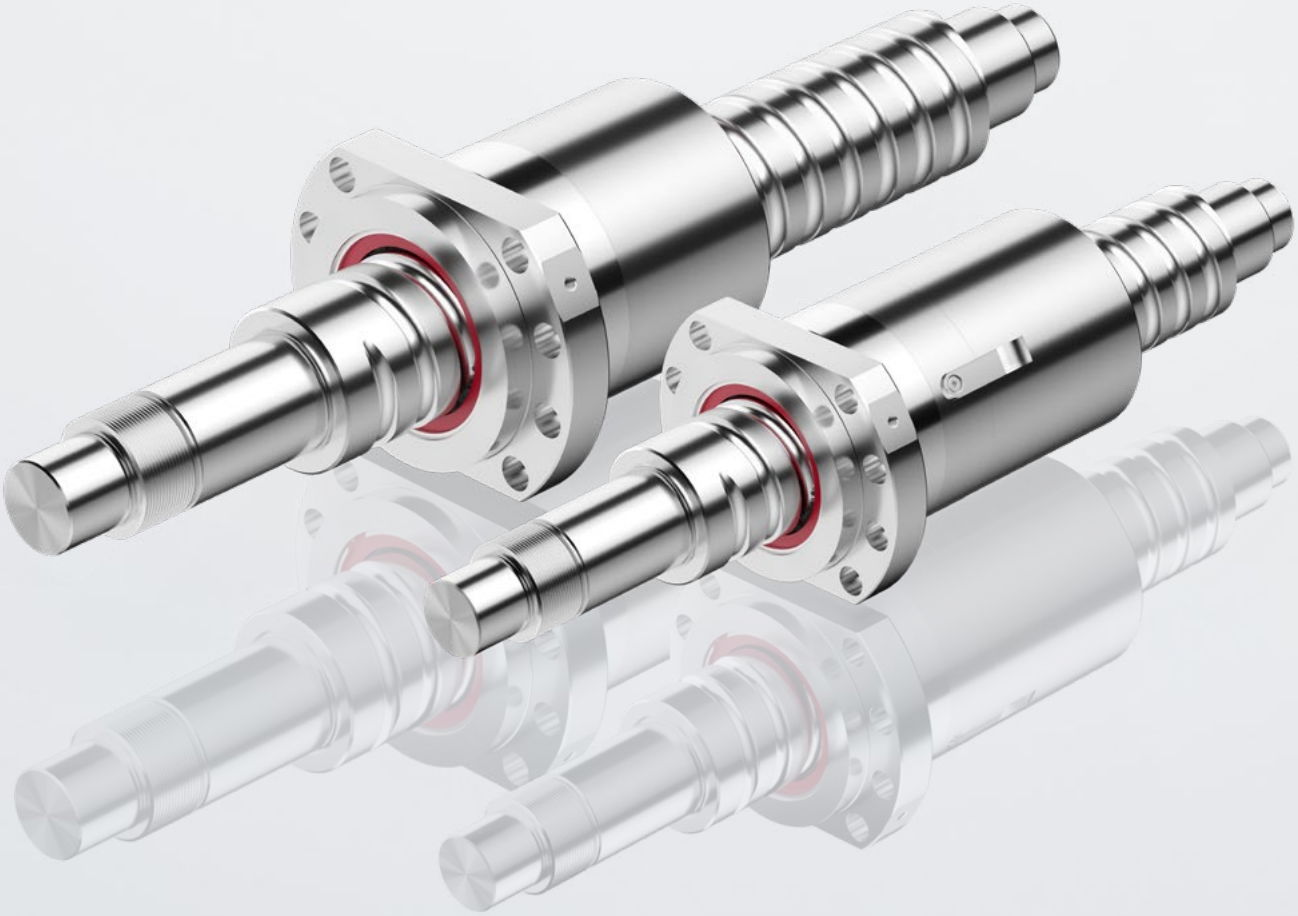
SCHNEEBERGER



Ball Screws

Precision ground

AM High quality

A.MANNESMANN
A member of
SCHNEEBERGER linear technology

1 Ball Screws

Our ground positioning ball screws are mainly used in highly demanding applications such as machine tools or measuring and testing machines. The precision ground ball contact surfaces deliver high positioning and repeat accuracy. This means, the path distance can be measured via the spindle. Furthermore, these ball screws operate smoothly and hold constant torque.

