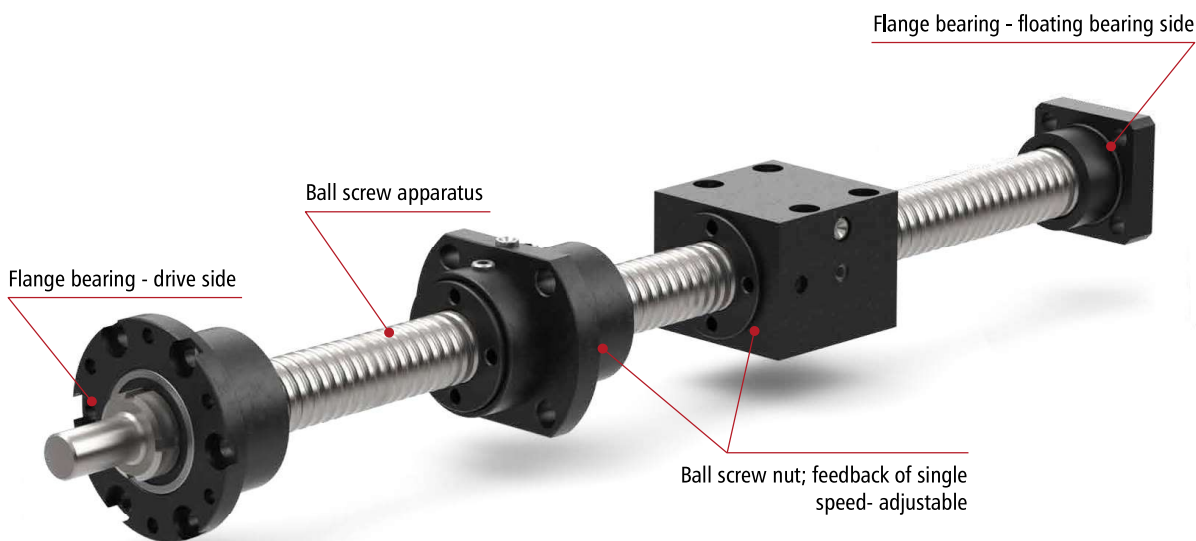




Precision is our drive

Our technically sophisticated ball screw drives are high-precision mechanical drive elements for many areas of technology and mechanical engineering, which have proven themselves successfully in demanding industrial practice for decades. The principle of the ball screw drive is very simple. And yet the requirements and designs of the drive solution are so diverse in their practical applications.

With our product range, we offer you a suitable drive solution for practically every movement task - regardless of the requirements for pitch, speed, rigidity, precision, service life and reliability. We specialize in providing you with an adequate solution for your application.



Information

The ball screw nuts of the **company isel Germany AG** are of high quality, precise and wear-resistant (hardened and ground). Together with the ball screw spindles, they convert rotary movements into linear movements by producing an extremely low friction-level.

The ball screw nut is inserted into the respective clamping block and positioned and fastened by means of a stud bolt. The ball screw nuts have multiple ball circuits equipped with an internal ball return.

A set screw on the clamping block allows the run of the ball screw spindle to be adjusted without any clearance.

The repetition accuracy is less than 0.01 mm over a length of 300 mm. A lubricating nipple is attached to the clamping block for the lubrication of the linear drive.

The ball screw spindles are manufactured on modern machines in a rolled design, and then hardened and polished.

Our linear drives are technically mature and have proven themselves in their practical application for more than 25 years.



Process know-how and vertical integration

Our ball screw spindles are technically mature, powerful and extensively proven through use in automation systems: With ball screw drives, isel Germany AG has created a core competence with a lot of know-how in design and production.

With modern production facilities, we carry out all workprocesses (rolling, hardening and polishing) as well as the individual end-processing effectively and customer-specifically in order to offer you the optimal solution for your design task.

Just give us a call to discuss your individual application and possible solutions with us. Our experienced team is always at your disposal for details and questions.

Our design department checks all the technical requirements and coordinates with the production engineers so that your order can be quickly and flexibly integrated into the production process.

