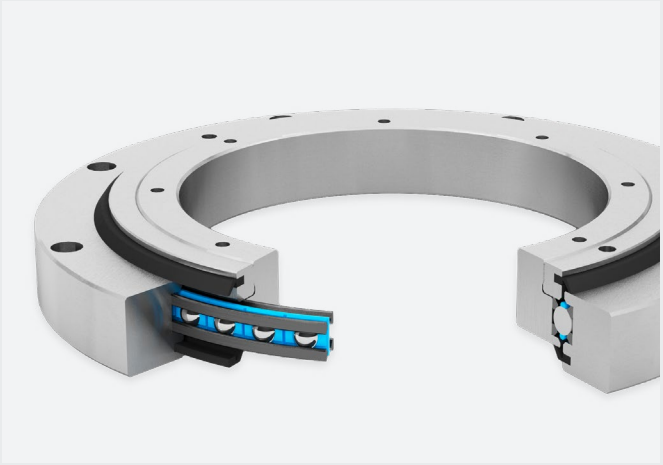
Innovation in Motion

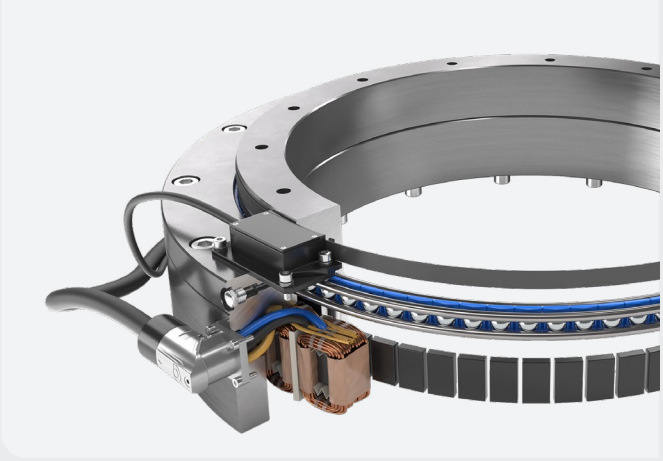
Franke

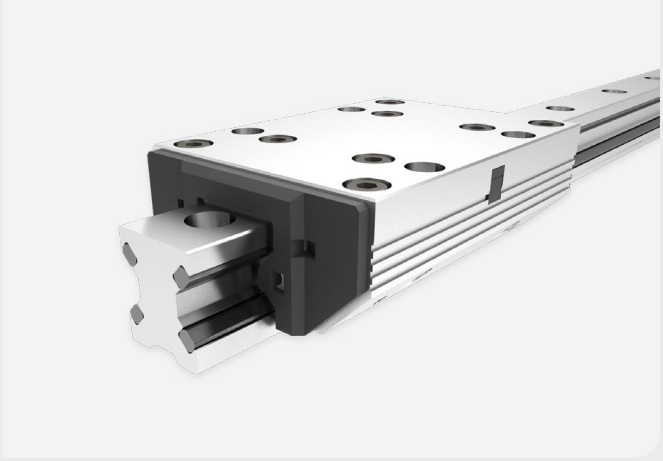
Standard program

Wire Race Bearing **Slim Bearings** **Bearing Assemblies** **Rotary Tables**

Linear Guides







The customer as a partner: Sales specialist Michael Bärstecher (left) explains the advantages of the wire race bearing on site.

The principles of our actions

Franke is the inventor of the wire race bearing and a world leader in the further development and use of this technology in rotary and linear motion systems. We are the market leader in customized bearing solutions. We focus on applications where our products offer the greatest possible benefits. Resources are targeted by us to continuously increase our competence.

Our corporate principles place the „what for“ at the center of our considerations:

1

Why do we do it?
We want to move things: technical innovations, the development of personal potential and the development of good human relationships.

2

How do we do it?
We support our clients super-individually with our creativity, expertise and care at every stage of the collaboration.

3

What do we do?
We develop and produce ideally fitting bearing solutions for rotary and linear applications - including consulting, engineering and service.

This is what we stand for

With our brand values we define what Franke is all about and what our strengths are. We can always refer to these values. They give us orientation in our work-life and on our path into the future.

Innovation

We work to always provide customers with optimal bearing solutions and to systematically open up new markets for wire race bearings and linear systems. With our solutions, we help our customers to be innovative. To this end, we follow technological trends and develop new products. We regularly and significantly invest in modern technologies and in the continuous improvement of internal structures, processes and procedures. In this way, we create an innovation-friendly environment. We regard a willingness to change and lifelong learning as the basis for innovation.

Agility

We are an active, consulting partner to our customers and work with them to find the best possible solutions at all levels of cooperation. Our structures allow us to react quickly and flexibly. Modern control systems allow the variable use of resources for individual and series production. We work in effective teams whose interaction is characterized by short paths of decisions. The outsourcing of production tasks, flexible working hours and situation-related personnel deployment enable us to quickly adapt our performance to demand.

Competence

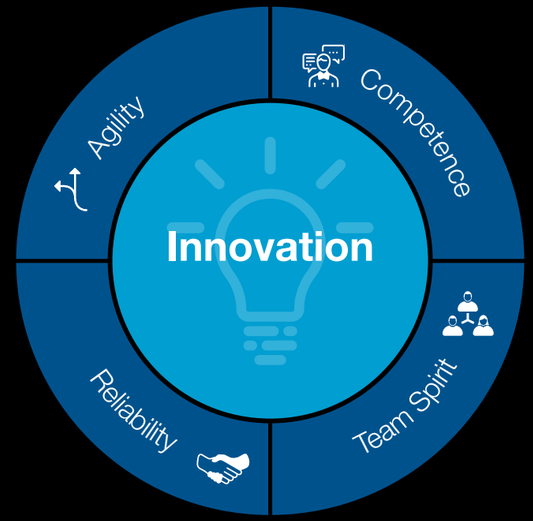
Franke is the inventor of the wire race bearing and a world leader in the further development and use of this technology in rotary and linear motion systems. A comprehensive understanding of the technical and economic challenges of our customers in all industries is fundamental to our success. This is complemented by manufacturing know-how and excellent product and manufacturing development as further supporting pillars. Our performance is also supported by a qualified and reliable network of partners and institutes.

Reliability

Reliability is a core value for us in all our relationships. We want to be reliable for our customers, for our colleagues and for everyone around us. Clear management processes, consistent targets and solid key figures help us to be valued as reliable players. We earn our customers‘ trust with outstanding delivery performance, reliable products and comprehensive service. In our dealings with each other, we meet deadlines and commitments and provide feedback on the status and progress of joint projects. For us, reliability also means trusting the work of others and helping to avoid mistakes.

Team Spirit

We are convinced that we can achieve more together. To this end, we form flexible teams. We regard our customers and external partners as members of our team. For us, team spirit includes mutual appreciation, interest in the perspectives of our fellow human beings and recognition for their achievements. We cultivate respectful, appreciative interaction with each other. Differing opinions are important and welcome in the decision-making process. In the event of conflicts, we strive for compromises and joint solutions.



WE ACT SUSTAINABLE

Commitment

Academy and Education

Successfully training, developing and retaining employees - our path to long-term success. Lifelong learning is at the heart of our progressive corporate culture.

Erich-Franke-Foundation

The Erich-Franke-Foundation was established in 2000 by Egon and Eva Franke to mark the 100th birthday of the inventor of the wire race bearing.

Cooperation

True to the motto: “Achieving more together”, we maintain long-term relationships with customers and external partners.

Funding and Sponsorship

We use promotions and sponsorship as an effective marketing tool and promote student research projects at universities in the form of free sample parts, among other things. At a local level, we support schools, sports clubs and cultural events with donations.