Areas of application for ground ball screws

- Machine tools
- Process machines
- General mechanical engineering
- Robotics and automation
- Drive technology
- Plastic injection molding machines
- Measuring and testing technology

Features

- Induction hardened spindle
- Ball track hardness of 60±2 HRC
- Nut through-hardened in salt bath

Ground ball track on spindle

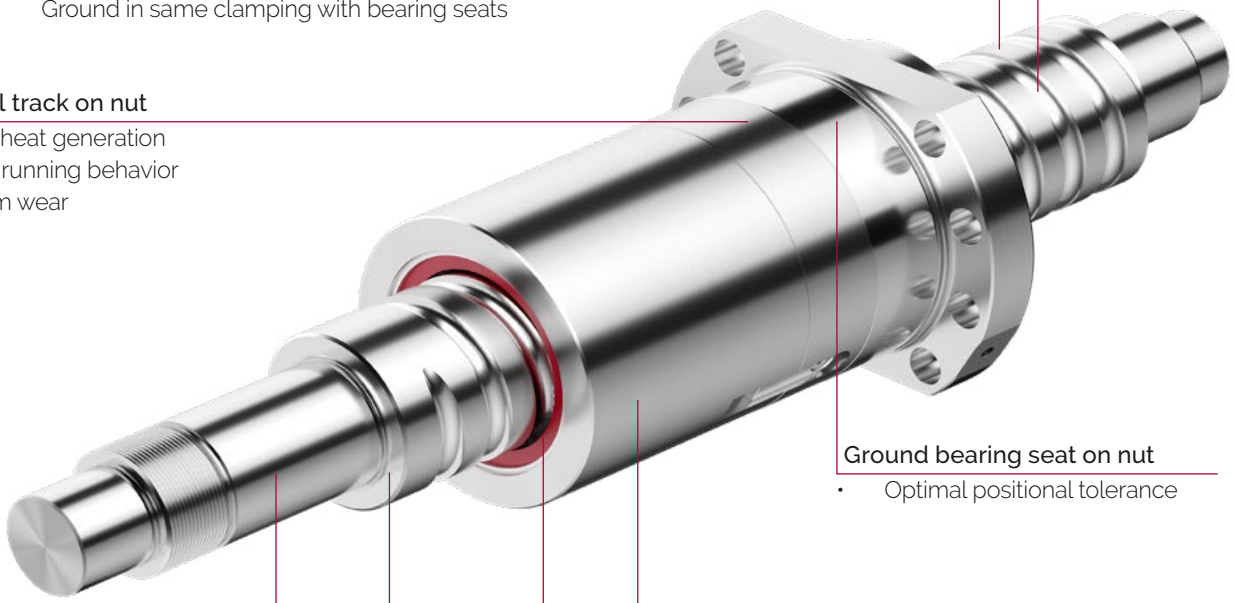
- Smooth and low noise running behavior
- Minimum wear

Ground spindle outer diameter

- Improved sealing efficiency of the wiper systems
- Ground in same clamping with bearing seats

Ground ball track on nut

- Minimal heat generation
- Smooth running behavior
- Minimum wear



Ground bearing seat on nut

- Optimal positional tolerance

Internal ball recirculation

- Low noise
- No interfering contours
- Protected ball return

Ground bearing seats

- Perfect bearing fit

Non interrupted mounting shoulder

- Bearings with maximum possible internal diameter
- Optimal connection of fixed bearings

Combinable wiper systems

- Optimal protection for the inside of the nut
- Supports long-life cycle
- Reduces lubricant loss

