30°	4x90°	15°	4x90°	0.3	0.4	520	580	550	20

Prices upon request

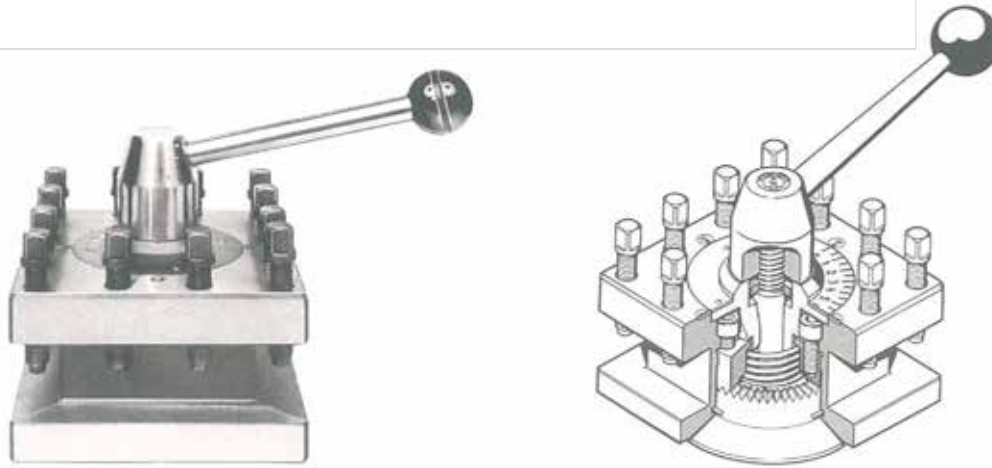


Type No.	Order No.	d7 Ø mm	d8 Ø mm	d9 Ø mm	d10 Ø mm	g1	h2 ± 0.2 mm	h3 mm	h4 ± 0.1 mm	h5 mm	h6 mm	h7 mm	Product group	Price group	Price per piece Euro
KN 28/144	020.028.144	11	9	12	12	M 8	45	24.7	22.5	15	6	5	707	01	
KN 28/180	020.028.180	11	9	12	12	M 8	45	24.0	22.5	15	6	5	707	01	
KN 28/240	020.028.240	11	9	12	12	M 8	45	23.8	22.5	15	6	5	707	01	
KN 29/144	020.029.144	11	9	12	12	M 8	45	24.5	22.5	15	6	5	707	01	
KN 29/180	020.029.180	11	9	12	12	M 8	45	24.3	22.5	15	6	5	707	01	
KN 29/240	020.029.240	11	9	12	12	M 8	45	23.6	22.5	15	6	5	707	01	
KN 30/144	020.030.144	11	9	-	-	M 8	50	26.8	25	11	-	5	707	01	
KN 30/180	020.030.180	11	9	-	-	M 8	50	26.6	25	11	-	5	707	01	
KN 30/240	020.030.240	11	9	-	-	M 8	50	26.4	25	11	-	5	707	01	
KN 31/180	020.031.180	11	9	-	-	M 8	50	27.6	25	11	-	6	707	01	
KN 31/240	020.031.240	11	9	-	-	M 8	50	26.7	25	11	-	6	707	01	
KN 31/360	020.031.360	11	9	-	-	M 8	50	26.2	25	11	-	6	707	01	
KN 32/240	020.032.240	14	11	-	-	M 10	55	29.5	27.5	13	-	5	707	01	
KN 32/288	020.032.288	14	11	-	-	M 10	55	29.0	27.5	13	-	5	707	01	
KN 32/360	020.032.360	14	11	-	-	M 10	55	29.0	27.5	13	-	5	707	01	
KN 33/240	020.033.240	14	11	-	-	M 10	55	29.9	27.5	13	-	5	707	01	
KN 33/288	020.033.288	14	11	-	-	M 10	55	29.3	27.5	13	-	5	707	01	
KN 33/360	020.033.360	14	11	-	-	M 10	55	29.2	27.5	13	-	5	707	01	