Health Promotion

The health and safety of employees is a top priority for Franke. Company health management measures are designed to support this. In this regard, there are offers such as mobile working, flexible working hours, driver safety training and company bicycles. In addition, team events and workshops are intended to promote a sense of social community.

Ecology

Waste disposal, climate, environment

We firmly believe that it is crucial to meet the needs of today‘s generation without jeopardizing the opportunities and possibilities of future generations. That is why we strive for a harmonious balance between the environment, society and the economy.

Waste Disposal

Franke GmbH strives to use resources responsibly in order to reduce the impact on the environment. To this end, the entire product life cycle is considered. Products with a long service life are targeted in order to avoid waste in the downstream value chain.

Climate

Franke GmbH is aiming for CO2 neutrality by 2025. Initially for Scope 1 (direct emissions) and Scope 2 (indirect emissions from purchased energy), but not for Scope 3 (indirect emissions within the value chain), in accordance with the GHG Protocol. The greenhouse gas balance for the respective previous calendar year is determined, which contains all relevant key figures, as well as the other associated topics in the area of climate protection and the resulting potential measures.

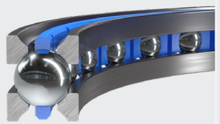
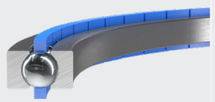
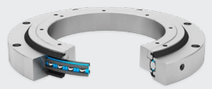
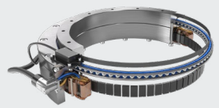
Economics

Economical product design

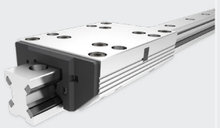
In a wire race bearing, heavy-duty wire raceways take over the bearing function. This saves weight and space. The free choice of material and the free design of the enclosing construction open up completely new possibilities for the design of components. In addition, the weight of the overall product can be greatly reduced.

In close contact with our customers: Ignacio Garcia (r.) from Franke Spain provides valuable tips on site.

Bearings

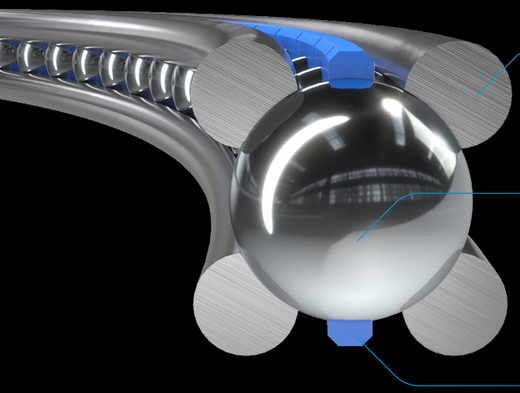
		Type	Page	Characteristics
	**Wire Race Bearings**	**LEL** **LER** **LEW**	14 15 16	Round profile, ground raceways Rectangular profile, profiled raceways Round profile, crossed roller bearings
	**Slim Bearings**	**LSA**	17	2-ring bearing, drawn profile
	**Bearing Assemblies**	**LVA/LVB/LVK** **LVD/LVL** **LVE/LVM** **LVE/LVG**	18 19 20 21	Standard, steel/aluminum/plastic External toothing, steel/plastic Toothed belt toothing, aluminum/plastic Angular contact ball bearing, angular contact roller bearing
	**Rotary Tables Rotary Systems**	**LTA** **LTB** **LTD**	22 23 24	Worm drive, highly dynamic Worm drive, high precision Torque drive, dynamic and precise

Linear Systems

		Type	Page	Characteristics
	**Linear Guides**	**FDA/FDB/FDC/ FDD/FDE/FDG/ FDH/FDI**	30	Double rail with cassette Pair of single rails and pair of roller shoes

Four wires for better design: Franke Wire Race Bearings

The decisive difference between an ordinary ball bearing and a Franke wire race bearing is in the raceways. In a wire race bearing, the rolling elements do not roll on solid housing rings, but on high performance wires. The flexibility of this principle makes it possible to design more freely and simply, in order to develop better products.



In a wire race bearing, highly resilient bearing rings made of wire assume the function of the bearing arrangement. This saves weight and space. The free choice of material and the free design of the enclosing structure also allow the weight of the overall product to be reduced considerably.

In wire race bearings, the raceways of the rolling elements are precisely matched to the diameter of the rolling elements. This ensures optimum functional characteristics and guarantees both, precise running and a long operating life.

Anything you wish. Only what you need.

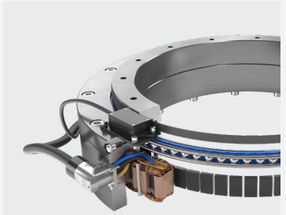
You can purchase from Franke only the bearing elements or ready-to-install bearing assemblies. On request in customer-specific design, with toothing or with integrated torque motor.

Wire Race Bearings & Slim Bearings

All you need for your product solution is a Franke wire race bearing. Franke wire race bearings can be integrated directly into your design. You can easily assemble them yourself. The wire race bearing can be adapted in form and material bespoke to your requirements, for example by choosing amagnetic ceramic rolling elements.

Bearing Assemblies

If required, we can also design and manufacture complete bearing assemblies for you. Franke bearing assemblies are available in every size, with individual bores and toothings and in numerous materials such as aluminum, stainless steel, carbon or as a 3D printed housing.

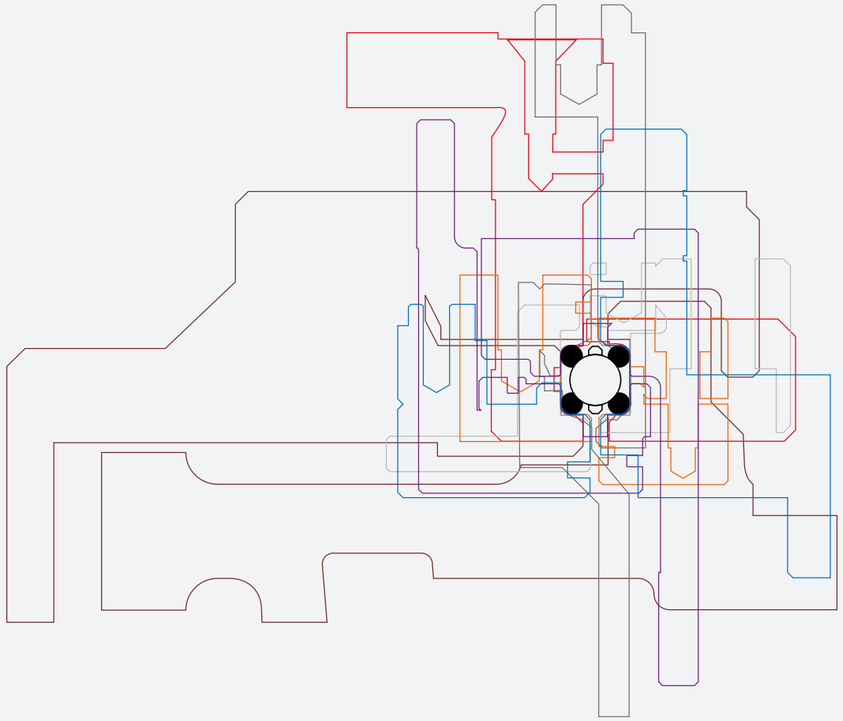


Rotary Tables Rotary Systems

You prefer a complete solution from one source? Franke offers complete customized positioning and drive units, optionally with proximity switch, coupling and motor. Systems with direct drive are a particular strength of Franke. They are used, for example, in many computer tomographs of renowned manufacturers.

Possibilities instead of specifications

Franke wire race bearings are space-saving, variable and individually adaptable. This gives you the greatest possible freedom for innovative solutions.