2 Product specification

Performance parameters	Double nut (DSF)	Single nut (ESF)
Spindle diameter in mm	Ø 32..., Ø 40..., Ø 50..., Ø 63...	
Max. thread length in mm	2'000	
ISO accuracy class - Type P	IT 3 (V 300p: 12 µm)	
Max. speed in m/min.	100	65
Max. acceleration in m/s^2	15 (1.5g)	6 (0.6g)
Nut preload	2-point (7% C_{dyn})	4-point (5 % C_{dyn})

Double nut with 2-point O-preload

- Preload adjustment via alignment of flange nut to locknut by means of a ground feather key
- Steady low idling torque with high rigidity
- High-precision positioning, even at low speeds and oscillating short-stroke movements
- 2-point ball contact results in better efficiency compared to 4-point ball contact
- The best technical solution, minimum heat generation and minimum wear

Single nut with 4-point X-preload

- Single nuts are preloaded via ball sorting in 4-point ball contact between nut and spindle
- Compact design requires a shorter spindle length compared to a double nut with the same stroke
- Due to production tolerance, single nuts are mainly used for shorter ball screws
- With single nuts, impermissibly complete ball reliefs cannot result even at load peaks
- Ball screws with single nuts can be manufactured more economically than double nuts

Wiper systems

Brush wiper BW

- For normal loads
- Length dimension, l_2 (standard)
- Very compact design
- Completely integrated into the nut body

Finger wiper FW

- High-performance seal for heavy stresses
- Length measurement, l_2 + 20 mm
- Sealing lip is adapted to the profile geometry
- Optimal sealing efficiency due to ground spindle outer diameter

Double wiper DW

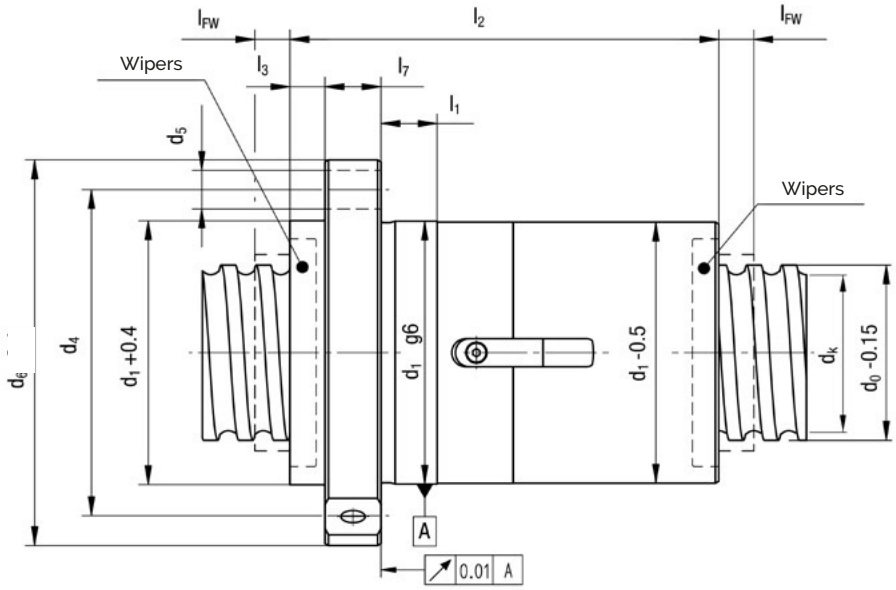
- Combination of brush wiper and finger wiper
- Length dimension, l_2 + 20 mm