Prices upon request

J Steel tool holder

Fourfold – tool holder with coupling type ST



Type No.	Order No.	Size	Square size holder mm	Hight lower plate mm	Hight holder mm	Height/ width steel holder mm	Weight ca. kg	Product group	Price group	Price per piece Euro	
ST/0/85	210.850.000	0	85	10	45	18 x 12	3.0	724	01		
ST/1/105	211.050.100	1	105	15	68	29 x 17	6	724	01		
ST/2/115	211.150.200	2	115	15	68	34 x 20	7	724	01		
ST/3/125	211.250.300	3	125	16	72	34 x 19	8.5	724	01		
ST/4/140	211.400.400	4	140	18	82	40 x 22	12.5	724	01		
ST/5/150	211.500.500	5	150	20	92	42 x 23	15	724	01		
ST/6/160	211.600.600	6	160	22	92	42 x 26	19	724	01		
ST/7/180	211.800.700	7	180	22	98	48 x 28	23	724	01		

Design features

High and consistent precision (guaranteed 0.01 mm) due to hardened and ground couplings without support disc and taper pin.

Robust design. All parts subject to wear are hardened and ground.

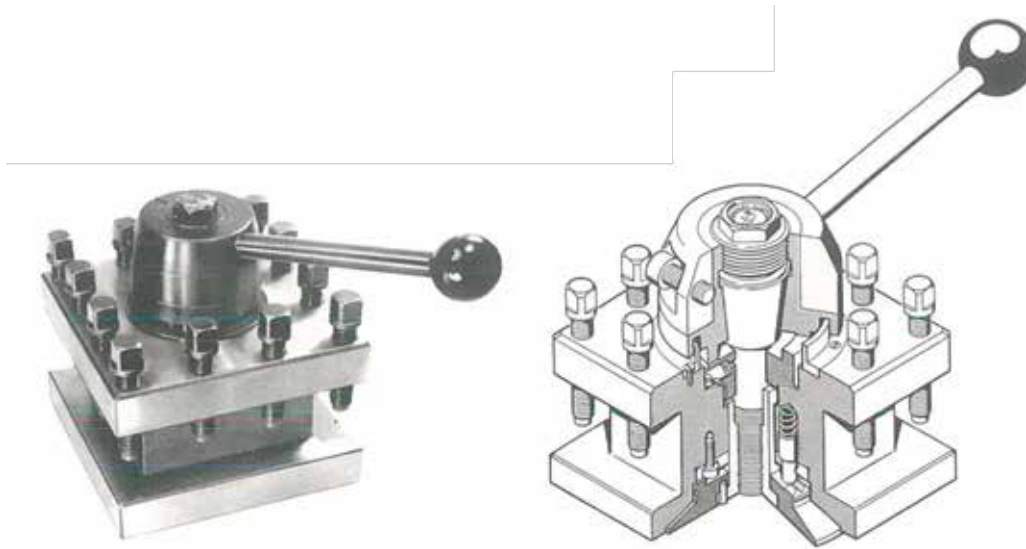
Complete sealing against chips and coolant.

Quick adjustment of any desired angle from 7.5 ° to 7.5 ° according scale.

Prices upon request

J Steel tool holder

Fourfold – tool holder with coupling type STE



Type No.	Order No.	Size	Square size holder mm	Hight lower plate mm	Hight holder mm	Heigth/ width steel holder mm	Weight ca. kg	Product group	Price group	Price per piece Euro	
STE/1/105	311.050.100	1	105	14	66	35 x 17	6	724	01		
STE/2/115	311.150.200	2	115	15	72	40 x 22	8	724	01		
STE/3/125	311.250.300	3	125	16	77	40 x 18	10	724	01		
STE/4/140	311.400.400	4	140	18	83	40 x 21	15	724	01		
STE/5/150	311.500.500	5	150	18	95	53 x 23	17	724	01		
STE/6/160	311.600.600	6	160	20	95	45 x 26	20	724	01		

Design features

High and consistent precision (guaranteed 0.01 mm) due to hardened and ground couplings without support disc and taper pin.

Robust design. All parts subject to wear are hardened and ground.

Complete sealing against chips and coolant.

Another feature ist the time saving one-hand operation 90 ° to 90 ° as well as the quick adjustment of any desired angle from 7.5 ° to 7.5 °.