Superindividual

Individualization with the Franke modular system

All you need for your product solution with Franke ball bearings is a wire race bearing. Franke bearing elements can be integrated directly into your design. The shape and material of wire race bearings can be adapted to your requirements in a highly individual way. Here you will find examples.

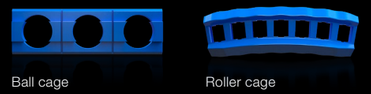
Rolling element

Ball · Roller · Special designs

Raceways

Round profile · Rectangular profile · Slim bearings · Roller bearing · 4-point contact bearing · 2-row angular contact ball bearing

Standard cages

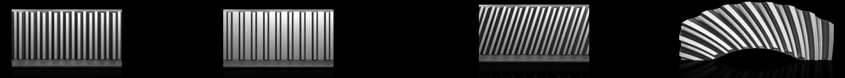


Ball cage · Roller cage

Special designs

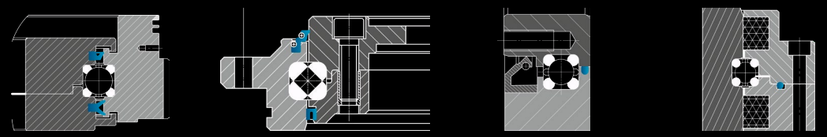
Flat cage · Comb cage · Steel / Teflon / Brass / ...

Verzahnungen



Straight Gear · Toothed Belt Geart · Helical Gear · Special Gear

Dichtungen

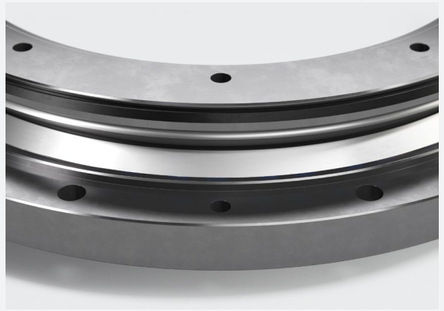


Labyrinth seal · Ring spring seal · Radial shaft seal · HIgh pressure seal

Tough on the road

Crossed roller bearings for maximum rigidity and moment load capacity.

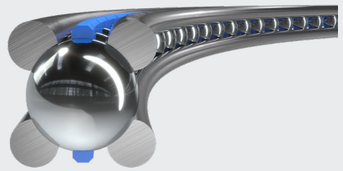
Crossed roller bearings with hardened races are extremists: They can withstand the highest moment loads, shock loads and vibrations and thus advance into regions that were previously unattainable for wire race bearings. The machining of hardened races requires completely new technologies. Together with the application-specific design of the enclosing construction, this creates rotary components for the toughest applications. For example, in the storage of heavy equipment on vehicles or means of transport for any terrain, under continuous load with high tilting moments, such as in radar systems, or in the suspension of complex ceiling lights in medical technology.

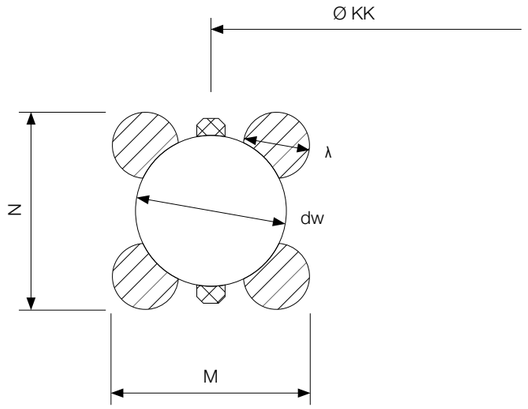


Large cross-section races have a large contact area with the rolling elements and thus ensure optimum absorption of the loads.

Large-diameter, cross-mounted track rollers provide the best possible contact surface to absorb loads from all directions and provide uniformly smooth running.

Bearings
with a ground raceway
Ball bearing Type LEL





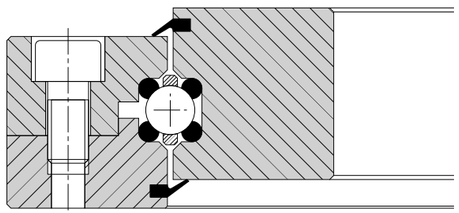
Dimensions

Size	Dimensions				Load ratings				stat. Moment	Weight
	mm				kN				kNm	kg
	Ø KK	M x N	dw	λ	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LEL1.5	70 - 150	5.9 x 5.9	5	1,5	14 - 30	6 - 14	8 - 10	7 - 9	0.2 - 1	0.03 - 0.06
LEL2.5	160 - 300	9.2 x 9.2	8	2,5	73 - 141	35 - 66	20 - 25	17 - 22	2.8 - 9.9	0.15 - 0.29
LEL4	200 - 1500	12.86 x 12.86	9.525	4	117 - 908	55 - 427	25 - 53	21 - 46	5.5 - 320.3	0.39 - 2.91
LEL5	220 - 1500	15.5 x 15.5	12	5	257 - 1782	121 - 839	41 - 83	35 - 72	13 - 629	0.70 - 4.77
LEL7	340 - 2000	20.9 x 20.9	16	7	470 - 2811	221 - 1323	59 - 113	51 - 98	37.6 - 1323.1	1.86 - 10.98

Characteristics

Franke bearings of type LEL are suitable for high demands on running characteristics and accuracy. Due to the hardened and CNC-ground raceway as well as the ideal geometrical adaptation of ball and raceway radius, they have outstanding bearing characteristics. Bearings of type LEL allow the greatest possible freedom of bearing design. The mounting space is between 5.9 mm and 20.9 mm. For special requirements, raceway thicknesses up to 20 mm and ball sizes up to 50 mm are possible.

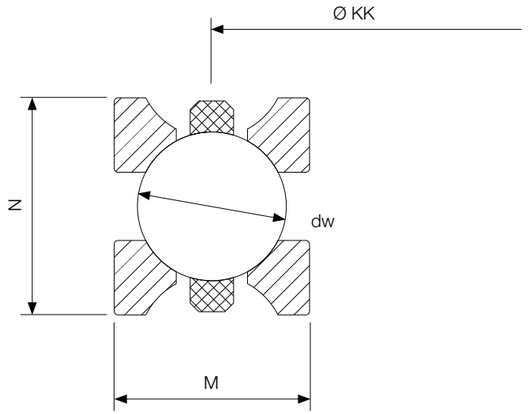
Design example



Technical data

Material	ball race rings: hardened and tempered chrome-silicon steel rolling element: hardened rolling bearing steel cage: polyamide or thermoplastic polyurethane
Operating temp.	–30 °C to +80 °C, briefly up to +100 °C
Peripheral speed.	max. 5 m/s, without seals max. 10 m/s
Lubricant	Klüber ISOFLEX TOPAS NCA52 (recommended)

Bearins
with profiled raceways
Ball bearing Type LER



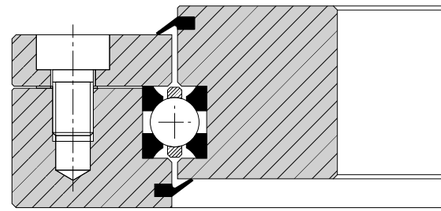
Dimensions

Size	Dimensions			Load ratings				stat. Moment	Weight
	mm			kN				kNm	kg
	Ø KK	M x N	dw	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LER1.5	40 - 150	5 x 6	4	8 - 33	4 - 15	5 - 8	4 - 7	0.1 - 1.2	0.01 - 0.06
LER2	80 - 400	7.5 x 9	6	28 - 143	13 - 67	11 - 19	9 - 17	0.5 - 13.5	0.06 - 0.33
LER3	100 - 1500	11 x 13	9.525	54 - 850	25 - 399	18 - 49	15 - 43	1.3 - 300	0.17 - 2.58
LER4	200 - 1500	14 x 16	12	175 - 1346	82 - 633	40 - 84	34 - 73	8.2 - 474.9	0.61 - 4.58
LER5	250 - 1800	15.75 x 17.5	12	260 - 1922	123 - 905	43 - 90	37 - 78	15.3 - 814	0.94 - 6.79

Characteristics

Franke bearings type LER are suitable for medium rotational speeds and accuracies. They convince by smooth running, high dynamics and compact installation space. Due to the straight contact surfaces, they can be easily integrated into the surrounding design and have a high rigidity. The low price makes the bearings of type LER an economical solution. LER are generally mounted without clearance. The preload can be individually adjusted according to the requirements.