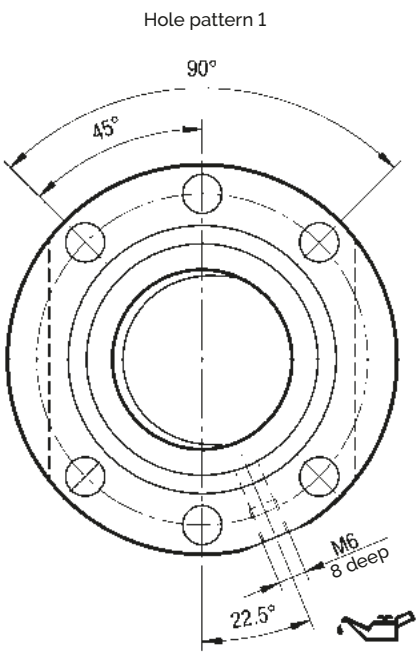
Ordering information

Ball screw	10	SBS	-32 x 5 x 3.5	-1200	-1400	-P3R	-DSF	-B	-N	-BW	-TT-PT-ST-CI
Quantity											
Product	SBS										
Size	32..., 40..., 50..., 63...										
Thread length	up to 2'000 mm										
Total length	up to 2'300 mm										
Spindle type	P3R										
Design of nut	Double Nut (DSF), Single Nut (ESF)										
Flange shape	Shape (A), Shape (B), Customized (S)										
Nut design	Standard (N), Customized (S)										
Wipers	Brush Wiper (BW), Finger Wiper (FW), Double Wiper (DW)										
Documentation*	Torque Test (TT), Pitch Test (PT), Stiffness Test (ST), Product labeling (CI)										