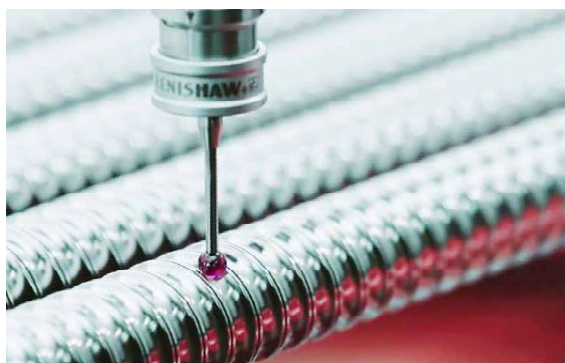
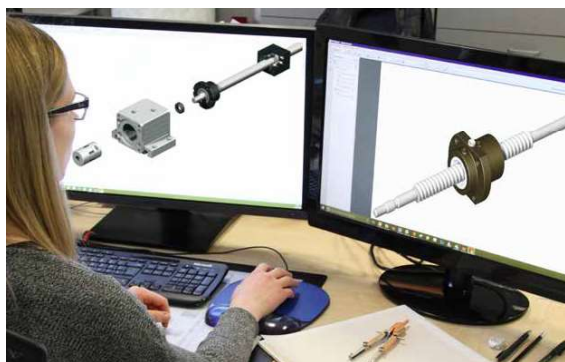
We have been manufacturing ball screw spindles on modern CNC-controlled production machines and with robotsupport for more



than 25 years. Certified processes, permanent monitoring and optimization of production processes as well as the most modern 3D measuring machines guarantee consistent quality to meet customer requirements.

Our long-standing customers include companies from the following branches:

- Mechanical and apparatus engineering
- Medical technology
- Electronics industry
- Semiconductor industry
- Wood processing
- Training • and many more...





Ball screw spindles Ø 12, 16, 20, 25 mm

- rolled, hardened, and polished
- Material CF 53, hardened by induction (HRC 60±2)
- Available in lengths of up to 3052 mm (inside the grid of 100 mm, special lengths are available upon request!)
- End processing according to the isel standard or based on customer specifications
- Standard tolerance class according to ISO 7

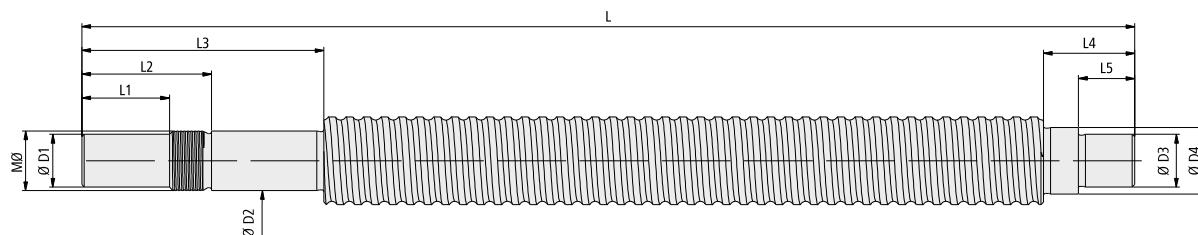


Order key

211 1XX XXXX			Lengths
Diameter	Spindle gradient	End machining	e.g. 045 = 452 mm
2 = 12 mm	2 = 2.5 mm (only for Ø 12, 16 mm)	0 = unprocessed	086 = 868 mm
3 = 16 mm	3 = 4 mm (only for Ø 16 mm)	1 = one-sided processing	305 = 3052 mm
4 = 25 mm	4 = 5 mm	2 = two-sided processing (only for Ø 12, 25 mm)	(shortened by the last digit)
5 = 20 mm	5 = 10 mm (not with Ø 12 mm)	5 = two-sided processing (only for Ø 16, 20 mm) suitable for all feeds (aluminum profile length + 78 mm)	
	6 = 20 mm (not with Ø 12 mm)		

See "Available lengths" for permissible combinations.

Dimensional drawings



	Gradient	L [max.]	L1	L2	L3	L4	L5	M	D1	D2	D3	D4
Ø 12	2.5 / 5	1552	10	20	40	19	-	M8 x 1	6.35 h7	8 h6	-	7 h6
Ø 16	2.5 / 4 / 5 / 10 / 20	3068	18	31	52	28	-	M10 x 0.75	8 h7	10 h6	-	12 h6
Ø 20	5 / 10 / 20	3052	20	32	55	27.5	-	M12 x 1	10 h7	12 h6	-	12/14 h6
Ø 25	5 / 10 / 20	3000	25	37	69	26	16	M17 x 1	15 h7	17 h6	15 j6	19 h11