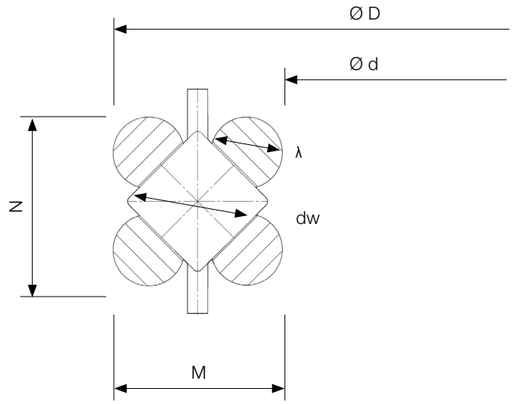
Design example



Technical data

Material	ball race rings: hardened and tempered chrome-silicon steel rolling element: hardened rolling bearing steel cage: polyamide or thermoplastic polyurethane
Operating temp.	-30 °C to +80 °C, short-term up to +100 °C
Peripheral speed.	max. 5 m/s, without seal max. 10 m/s
Lubricant	Shell Gadus S3 V220 C2

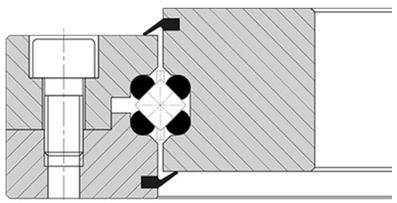
Bearings
with ground raceways
Cross roller bearing Type LEW



Dimensions

Size	Dimensions				Load ratings				stat. Moment	Weight
	mm				kN				kNm	kg
	Ø KK	M x N	dw	λ	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LEW7	400 - 1200	16.6 x 16.6	7	7	350 - 1074	140 - 430	90 - 234	47 - 122	28.2 - 258	1.9 - 5.5

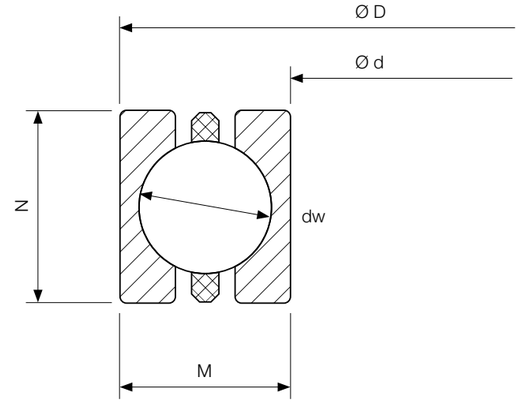
Characteristics
Franke bearings type LEW are suitable for medium rotational speeds and accuracies. They convince by smooth running even under tilt moment loads, high rigidity and compact installation space. The crosswise arranged rollers can support high loads from all directions. Bearings of model LEW are insensitive to shock and vibration. They offer the greatest possible flexibility in terms of preload, running characteristics and diameter ranges.



Technical data

Material	ball race rings: hardened and tempered chrome-silicon steel rolling element: hardened rolling bearing steel cage: polyamide or thermoplastic polyurethane
Operating temp.	-30 °C to +80 °C, short-term up to +100 °C
Peripheral speed.	max. 4 m/s
Lubricant	Shell Gadus S3 V220

Bearings
with profiled raceways
Slim bearings Type LSA

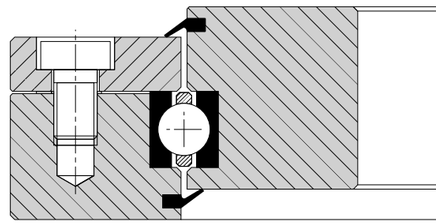


Dimensions

Size	Dimensions					Load ratings				stat. Moment	Weight
	mm					kN				kNm	kg
	Ø d inch	Ø D	Ø d	M x N	dw	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LSA4	4.0 - 15	115.68 - 395.08	101.6 - 381	7.04 x 4	4	25 - 95	12 - 45	7 - 10	6 - 8	0.6 - 9	0.05 - 0.19
LSA6	4.5 - 15	127 - 393.8	114.3 - 381	6.4 x 6.4	4	39 - 129	18 - 61	7 - 11	6 - 9	1.3 - 11.7	0.09 - 0.29
LSA8	5.5 - 30	155.7 - 778	139.7 - 762	8 x 7.94	5	59 - 311	28 - 146	13 - 23	11 - 20	2 - 56.3	0.17 - 0.91

Characteristics
Franke slim bearings of the type LSA convince by their smooth running, extremely compact installation space, simple mounting and favourable price. Slim bearings of type LSA consist of an inner and outer race with hardened and profiled raceways and a plastic cage with retained balls. The rolling elements rest against the raceways at two points each, thus maintaining the 4-point system. The raceways are split and can therefore be changed elastically in diameter for installation.

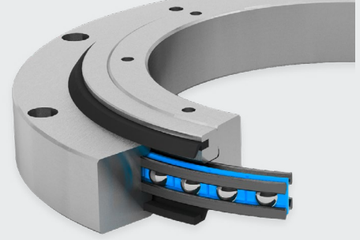
Design example

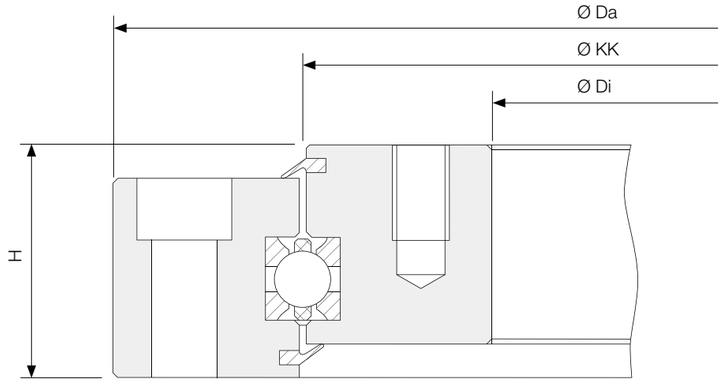


Technical data

Material	ball race rings: hardened and tempered chrome-silicon steel rolling element: hardened rolling bearing steel cage: polyamide or thermoplastic polyurethane
Operating temp.	-20 °C to +80 °C, short-term up to +100 °C
Peripheral speed	max. 5 m/s, without seal max. 10 m/s
Lubricant	Shell Gadus S3 V220