Prices upon request

K Arbor presses

Type DP 0 / 1 / 2 / 3



**Type DP 1AH / 2AH / 3AH
with hand wheel, ratchet,
and lock-in position**

Type DP 0 / 1 / 2 / 3

Application

- pressing in
- pressing out
- broaching
- punching

Features

- special casting
- pinion and rack made of wear-resistant steel
- support disk with four different notches (rotatable)

Type DP 1AH / 2AH / 3AH with hand wheel, ratchet, and lock-in position

Application

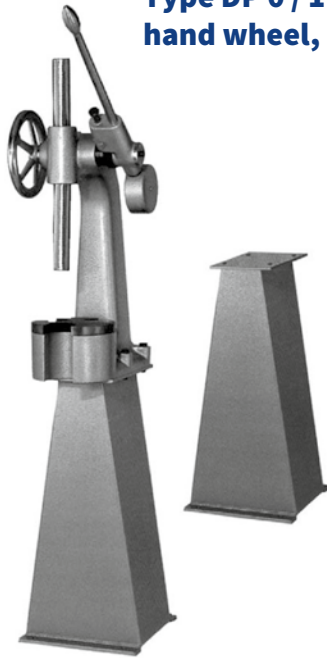
- as DP 1 / 2 / 3

Features

- as DP 1 / 2 / 3
- the position of the plunger can be predetermined by the handwheel
- the lock-in position is used to neutralize the weight load during bending, minting and planing by inserting tools at the rack plunger. In addition, the lock-in position will position the handle at the ideal operating position

K Arbor presses

Type DP 0 / 1 / 1AH / 2 / 2AH / 3 / 3AH
hand wheel, ratchet, and lock-in position



pedestal for DP 2 / 2AH / 3 / 3AH

Type No.	Order No.	Swing middle rack mm	Distance table - rack mm	Slot width support disk mm	Ø rack mm	Height cast mm	Weight netto ca kg	Achievable plunger force ca. N	Stroke/rotation mm
DP 0	010.000.000	100	110	10/15/20/25	28	260	10	5000	77
DP 1	010.000.100	100	190	10/16/22/30	36	400	30	10000	92.68
DP 1AH	010.000.150	100	190	10/16/22/30	36	400	36	10000	92.68
DP 2	010.000.200	145	280	15/25/35/50	40	545	50	20000	109.96
DP 2AH	010.000.250	145	280	15/25/35/50	40	545	58	20000	109.96
DP 3	010.000.300	215	380	26/42/62/82	50	710	88	30000	131.95
DP 3AH	010.000.500	215	380	26/42/62/82	50	710	96	30000	131.95

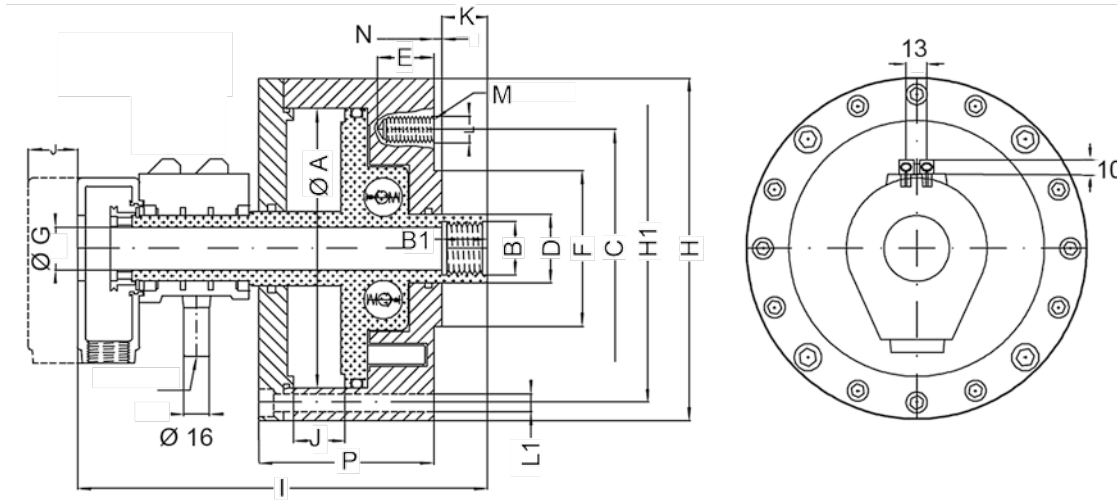
Type No.	Order No.	Product group	Price group	Price per piece Euro	
DP 0	010.000.000	708	01		
DP 1	010.000.100	708	01		
DP 1AH	010.000.150	708	01		
DP 2	010.000.200	708	01		
DP 2AH	010.000.250	708	01		
DP 3	010.000.300	708	01		
DP 3AH	010.000.500	708	01		