Available lengths

End processing inside a grid of 100 mm	Ø 12 mm	Ø 16 mm	Ø 20 mm	Ø 20 mm
without	252 - 1552 mm	352 - 3052 mm	252 - 3052 mm	300 - 3000 mm
one-sided	252 - 552 mm	352 - 1052 mm	252 - 1052 mm	352 - 1052 mm
two-sided	252 - 1552 mm	368 - 3068 mm	252 - 3052 mm	295 - 2995 mm



Flange bearing

Flange bearing - drive side



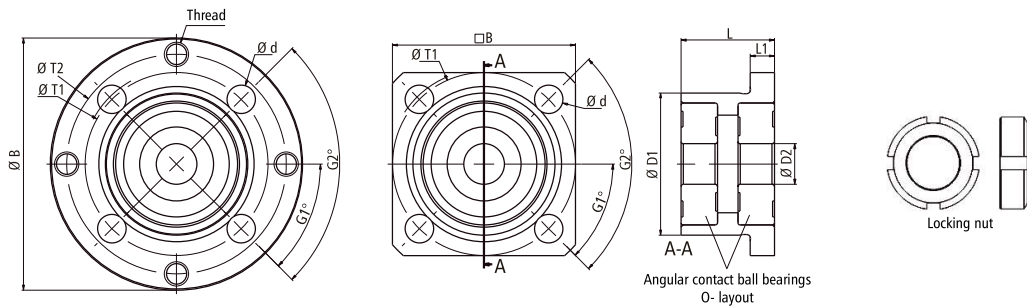
Flange bearing - floating bearing side



- Bearing of the ball screw spindle (fixed-loose bearing)
- **Flange bearing, drive side (fixed bearing):**
bearing bush equipped with two pressed-in angular ball bearings in an O arrangement
- **Flange bearing opposite bearing side (floating bearing):**
bearing bush equipped with a pressed-in needle bearing

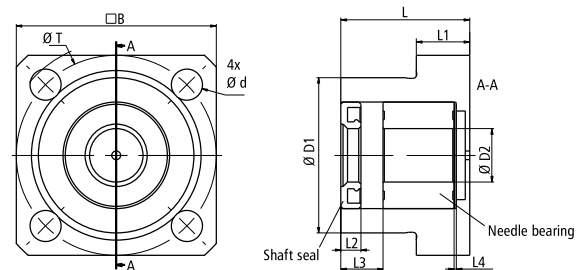
drive side and lock nut

	Construction	B	L	L1	D1	D2	T1	T2	G1	G2	d	Thread	Item number
Ø 12	rectangular	36	19.5	-	-	8	38.2	-	45°	90°	4 x Ø 4.5	-	216504 0030
Ø 16	rectangular	45	23	6	35	10	45	-	45°	90°	4 x Ø12 4U / Ø7	-	216504 0001
Ø 16	round	62	23	6	35	10	45	54	45°	90°	4 x Ø12 4U / Ø7	4 X M6	216504 0003
Ø 20	round	64	23	8	39.5	12	50	54	45°	90°	4 x Ø12 4U / Ø7	4 X M6	216504 0031
Ø 25	round	72	34	8	53	17	62	62	30°	60°	4 x Ø12 4U / Ø7	6 x M6	216504 0006



Floating bearing side

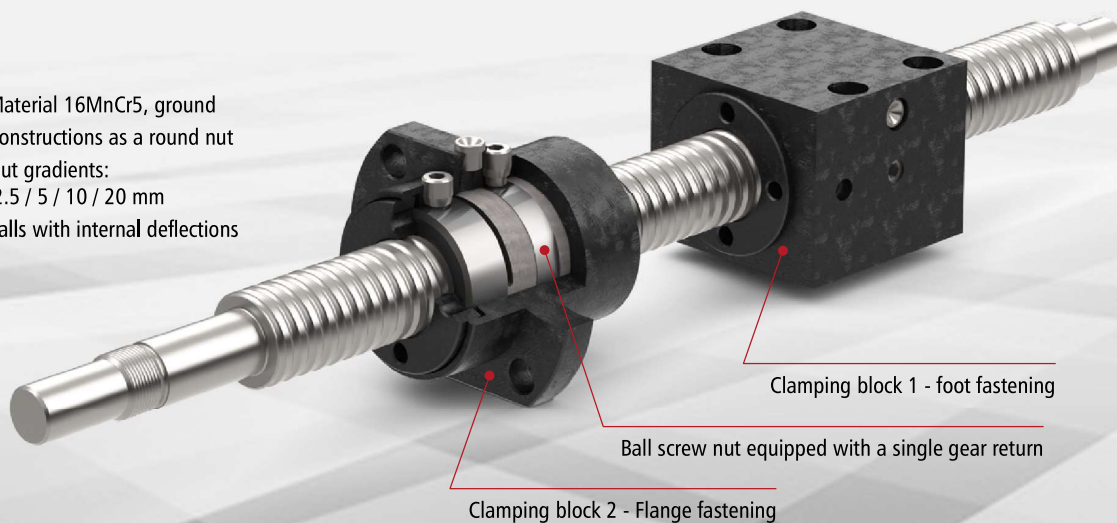
	B	L	L1	L2	L3	L4	D1	D2	T	d	Item number
Ø 12	35	20	8	6	6.5	0.5	28	7	38.2	Ø7.5 x 4U / Ø4.5	216504 0032
Ø 16	45	29	12	4.5	9.5	0.5	35	12	45	Ø 12 x 4U / Ø 7	216504 0002
Ø 20	50	29.5	12	4.5	5	1.5	35	12	50	Ø 12 x 4U / Ø 7	216504 0033
Ø 25	45	29	12	8	10	0	35	15	45	Ø 12 x 4U / Ø 7	216504 0005