* Optional

3 Technical data double nut (DSF)

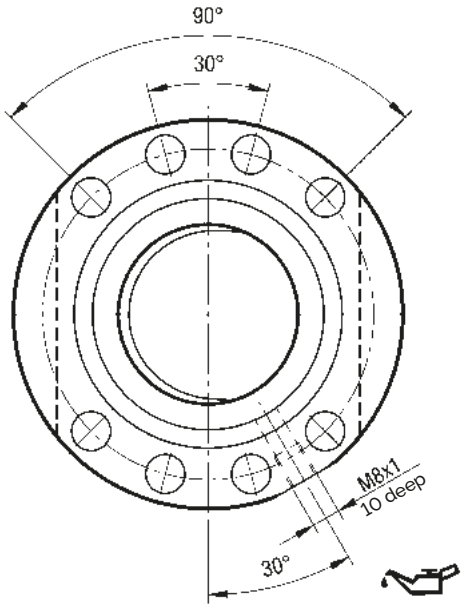




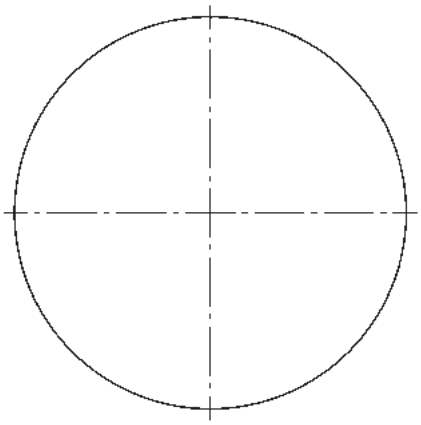
Product (DSF)	Dynamic load capacity	Static load capacity	Max. speed	No. of nut circuits	Nominal Ø	Pitch	Ball Ø	Nut rigidity	Idle Torque
Size	C_{dyn} [N]	C_0 [N]	n_{max} [min^{-1}]	i	d_0 [mm]	P [mm]	d_B [mm]	R_{nu} [N/µm]	T_{pro} [Ncm]
32 x 5 x 3,5	28'000	53'000	4'100	5	32	5	3.5	800	22
32 x 10 x 3,5	24'000	43'000	4'100	4	32	10	3.5	650	17
32 x 10 x 6	50'000	96'000	4'100	4	32	10	6	750	46
32 x 10 x 6	57'000	96'000	4'100	4	32	10	6	755	46
32 x 15 x 6	50'000	76'000	4'100	3	32	15	6	700	40
32 x 20 x 6	36'000	49'000	4'100	2	32	20	6	460	28
40 x 5 x 3,5	35'000	76'000	4'000	6	40	5	3.5	1110	31
40 x 10 x 6	64'000	124'000	4'000	4	40	10	6	920	60
40 x 15 x 6	69'000	123'000	4'000	4	40	15	6	1080	64
40 x 20 x 6	55'000	92'000	4'000	3	40	20	6	810	50
40 x 20x 8	80'000	125'000	4'000	3	40	20	8	860	78
40 x 25 x 6	40'000	59'000	4'000	2	40	25	6	540	36
40 x 25 x 8	58'000	80'000	4'000	2	40	25	8	570	55
40 x 30 x 6	41'000	62'000	4'000	2	30	30	6	550	36
40 x 30 x 8	57'000	79'000	4'000	2	30	30	8	560	54
50 x 5 x 3,5	38'000	92'000	3'200	6	50	5	3.5	1320	40
50 x 10 x 6	85'000	194'000	3'200	5	50	10	6	1380	93
50 x 15 x 6	92'000	194'000	3'200	5	50	15	6	1630	99
50 x 15 x 8	111'000	205'000	3'200	4	50	15	8	1340	127
50 x 20 x 6	78'000	156'000	3'200	4	50	20	6	1320	83
50 x 20 x 8	111'000	205'000	3'200	4	50	20	8	1340	125
50 x 25 x 6	62'000	117'000	3'200	3	50	25	6	1070	82
50 x 25 x 8	89'000	152'000	3'200	3	50	25	8	1010	99
50 x 30 x 6	45'000	75'000	3'200	2	50	30	6	670	48
50 x 30 x 8	64'000	98'000	3'200	2	50	30	8	670	71
63 x 10 x 6	106'000	284'000	2'600	6	63	10	6	1940	134
63 x 15 x 8	150'000	328'000	2'600	5	63	15	8	2030	195
63 x 20 x 8	150'000	327'000	2'600	5	63	20	8	2050	195
63 x 25 x 8	127'000	263'000	2'600	4	63	25	8	1670	164
63 x 30 x 8	102'000	196'000	2'600	3	63	30	8	1260	130