Pedestal for DP 2 / 2AH / 3 / 3AH

Order No.	Length mm	Width mm	Height mm	Weight kg	Product group	Price group	Price per piece Euro	
010.000.210	370	400	800	55	708	01		

Prices upon request

L Clamping cylinder BNV



BNV piston diameter 140 to 240mm

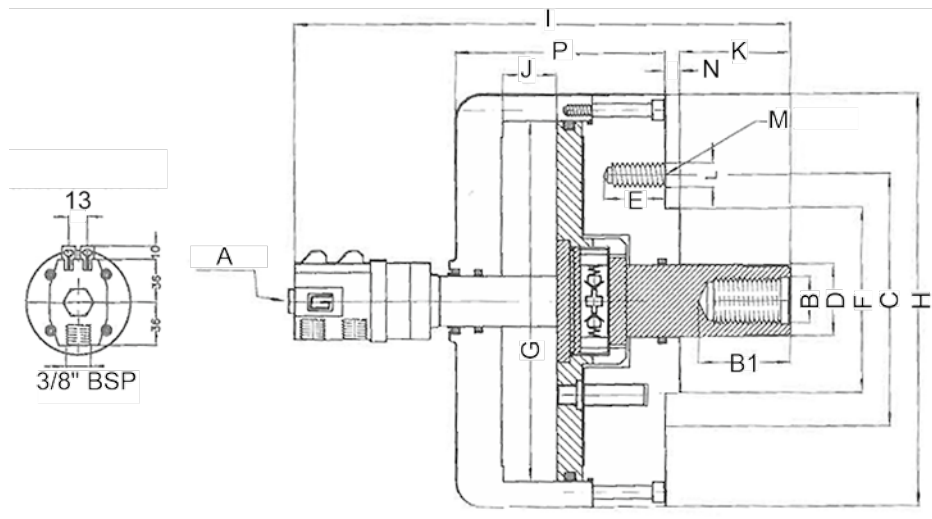
Pneumatic cylinder with central connector, for high speeds with two safety valves and piston stroke control.

Type No.	Order No.	A mm	B	B1 mm	C mm	D mm	E mm	F H6 mm	G mm	H mm	H1 mm	I mm	J mm	K max mm	K min mm	L	L1 mm	M	N mm
BNV 15/145	061.450.000	140	M 22 x 1.5	25	110	30	25	80	15	170	144	225	19	23	4	-	-	4	5
BNV 26/210	062.100.000	170	M 35 x 1.5	25	130	42	28	150	26	208	188	252	20	23	3	-	-	4	5
BNV 35/280	062.800.000	200	M 40 x 1.5	28	130	50	28	150	35	238	220	255	25	28	3	-	-	6	5
BNV 51/410	064.100.000	240	M 60 x 1.5	30	180	70	30	150	51	279	258	288	30	32	2	M 10	6 x Ø11	6	5

Type No.	Order No.	P mm	Piston area cm ²	max. force at 6 bar kN	max. rotation U/min	Stroke volume l	Moment of inertia kg/m ²	Weight kg	Product group	Price group	Price per piece Euro	
BNV 15/145	061.450.000	94	145	8.7	8000	0.6	0.028	9.5	732	01		
BNV 26/210	062.100.000	107	210	1.26	7000	0.85	0.05	12	732	01		
BNV 35/280	062.800.000	113	280	1.68	6000	1.1	0.08	17	732	01		
BNV 51/410	064.100.000	117	410	2.46	4000	2.3	0.14	32	732	01		