Ball screw nuts equipped with single thread return

- Material 16MnCr5, ground
- Constructions as a round nut
- Nut gradients:
2.5 / 5 / 10 / 20 mm
- Balls with internal deflections



Scraper

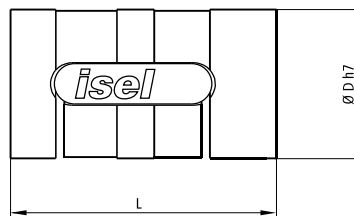
- Constructions for ball screw nuts
Ø 12, 16, 20, 25 mm (PU = 2 pieces)

Ø 12 mm Itemno.: 213500 0003

Ø 16 mm Itemno.: 213500 0001

Ø 20 mm Itemno.: 213500 0002

Ø 25 mm itemno.: 213700 9000



drive side and lock nut

	Gradient	D	L	dyn. load rating [N]	stat. load rating [N]	Item number
Ø 12	2.5	24	37.5	1900	3000	213412 0003
	5			1300	2,000	213412 0005
Ø 16	2.5	28	50	3,500	5500	213503
	4			4600	7200	213514
	5			4600	7200	213505
	10			4200	6500	213510
	20			1900	2,500	213520
Ø 20	5	33	50	5000	9000	213420 0005
	10			4,500	8,000	213420 0010
Ø 25	5	38	50	5,100	12,600	213700 0005
	10			5,100	12,600	213700 0010
	20		70	3,570	8,800	213700 0020

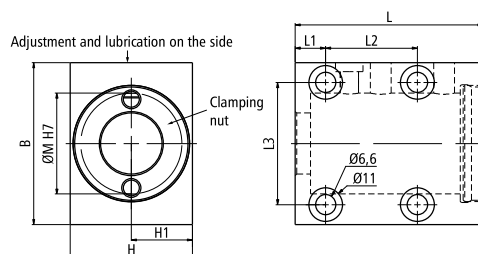


... and matching clamping blocks



Foot fastening

	M	L	B	C	H1	L1	L2	L3	Clamping nut	Itemno.
Ø 12	24	37.5	44	29	14.5	7	20	31	-	213400
Ø 16	28	54	47	33	16.5	14.5	25	35	-	213500
Ø 20	33	61.5	53	40	20	10	30	40	1x	213600
Ø 25 - gradient 5/10	38	60	60	49.5	25	10	30	46	1x	213700 9001
Ø 25 - gradient 20	38	80	60	50	25	10	50	46	1x	213700 9002



Flange fastening

	M	L	B	C	d	T	D1	D2	D3	L1	L2	Clamping nut	Itemno.
Ø 12	24	37.5	53	42	4.5	45	35	37 g6	35	3	24.5	-	213401
Ø 16	28	50	62	48	6.6	51	39	40 g6	39	11.6	28.4	-	213501
Ø 20	33	60.5	67	53	6.6	56	44	45 g6	44	16	34.5	1x	213601
Ø 25 - gradient 5/10	38	60	80	62	9	65	49	50 f9	50 f9	32.25	17.75	1x	213700 9003
Ø 25 - gradient 20	38	80	80	62	9	65	49	50 f9	50 f9	52.25	17.75	1x	213700 9004