3 Technical data double nut (DSF)

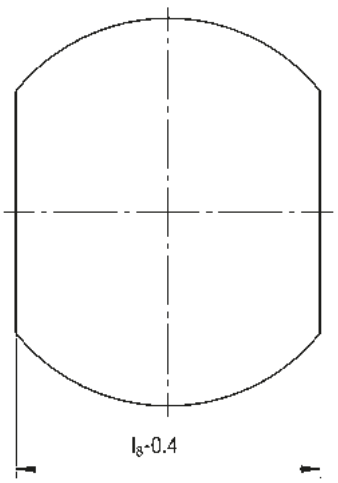
Hole pattern 2



Flange shape A

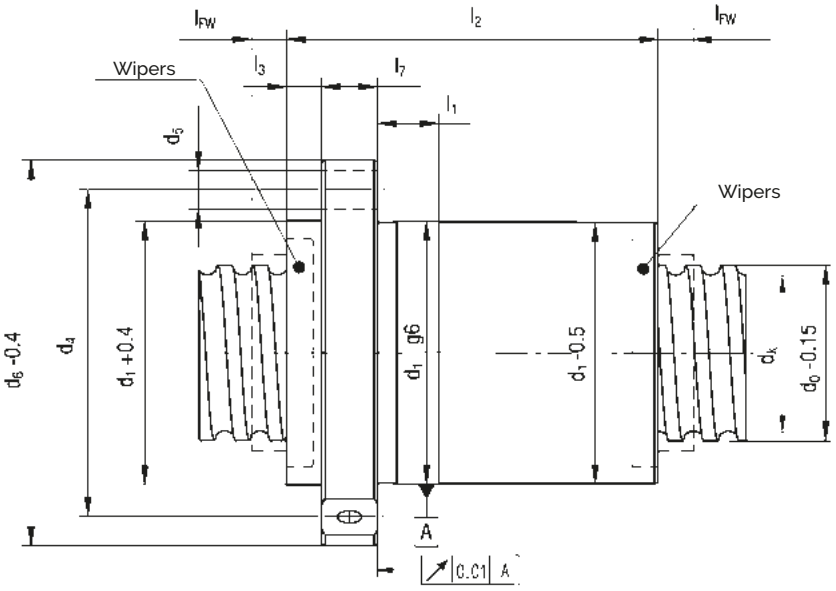


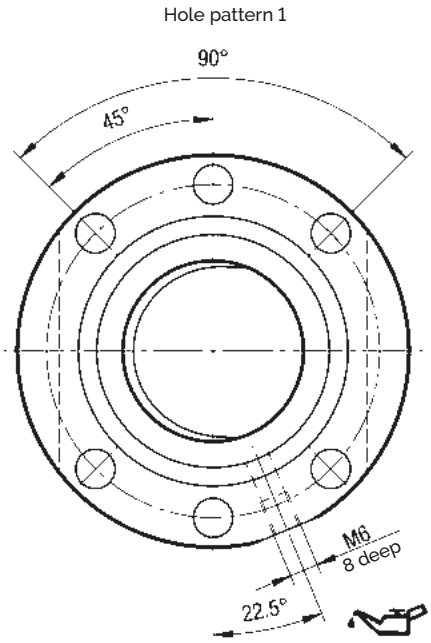
Flange shape B



Spindle Core Ø	Further Ø measurements				Distance measurements						Flange	
d_k [mm]	d_1 [mm]	d_4 [mm]	d_5 [mm]	d_6 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_7 [mm]	l_8 [mm]	l_{FW} [mm]	Hole pattern	Shape
28.8	50	65	9	80	10	90	8	12	62	10	1	A/B
28.8	50	65	9	80	16	121	8	12	62	10	1	A/B
26.3	50	65	9	80	16	129	10	12	62	10	1	A/B
26.3	56	71	9	86	16	127	10	14	65	10	1	A/B
26.3	56	71	9	86	20	136	10	14	65	10	1	A/B
26.3	56	71	9	86	20	124	10	14	65	10	1	A/B
36.8	63	78	9	93	10	99	10	14	70	10	2	A/B
34.3	63	78	9	93	16	127	10	14	70	10	2	A/B
34.3	63	78	9	93	16	162	10	14	70	10	2	A/B
34.3	63	78	9	93	16	166	10	14	70	10	2	A/B
32.7	70	85	9	100	25	173	10	14	75	10	2	A/B
34.3	63	78	9	93	16	143	10	14	70	10	2	A/B
32.7	70	85	9	100	25	152	10	14	75	10	2	A/B
34.3	63	78	9	93	16	168	10	14	70	10	2	A/B
32.7	70	85	9	100	30	168	10	14	75	10	2	A/B
46.8	75	93	11	110	10	100	10	16	85	10	2	A/B
44.3	75	93	11	110	16	148	10	16	85	10	2	A/B
44.3	75	93	11	110	16	197	10	16	85	10	2	A/B
42.7	82	100	11	118	25	178	10	16	92	10	2	A/B
44.3	75	93	11	110	16	211	10	16	85	10	2	A/B
42.7	82	100	11	118	25	213	10	16	92	10	2	A/B
44.3	75	93	11	110	16	189	10	16	85	10	2	A/B
42.7	82	100	11	118	25	208	10	16	92	10	2	A/B
44.3	75	93	11	110	16	165	10	16	85	10	2	A/B
42.7	82	100	11	118	25	170	10	16	92	10	2	A/B
57.3	90	108	11	125	16	176	10	18	95	10	2	A/B
55.7	95	115	13.5	135	24	209	10	20	100	10	2	B
55.7	95	115	13.5	135	24	256	10	20	100	10	2	B
55.7	95	115	13.5	135	24	257	10	20	100	10	2	B
55.7	95	115	13.5	135	24	243	10	20	100	10	2	B