Prices upon request

L Clamping cylinder RLV-N



RLV-N piston diameter 85 to 350mm

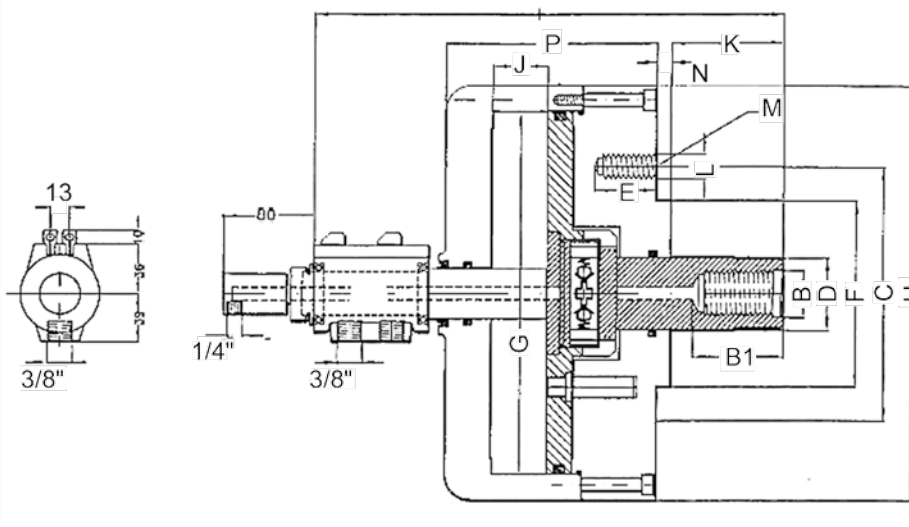
Pneumatic cylinder, for high speeds with two safety valves and piston stroke control.

Type No.	Order No.	B	B1 mm	C mm	D mm	E mm	F H7 mm	G mm	H mm	I mm	J mm	K max mm	K min mm	L	M	N mm	P mm
RLV-N 85	010.850.000	M 12	28	80	25	18	50	85	110	305	32	58	26	M 10	3	5	117
RLV-N 105	011.050.000	M 12	28	80	25	18	50	105	130	331	32	84	52	M 10	3	5	117
RLV-N 130	011.300.000	M 16	35	105	25	27	80	130	155	324	32	74	52	M 12	3	5	120
RLV-N 150	011.500.000	M 16	35	145	25	28	95	150	180	321	32	70	38	M 16	4	5	121
RLV-N 200	012.000.000	M 24	40	145	35	36	95	200	232	345	32	82	50	M 16	4	5	133
RLV-N 250	012.500.000	M 24	40	170	35	36	125	250	287	346	32	83	51	M 16	6	5	133
RLV-N 300	013.000.000	M 24	40	170	35	36	125	300	336	342	32	75	43	M 16	6	5	137
RLV-N 350	013.500.000	M 27	40	170	40	36	125	350	390	363	40	75	35	M 16	6	6	153

Type No.	Order No.	Piston area cm ²	max. force at 6 bar kN	max. rotation U/min	Stroke volume l	Moment of inertia kg/m ²	Weight kg	Product group	Price group	Price per piece Euro
RLV-N 85	010.850.000	52	3.0	5000	0.32	0.008	4.8	732	01	
RLV-N 105	011.050.000	82	4.8	5000	0.51	0.01	6.1	732	01	
RLV-N 130	011.300.000	128	7.6	5000	0.8	0.035	7.3	732	01	
RLV-N 150	011.500.000	172	10.0	5000	1.1	0.075	12.8	732	01	
RLV-N 200	012.000.000	305	18.0	4500	1.9	0.1	16.7	732	01	
RLV-N 250	012.500.000	481	18.5	4000	3	0.14	23.8	732	01	
RLV-N 300	013.000.000	689	41.0	3200	5.5	0.25	31.8	732	01	
RLV-N 350	013.500.000	942	56.0	3000	7.7	0.38	46	732	01	