Bearing assemblies in standard version
Type LVA, LVB, LVK





Dimensions

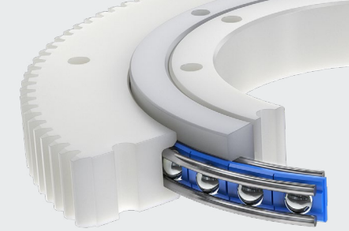
Type	Material	Dimensions				Load ratings				stat. Moment	Weight
	Housing rings	mm				kN				kNm	kg
		Ø KK	Ø Da	Ø Di	H	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LVA	Steel	100 - 1800	150 - 1930	50 - 1670	34 - 90	54 - 2234	25 - 1050	18 - 146	15 - 126	1 - 946	3 - 449
LVB	Aluminum	100 - 1800	150 - 1930	50 - 1670	34 - 90	54 - 2234	25 - 1050	18 - 146	15 - 126	1 - 946	1.2 - 166.7
LVK	Plastic	150 - 200	150 - 250	50 - 150	20	5.6 - 10.6	2 - 3.8	5.6 - 10.6	2 - 3.8	0.07 - 0.25	0.5 - 1

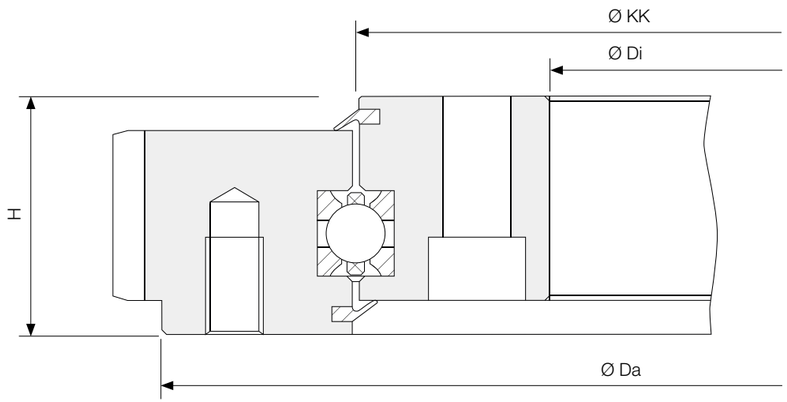
Characteristics

Franke Bearing Assemblies Type LVA, LVB and LVK are ready-to-install bearing assemblies with housing rings made of steel (LVA), aluminum (LVB) or plastic (LVK) and integrated bearing elements.Designed as 4 point bearings, they can support equally high loads from all directions and are insensitive to shocks and vibrations. LVA and LVB bearing assemblies are sealed on both sides. All Franke Bearing Assemblies are adjusted with preload.

Technical data		**LVA (steel)**	**LVB (aluminum)**	**LVK (plastic)**
Material	Inner / Outer ring:	C45N	aluminum (anodized)	polyoxymethylene (POM)
	Ball race rings:	hardened and tempered chrome-silicon steel		non corrosive Steel (1.4310)
	Rolling element:	hardened rolling bearing steel		non corrosive Steel
	Cage:	polyamide or thermoplastic polyurethane		polyamid (PA12)
	Sealing:	NBR		–
Operating temp.		-20 °C to +80 °C, short-term up to +100 °C		-10 °C to +80 °C, short-term up to +100 °
Peripheral speed.		max. 5 m/s, without seal max. 10 m/s		max. 4 m/s
Lubricant		Shell Gadus S3 V220 C2		Klüber UH1 14-151
Relubrication		via grease nipples to DIN 3405		

Bearing assemblies with external teeth
Type LVD, LVL





Dimensions

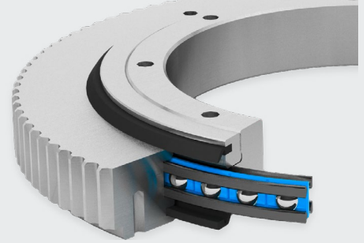
Type	Material	Dimensions				Load ratings				stat. Moment	Weight
	Housing rings	mm				kN				kNm	kg
		Ø KK	Ø Da	Ø Di	H	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LVD	Steel	100 - 1800	150 - 1930	50 - 1670	27 - 82	54 - 2234	25 - 1050	18 - 146	15 - 126	1 - 946	3.4 - 484.2
LVL	Plastic	100 - 200	150 - 250	50 - 150	24	5.6 - 10.6	2 - 3.8	2.6 - 10.6	2 - 3.8	0.07 - 0.25	0.5 - 1

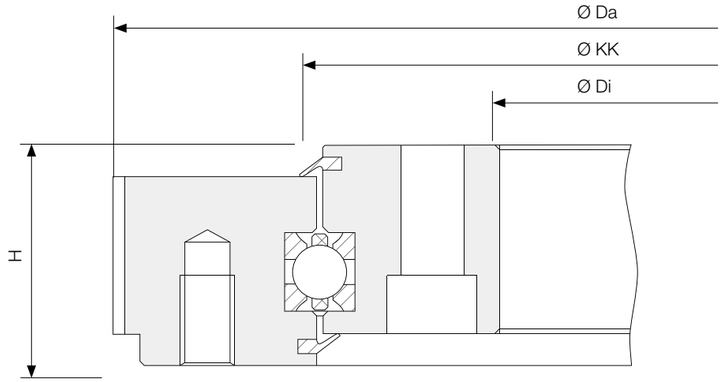
Characteristics

Franke bearing assemblies type LVD and LVL are ready-to-install bearing assemblies with housing rings made of steel (LVD) or plastic (LVL), integrated bearing elements and external gear. Designed as 4-point bearings, they can support equally high loads from all directions and are insensitive to shocks and vibrations. LVD bearing assemblies are sealed on both sides. All Franke bearing assemblies are adjusted to preload.

Technical data		**LVD (steel)**	**LVL (plastic)**
Material	Inner / Outer ring:	C45N	polyoxymethylene (POM)
	Ball race rings:	hardened and tempered chrome-silicon steel	non corrosive Steel (1.4310)
	Rolling element:	hardened rolling bearing steel	non corrosive Steel
	Cage:	polyamide or thermoplastic polyurethane	polyamid (PA12)
	Sealing:	NBR	–
Gear		DIN 3967, quality 8e25, straight toothing	
Operating temp.		-20 °C to +80 °C, short-term up to +100 °C	-10 °C to +80 °C
Peripheral speed.		max. 5 m/s, without seal max. 10 m/s	max. 4 m/s
Lubricant		Shell Gadus S3 V220 C2	Klüber UH1 14-151
Relubrication		via grease nipples to DIN 3405	

Bearing assemblies
with toothed belt gearing
Type LVE, LVM





Dimensions

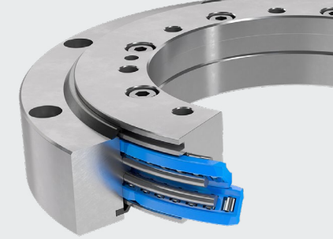
Type	Material	Dimensions				Load ratings				stat. Moment	Weight
	Housing rings	mm				kN				kNm	kg
		Ø KK	Ø Da	Ø Di	H	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LVD	Aluminum	100 - 1800	150 - 1930	50 - 1670	27 - 82	54 - 2234	25 - 1050	18 - 146	15 - 126	1 - 946	1.2 - 166.7
LVM	Plastic	100 - 200	150 - 250	50 - 150	24	5.6 - 10.6	2 - 3.8	2.6 - 10.6	2 - 3.8	0.07 - 0.25	0.5 - 1

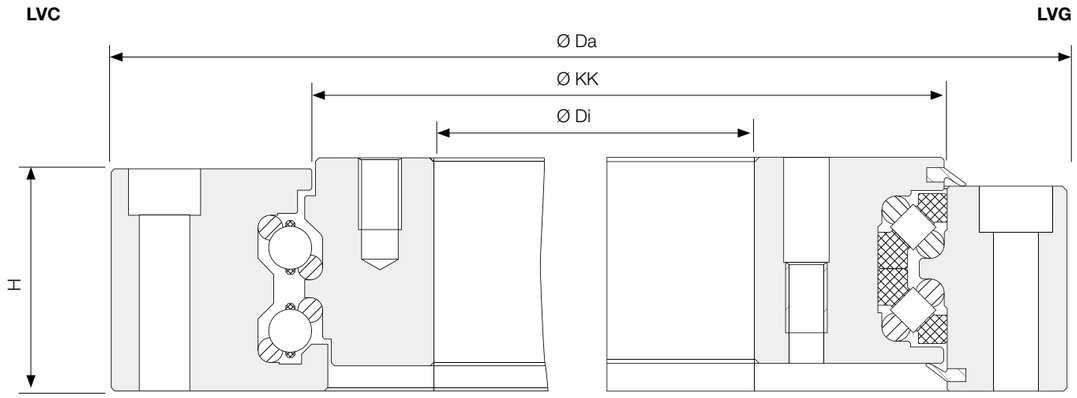
Characteristics

Franke bearing assemblies Type LVE (aluminum) and LVM (plastic) are ready-to-install bearing assemblies with toothed belt gearing and with integrated bearing elements. Designed as 4-point bearings, they can support equally high loads from all directions and are insensitive to shocks and vibrations. LVE bearing assemblies are sealed on both sides. Alle Franke bearing assemblies are adjusted to preload.