4 Technical data single nut (ESF)



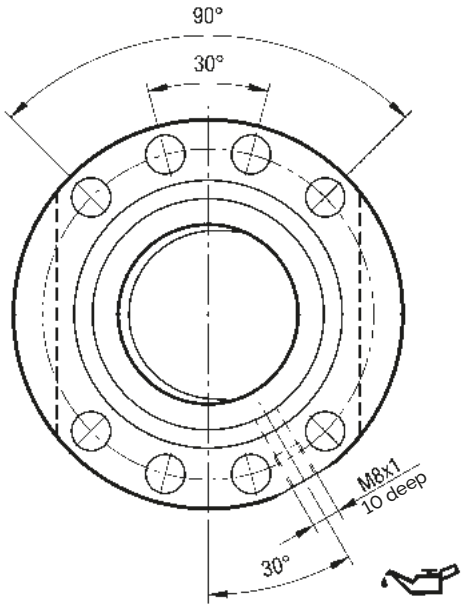


Product (ESF)	Dynamic load capacity	Static load capacity	Max. speed	No. of nut circuits	Nominal Ø	Pitch	Ball Ø	Nut rigidity	Idle Torque
Size	C_{dyn} [N]	C_0 [N]	n_{max} [min^{-1}]	i	d_0 [mm]	P [mm]	d_B [mm]	R_{nu} [N/µm]	T_{pr0} [Ncm]
32 x 5 x 3.5	29'000	69'000	2'300	5	32	5	3.5	670	15
32 x 10 x 3.5	24'000	56'000	2'300	4	32	10	3.5	570	13
32 x 10 x 6	48'000	92'000	2'500	4	32	10	6	570	28
32 x 10 x 6	48'000	92'000	2'500	4	32	10	6	580	28
32 x 15 x 6	46'000	73'000	3'200	3	32	15	6	490	26
32 x 20x 6	33'000	47'000	3'200	2	32	20	6	320	19
40 x 5 x 3.5	35'000	96'000	1'800	6	40	5	3.5	910	22
40 x 10 x 6	55'000	117'000	1'900	4	40	10	6	700	36
40 x 15 x 6	62'000	119'000	2'600	4	40	15	6	750	41
40 x 20 x 6	50'000	88'000	2'600	3	40	20	6	560	33
40 x 20 x 8	74'000	121'000	2'600	3	40	20	8	600	52
40 x 25 x 6 *	36'000	57'000	2'600	2	40	25	6	370	23
40 x 25 x 8 *	54'000	77'000	2'600	2	40	25	8	400	37
40 x 30 x 6 *	37'000	59'000	2'600	2	40	30	6	380	23
40 x 30 x 8 *	53'000	77'000	2'600	2	40	30	8	390	37
50 x 5 x 3.5	38'000	118'000	1'400	6	50	5	3.5	1080	28
50 x 10 x 6	71'000	180'000	1'500	5	50	10	6	1020	55
50 x 15 x 6	83'000	187'000	2'100	5	50	15	6	1120	63
50 x 15 x 8	102'000	200'000	2'100	4	50	15	8	930	83
50 x 20 x 6	70'000	150'000	2'100	4	50	20	6	910	53
50 x 20 x 8	102'000	199'000	2'100	4	50	20	8	930	83
50 x 25 x 6 *	70'000	150'000	2'100	3	50	25	6	910	53
50 x 25 x 8 *	82'000	148'000	2'100	3	50	25	8	710	66
50 x 30 x 6 *	41'000	73'000	2'100	2	50	30	6	450	30
50 x 30 x 8 *	59'000	95'000	2'100	2	50	30	8	470	48
63 x 10 x 6 *	90'000	268'000	1'600	6	63	10	6	1450	80
63 x 15 x 8 *	137'000	319'000	1'700	5	63	15	8	1400	127
63 x 20 x 8 *	136'000	318'000	1'700	5	63	20	8	1420	126
63 x 25 x 8 *	115'000	256'000	1'700	4	63	25	8	1150	107
63 x 30 x 8 *	93'000	191'000	1'700	3	63	30	8	870	84