Prices upon request

L Clamping cylinder RLV-R



RLV-R piston diameter 85 to 300mm

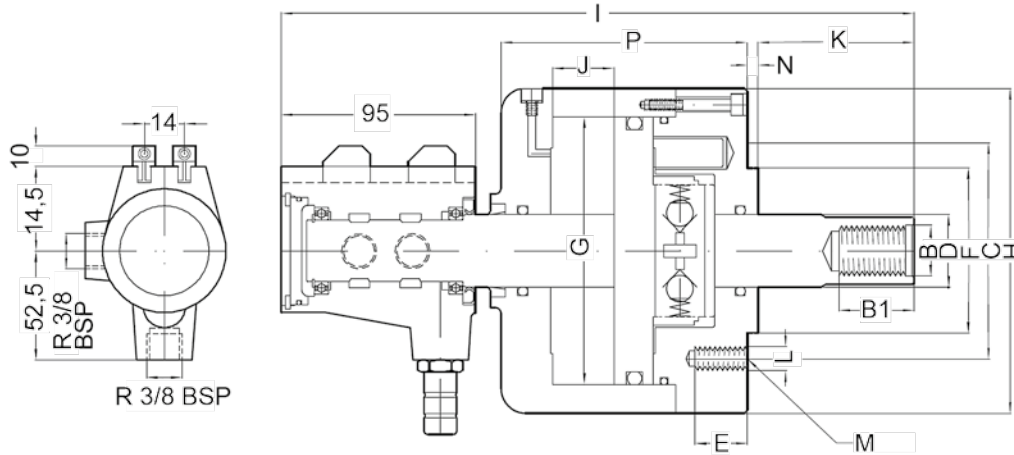
Pneumatic cylinder, for high speeds with two safety valves and piston stroke control with flow for coolant.

Type No.	Order No.	B	B1 mm	C mm	D mm	E mm	F H6 mm	G mm	H mm	I mm	J mm	K max mm	K min mm	L	M	N mm	P mm
RLV-R 85	030.850.000	M 12	28	80	25	18	50	85	110	340	32	58.5	26.5	M 10	3	5	117
RLV-R 105	031.050.000	M 12	28	80	25	18	50	105	130	366	32	84.5	52.5	M 10	3	5	117
RLV-R 130	031.300.000	M 16	35	105	25	27	80	130	155	359	32	74	42	M 12	3	5	120
RLV-R 150	031.500.000	M 16	35	145	25	28	95	150	180	355	32	70	38	M 16	4	5	121
RLV-R 200	032.000.000	M 24	40	145	35	36	95	200	232	380	32	82	50	M 16	4	5	133
RLV-R 250	032.500.000	M 24	40	170	35	36	125	250	287	381	32	83	51	M 16	6	5	133
RLV-R 300	033.000.000	M 24	41	170	35	36	125	300	336	377	40	77	37	M 16	6	5	135

Type No.	Order No.	Piston area cm ²	max. force at 6 bar kN	max. rotation U/min	Stroke volume l	Moment of inertia kg/m ²	Weight kg	Product group	Price group	Price per piece Euro
RLV-R 85	030.850.000	52	3.0	5000	0.32	0.007	4.8	732	01	
RLV-R 105	031.050.000	82	4.5	5000	0.51	0.009	6.3	732	01	
RLV-R 130	031.300.000	128	7.5	5000	0.8	0.03	7.5	732	01	
RLV-R 150	031.500.000	172	10.0	5000	1.1	0.06	13	732	01	
RLV-R 200	032.000.000	305	18.0	4500	1.9	0.09	17	732	01	
RLV-R 250	032.500.000	481	28.85	4000	3	0.1	24	732	01	
RLV-R 300	033.000.000	697	41.0	3200	5.5	0.23	32	732	01	