Technical data		**LVD (steel)**	**LVL (plastic)**
Material	Inner / Outer ring:	aluminum (anodized)	polyoxymethylene (POM)
	Ball race rings:	hardened and tempered chrome-silicon steel	non corrosive Steel (1.4310)
	Rolling element:	hardened rolling bearing steel	non corrosive Steel
	Cage:	polyamide or thermoplastic polyurethane	polyamid (PA12)
	Sealing:	NBR	–
Gear		DIN 3967, quality 8e25, straight toothing	
Operating temp.		-20 °C to +80 °C, short-term up to +100 °C	-10 °C to +80 °C
Peripheral speed.		max. 5 m/s, without seal max. 10 m/s	max. 4 m/s
Lubricant		Shell Gadus S3 V220 C2	Klüber UH1 14-151
Relubrication		via grease nipples to DIN 3405	

Bearing assemblies
as angular contact ball/roller bearing
Typ LVC, LVG





Dimensions

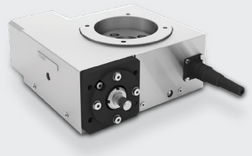
Type	Mate-	Rolling	Dimensions				Load ratings				stat. Moment	Weight
	rial	**element**	mm				kN				kNm	kg
			Ø KK	Ø Da	Ø Di	H	C_{oa}	C_{or}	C_a	C_r	C_{om}	
LVC	Steel	Balls	100 - 1800	150 - 1930	50 - 1670	34 - 82	53 - 2305	25 - 1085	11 - 85	10 - 73	1 - 976	3.7 - 437.4
LVG	Alum.	Rollers	200 - 400	262 - 475	140 - 323	47 - 57	309 - 827	124 - 331	39 - 90	36 - 83	12.4 - 66.2	4.1 - 12.4

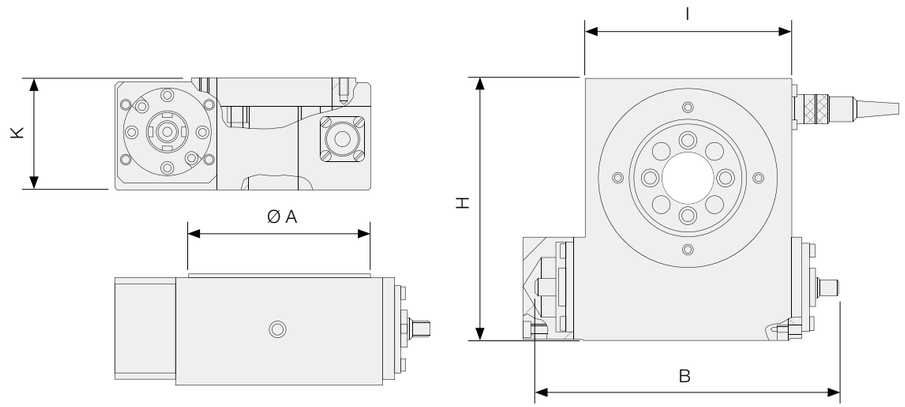
Characteristics

Franke bearing asseblies type LVC (steel) and type LVG (aluminum) are designed as double row angular contact ball bearings with integrated bearing elements. They are suitable for highest circumferential speeds and loadings and convince by very high dynamics and a very low rotational resistance. Both assemblies are are preloaded. They are insensitive to shocks and vibrations. The low rotational resistance and the minimal breakaway torque reduce the required drive power. Due to the low coefficients of friction, both bearing assemblies operate almost maintenance-free and achieve a long service life. Franke LVG are 60% lighter than comparable steel bearings.

Technical data		**LVC (Angular contact ball bearing)**	**LVG (Angular contact roller bearing)**
Material	Inner / Outer ring:	C45N	aluminum (anodized)
	Ball race rings:	hardened and tempered chrome-silicon steel	
	Rolling element:	hardened rolling bearing steel	
	Cage:	polyamide or thermoplastic polyurethane	
	Sealing:	NBR	
Gear		DIN 3967, quality 8e25, straight toothing	
Operating temp.		-20 °C to +80 °C, short-term up to +100 °C	
Peripheral speed.		max. 5 m/s, without seal max. 10 m/s	
Lubricant		Shell Gadus S3 V220 C2	
Relubrication		via grease nipples to DIN 3405	

Rotary table, worm drive
Type LTA





Dimensions

Size	Dimensions					Weight
	mm					kg
	Ø A	B	H	I	K	
LTA100	100	183	155	125	65	5.5
LTA200	200	278	255	220	70	10.0

Performance Overview

		LTA100	LTA200
Axial / radial accuracy	**µm**	30	30
Positioning accuracy	**sec**	160	120
Repeatability	**sec**	20	14
Load rating C_o	**kN**	17.5	43
Load rating C	**kN**	9	18
Tilting moment C_{om}	**Nm**	289	433
Reduction	**i**	18	36
Input speed N_{1max}	**U/min**	1800	2200
Output speed N_{2max}	**U/min**	100	61
Input torque M_{1max}	**Nm**	5	5
Output torque M_{2max}	**Nm**	54	108

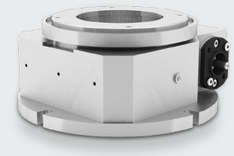
Characteristics

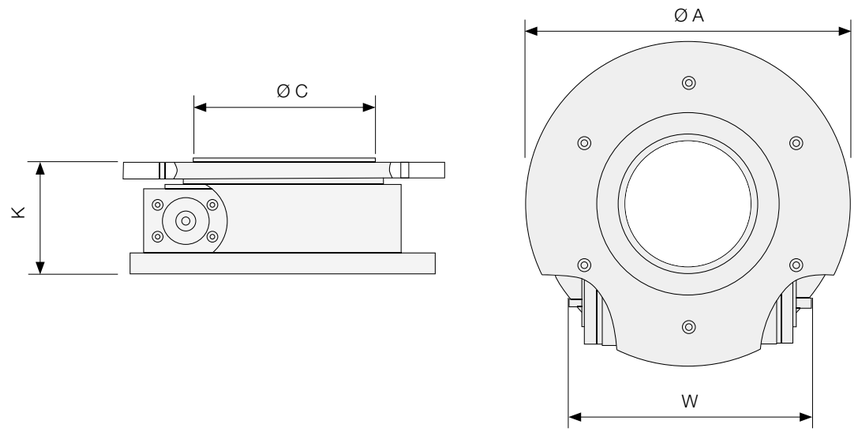
Franke rotary tables type LTA are light, compact, ready to install positioning units. They are highly loadable and have excellent concentricity and axial run-out accuracy. Franke rotary tables type LTA are versatile and are particularly suitable for light machining tasks as well as dynamic handling and assembly applications.