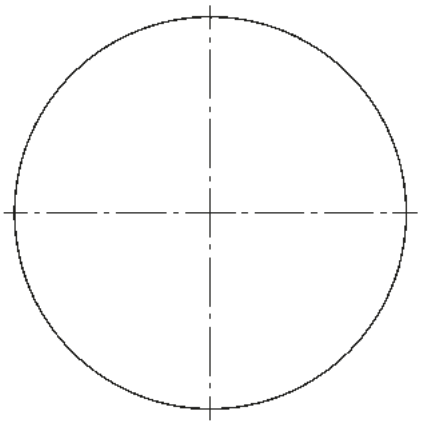
*Available soon

4 Technical data single nut (ESF)

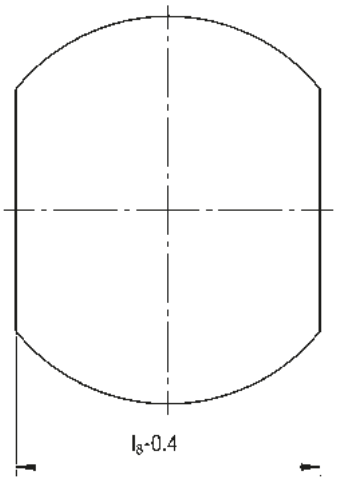
Hole pattern 2



Flange shape A



Flange shape B



Spindle Core Ø	Further Ø measurements				Distance measurements						Flange	
d_k [mm]	d_1 [mm]	d_4 [mm]	d_5 [mm]	d_6 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_7 [mm]	l_8 [mm]	l_{FW} [mm]	Hole pattern	Shape
28.8	50	65	9	80	10	47	8	12	62	10	1	A/B
28.8	50	65	9	80	16	63	8	12	62	10	1	A/B
26.3	50	65	9	80	16	69	10	12	62	10	1	A/B
26.3	56	71	9	86	16	64	10	14	65	10	1	A/B
26.3	56	71	9	86	20	71	10	14	65	10	1	A/B
26.3	56	71	9	86	20	67	10	14	65	10	1	A/B
36.8	63	78	9	93	10	60	10	14	70	10	2	A/B
34.3	63	78	9	93	16	64	10	14	70	10	2	A/B
34.3	63	78	9	93	16	86	10	14	70	10	2	A/B
34.3	63	78	9	93	16	86	10	14	70	10	2	A/B
32.7	70	85	9	100	25	90	10	14	75	10	2	A/B
34.3	63	78	9	93	16	76	10	14	70	10	2	A/B
32.7	70	85	9	100	25	80	10	14	75	10	2	A/B
34.3	63	78	9	93	16	75	10	14	70	10	2	A/B
32.7	70	85	9	100	25	79	10	14	75	10	2	A/B
46.8	75	93	11	110	10	60	10	16	85	10	2	A/B
44.3	75	93	11	110	16	74	10	16	85	10	2	A/B
44.3	75	93	11	110	16	101	10	16	85	10	2	A/B
42.7	82	100	11	118	25	90	10	16	92	10	2	A/B
44.3	75	93	11	110	16	106	10	16	85	10	2	A/B
42.7	82	100	11	118	25	110	10	16	92	10	2	A/B
44.3	75	93	11	110	16	101	10	16	85	10	2	A/B
42.7	82	100	11	118	25	105	10	16	92	10	2	A/B
44.3	75	93	11	110	16	86	10	16	85	10	2	A/B
42.7	82	100	11	118	25	90	10	16	92	10	2	A/B
57.3	90	108	11	125	16	92	10	18	95	10	2	A/B
55.7	95	115	13.5	135	24	108	10	20	100	10	2	B
55.7	95	115	13.5	135	24	133	10	20	100	10	2	B
55.7	95	115	13.5	135	24	133	10	20	100	10	2	B
55.7	95	115	13.5	135	24	123	10	20	100	10	2	B

Parameters according to DIN / ISO

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