Prices upon request

L Clamping cylinder RHV



RHV

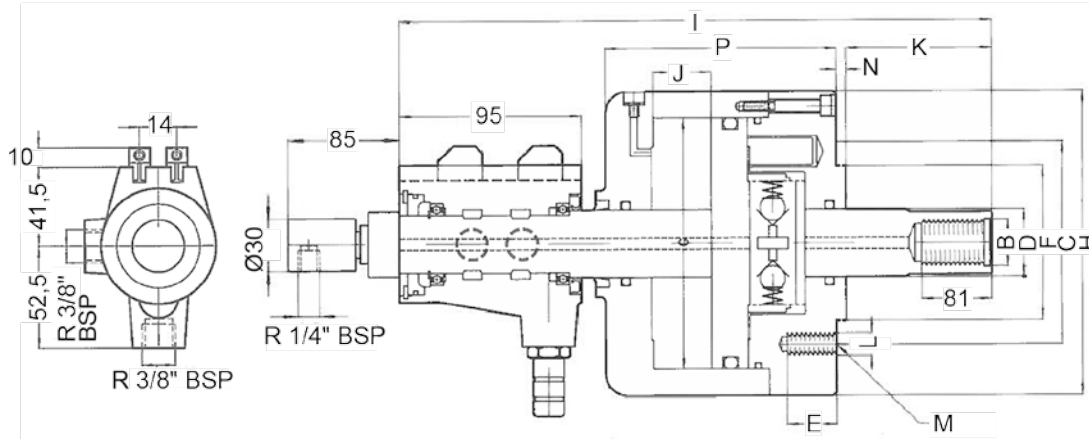
Hydraulic-cylinder with safety valves.

Type No.	Order No.	B	B1 mm	C mm	D mm	E mm	FH6 mm	G mm	H mm	I mm	J mm	K max mm	K min mm	L	M	N mm	P mm
RHV-R 85	020.850.000	M 16	25	80	25	15	50	85	110	308	32	83	51	M 10	3	5	110
RHV-R 105	021.050.000	M 16	25	80	25	15	50	105	130	308	32	84	52	M 10	3	5	112
RHV-R 130	021.300.000	M 24	35	105	35	18	80	130	158	308	32	82	50	M 12	4	5	116
RHV-R 150	021.500.000	M 24	35	145	35	24	95	150	182	328	32	76	44	M 16	4	5	116
RHV-R 200	022.000.000	M 27	40	170	40	30	125	200	240	354	40	103	63	M 16	6	5	138

Type No.	Order No.	Piston area cm ²	max. force at 20 bar kN	max. rotation U/min	Stroke volume l	Moment of inertia kg/m ²	Weight kg	Product group	Price group	Price per piece Euro
RHV-R 85	020.850.000	52	1050	6000	0.32	0.008	6.0	732	01	
RHV-R 105	021.050.000	81	1550	5000	0.51	0.01	7.5	732	01	
RHV-R 130	021.300.000	123	2450	5000	0.79	0.035	10.0	732	01	
RHV-R 150	021.500.000	167	3350	4500	1.1	0.06	13.0	732	01	
RHV-R 200	022.000.000	302	6100	3500	2.42	0.1	21.5	732	01	

Prices upon request

L Clamping cylinder RHV-R



RHV-R

Hydraulic-cylinder with flow and safety valves.

Type No.	Order No.	B	B1 mm	C mm	D mm	E mm	FH7 mm	G mm	H mm	I mm	J mm	K max mm	K min mm	L	M	N mm	P mm
RHV-R 85	120.850.000	M 16	25	80	25	15	50	85	110	324	32	83	51	M 10	3	5	110
RHV-R 105	121.050.000	M 16	25	80	25	15	50	105	130	327	32	84	52	M 10	3	5	112
RHV-R 130	121.300.000	M 24	35	105	35	18	80	130	158	313	32	82	50	M 12	4	5	116
RHV-R 150	121.500.000	M 24	35	145	35	24	95	150	182	313	32	76	44	M 16	4	5	116
RHV-R 200	122.000.000	M 27	40	170	40	30	125	200	240	373	40	103	63	M 16	6	5	138

Type No.	Order No.	Piston area cm ²	max. force at 20 bar kN	max. rotation U/min	Oil volume l	Moment of inertia kg/m ²	Weight kg	Product group	Price group	Price per piece Euro
RHV-R 85	120.850.000	52	1050	6000	0.32	0.008	6.0	732	01	
RHV-R 105	121.050.000	81	1550	5000	0.51	0.01	7.5	732	01	
RHV-R 130	121.300.000	123	2450	5000	0.79	0.035	10.0	732	01	
RHV-R 150	121.500.000	167	3350	4500	1.1	0.06	13.0	732	01	
RHV-R 200	122.000.000	302	6100	3500	2.42	0.1	21.5	732	01	

Prices upon request

For your notes

Unless otherwise specified, our terms and conditions apply and can be viewed at any time at www.sws-spannwerkzeuge.de