Technical data

Material	base plate: Aluminum; Housing: V2A; Ball race rings: hardened and tempered chrome-silicon steel; Rolling element: hardened rolling bearing steel; Worm wheel: Wear-resistant bronze alloy; Worm shaft: CK45N hardened and grinded
Operating temp.	–10 °C to +80 °C
Mounting position	any, preferably horizontal
Lubricant	bearing grease via grease nipples
Options	inductive proximity switch, flange/coupling to mount the motor, motorization

Rotary table, worm drive
Typ LTB





Dimensions

Size	Dimensions				Weight
	mm				kg
	Ø A	C	K	W	
LTB125	125	-	75	135	3
LTB175	175	-	82	196	6
LTB265	265	150	90	193	10
LTB400	400	300	100	251	27

Performance Overview

		LTB125	LTB175	LTB265	LTB400
Axial / radial accuracy	**µm**	20	20	20	30
Positioning accuracy	**sec**	80	80	70	50
Repeatability	**sec**	16	14	10	8
Load rating C_o	**kN**	2	2.6	4.2	14.1
Tilting moment C_{om}	**Nm**	110	140	310	1780
Reduction	**i**	360	360	360	360
Input speed N_{1max}	**U/min**	2500	2500	2500	2500
Output speed N_{2max}	**U/min**	7	7	7	7
Input torque M_{1max}	**Nm**	0.7	0.9	1.5	2
Output torque M_{2max}	**Nm**	70	75	160	290

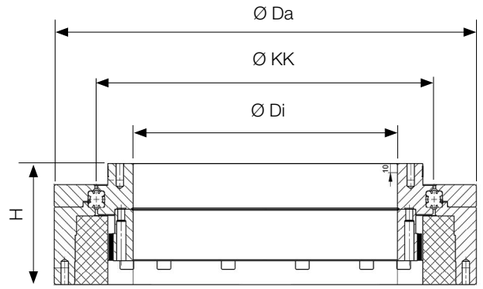
Characteristics

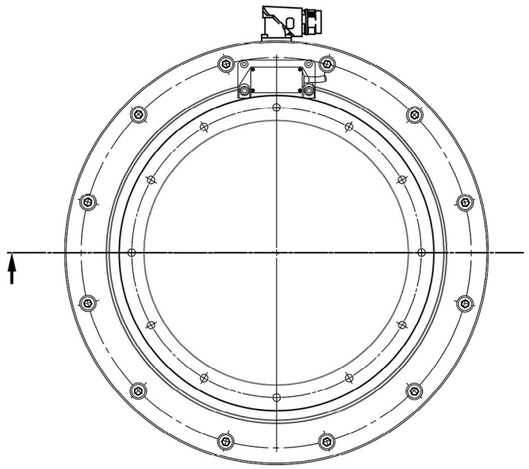
Franke rotary tables of type LTB are centerless, ready to install positioning units. They are highly loadable, lightweight (aluminum housing) and have an excellent angular accuracy and resolution. Franke rotary tables type LTB can be used in a wide range of applications and are particularly suitable for movement and positioning tasks in the field of measuring, testing and orientation.

Technical data

Material	housing: Aluminum ribbed; Ball race rings: hardened and tempered chrome-silicon steel; Rolling element: hardened rolling bearing steel; Worm wheel: Wear-resistant bronze alloy; Worm shaft: CK45N hardened and grinded
Operating temp.	–10 °C bis +80 °C
Mounting position	any, preferably horizontal
Lubricant	bearing grease via grease nipples
Options	inductive proximity switch, flange/coupling to mount the motor, motorization

Bearing assembly
torque drive
Type LTD





Dimensions

Type	Dimensions mm				Load ratings kN				Torque Nm		Power A		Speed 1/min.	Weight kg
	Ø KK	Ø Da	Ø Di	H	C_{oa}	C_{or}	C_a	C_r	M_{Nenn}	M_{Peak}	I_{Nenn}	I_{Peak}	n_{max}	
LTD0100	100	145	50	100	46	22	17	14	4.5	16	1.8	7.0	2140	8
LTD0215	215	265	150	105	128	60	26	22	26.4	105	3.1	12.8	640	21
LTD0320	320	400	250	115	382	180	45	39	77.0	329	4.3	21.6	300	44
LTD0385	385	475	320	115	458	216	48	41	118.0	522	4.3	21.7	193	57

Characteristics

Bearing assemblies with direct drive are suitable for applications where high performance and low space requirements are important criteria. The integration of the drive into the bearing housing means that wear-prone assemblies for transmitting drive power, such as toothed belts, shafts or chains, can be dispensed with. This reduces the required drive energy and also benefits more accurate positioning.

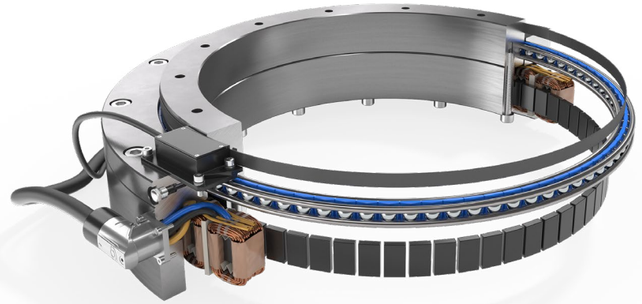
Technical date

Material	C45N (optionally aluminum)
Operating temp.	–10 °C to +80 °C
Mounting position	any
Lubricant	bearing grease via grease nipple
Options	absolute measuring system, axial cable outlet, control units incl. cables, water-cooling

Power comparison			LTD0100	LTD0215	LTD0320	LTD0385
Nominal Data (free air convection)						
Nominal Torque	MNennLk	Nm	4.5	26.4	77	118
Nominal Current	INennLk	Aeff	1.8	3.1	4.3	4.3
Nominal Speed	nNennLk	U/min	2140	640	299	193
Nominal Power	PNennLk	W	1005	1770	2409	2386
Winding Losses	PVNennLk	W	54	131	230	309
Total Losses	PVNennLk	W	96	179	295	357
Holding Torque	MHaltLk	Nm	3.2	18.7	54	83
Holding Current	IHaltLk	Aeff	1.2	2.2	3	3
Peak Data						
Peak Torque	MPeak	Nm	16	105	329	522
Peak Current	IPeak	Aeff	7	12.8	21.6	21.7
Speed at Peak Torque	nPeak	U/min	1130	320	126	74
Peak Power	MPeak	W	1897	3526	4343	4049
Winding Losses	PPeak	W	863	2236	5886	7876
Total Losses	PvPeak	W	877	2253	5904	7889
Power Data						
Torque Constant	kt	Nm/Aeff	2.549	8.51	18.037	27.449
		Veff/(rad/s)	1.577	5.2	11.094	16.694
BEMF Constant (Phase - Phase)	ke	Veff/(U/min)	0.165	0.545	1.162	1.748
Motor Constant	km	Nm/vW	0.459	1.973	4.483	6.25
Idle Speed	nLeer	U/min	2390	727	340	226
max. Speed (Fieldweaking)	nmax	U/min	-	-	-	-
max. Frequency (Idle/Fieldweaking)	fmax	Hz	398	254	159	124
DC Bus Voltage	UZk	VDC	560	560	560	560
Ø Resistance per Phase (winding only)	RPh20	Ω	4.419	3.457	3.206	4.235
Ø Inductance per Phase (winding only)	LPh	mH	21.727	19.532	21.071	28.049
electr. Time Constant t=L/R	Tel	ms	4.92	5.65	6.57	6.62
Number of Polepairs	n		10	21	28	33
Winding Connection			Star	Star	Star	Star