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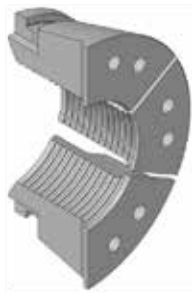
Notes on ordering and legend

α = angle alpha

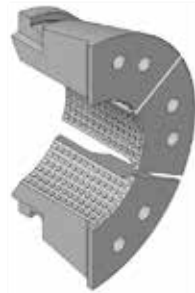
Design = design of the clamping area as



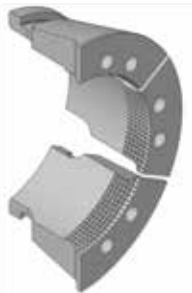
smooth



cross-grooved (Q)



transverse and longitudinal grooves (LQ); special designs on request.



Z-corrugation (Z)

B

Coatings can be carried out in different ways. On request, individual areas can be coated. Please specify in the order. By default, the entire component is always coated.

Types of coatings:

DT (Duro-Thermoplast overlay, application process)

Hardness (Shore) D=78, friction coefficient improvement for mixed friction for oils and grease 0.01 to 0.1, effect of temperature to max. 140 °C possible, thickness of layer 250 – 300 µm, only clamping area, pressure resistance 120 N/mm², water absorption 20°C = 1; water 80°C = 6, permissible surface pressure 15 N/mm², chemically stable at 30° C for all alkalines and acids, inorganic saline solutions with concentrations of max. 25% and oils, except heating and crude oil, dielectric strength ca. 2.5KV.

HCW (melted application coating tungsten-cobalt basis)

depending on the material of the base material hardness 70-75 HRC, friction coefficient improvement to 0.6, effect of temperature to max. 600°C possible, thickness of layer 5 µm to 25µ – only clamping area.

HE (Carbide inserts on tungsten-cobalt basis)

Hardness 970 HV, friction coefficient 1.6, to 0.5, effect of temperature for glued inserts max. 100° C, when soldering max 160° C, tensile strength 3.550 MPa, only clamping area.

NTD (hard coating carbon-based – low temperatures)

hardness 2500 HV, friction coefficient improvement to 0.10, effect

of temperature to max. 400 °C possible, thickness of layer 2 – 4 µm, thickness of layer 1µ possible; thickness of layer >4µ double layer, the complete part is coated.

TIN (hard coating titanium-based)

hardness 3200 HV, friction coefficient improvement to 0.30, effect of temperature to max. 1000 °C possible, thickness of layer 2 – 4 µm, thickness of layer 1µ possible; thickness of layer >4µ double layer, the complete part is coated.

WO3 (hard coating carbon-based)

hardness 2800 HV, friction coefficient improvement to 0.10; effect of temperature to max. 400 °C possible, thickness of layer 2 – 4 µm, thickness of layer 1µ possible; thickness of layer >4µ double layer, the complete part is standard coated.

WO4 (hard coating carbon-based)

hardness 3000 HV, friction coefficient improvement to 0.05; effect of temperature to max. 400 °C possible, thickness of layer 2 – 4 µm, thickness of layer 1µ possible; thickness of layer >4µ double layer, the complete part is standard coated.

F

F = clamping force

G

G = type of thread

H

HE = carbide insert

I

ISK

hexagon socket, Allen key (Imbus)

O

Opening stroke

The clamping distance of the clamping device is based on the diameter.

P

Prices

Prices are based on one piece. For quantity deviations, bulk prices or call-off quantities, the prices are to be requested separately.

R

RD = round

S

SK = hexagon

SW = wrench size

T

Type = DIN / standard term

Type No.= always state order details

V

VK = square

Inquiries for special clamping devices:

Inquiries for special clamping devices with the following information:

- What is to be clamped? (workpiece drawing)
- Where is to be clamped?
- Where is the clamped workpiece to be machined? (mark the areas to be machined)
- How is the clamped workpiece to be machined? (describe production process or clamp insert)
- Working area conditions (drawing of the working area, if available)
- Features (applied KSS, dry processing, clean room conditions)
- Spindle connection (drawing or description of spindle where the chuck is to be mounted)
- Desired clamping solution, please send inquiries to sales@sws-spannwerkzeuge.de

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