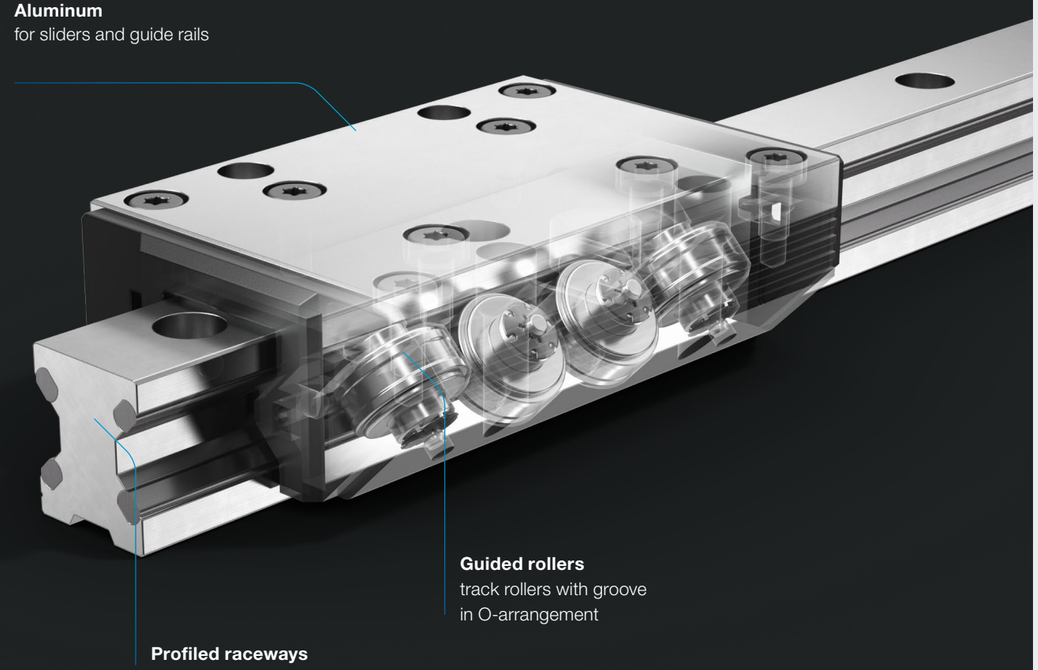
Options:

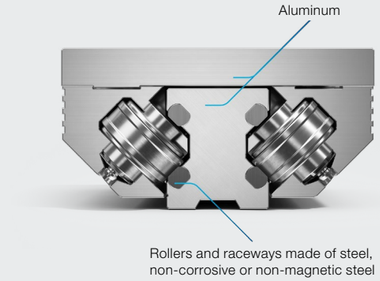
- Housing steel or aluminum
- Housing geometry according to customer requirements
- KKØ: 100 - 1800 mm
- Incremental measuring systems
- Absolute measuring systems
- Cable outlet axial
- Watercooling
- Complete system incl. control and cable



Uniquely dynamic, uniquely individual: Franke Linear Guides

Franke linear guides transfer the ingenious principle of the wire race bearing to linear movements. Inserted raceways ensure the load capacity on all sides. The rest of the construction can therefore be made of light-weight aluminum. Large guided rollers ensure smooth running - maintenance-free over the entire service life. Thanks to their modular design, Franke linear guides can be individually adapted to requirements.



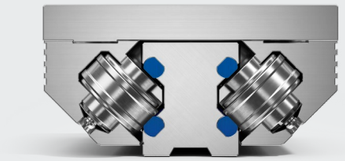


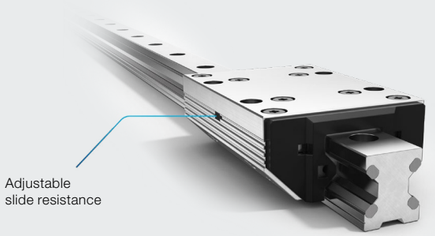
Designing homogeneously with aluminum

The main components of Franke linear guides - rails and sliders - are made of aluminium. Franke linear guides are ideally suited for constructions made of aluminum, because the homogeneous materiality excludes temperature-related distortions.

Highly accurate and durable

Franke's core competence lies in the high-precision manufacture and machining of wire raceways. The pursuit of precision determines every single step of our work. The result is bearing solutions with outstanding accuracy values and an excellent service life.





Always the right sliding resistance

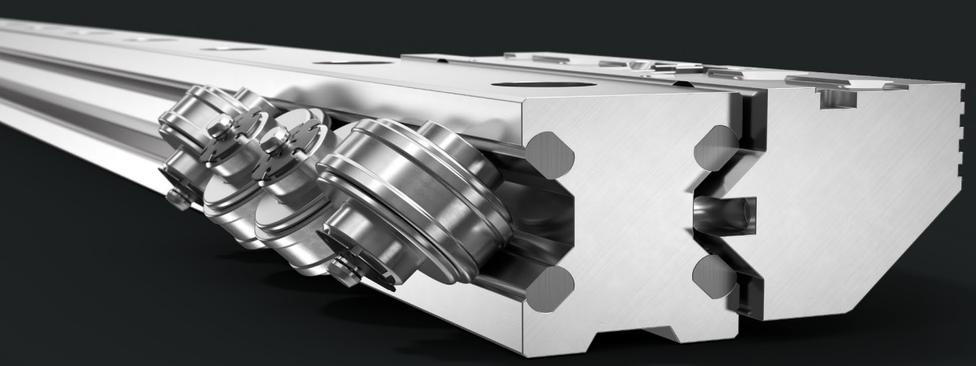
The sliding resistance of Franke linear guides can be adjusted to the application at any time using an adjusting screw. Very fine adjustments are possible. This allows the system to be adapted to the load - in the direction of smooth running or in the direction of stiffness and vibration resistance.

Maintenance-free – carefree

The needle or ball bearings used in the rollers are lubricated for life. This means that no maintenance is required over the long life of a Franke linear guide. For applications in the food industry we also offer lubricant-free roller bearings.

The best system for you

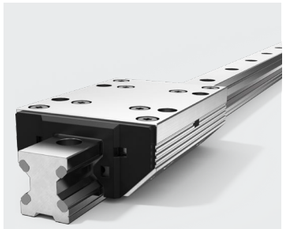
Only your application and your construction decide which linear system is the best for you. The Franke modular system makes it possible to put together or design an ideal system for you. X linear system projects in over 45 years prove the efficiency of Franke linear guides.



Franke linear guides are the first choice when highest dynamics are required. The large rollers are mounted very smoothly. They run with low friction and precisely guided on the inserted tough and hard steel wires. Because almost exclusively light aluminum is used for the entire construction, the moving mass is low. The result: Highest dynamics and energy efficiency.

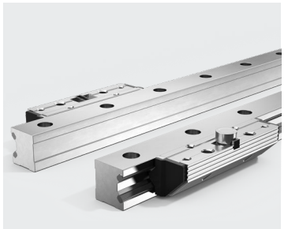
Your solution - delivered quickly

You will probably already find the right linear system for your application in our varied standard program. Many product types are available from stock at short notice. Further requirements can be met individually - just ask us.



Guide rail & slider

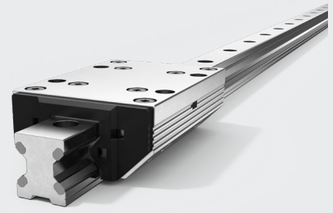
The double rail version consists of only two components: the profile rail and the slider running on it. Profile and cassette shapes can be adapted individually. It is possible to stabilise the base by means of a wider profile.

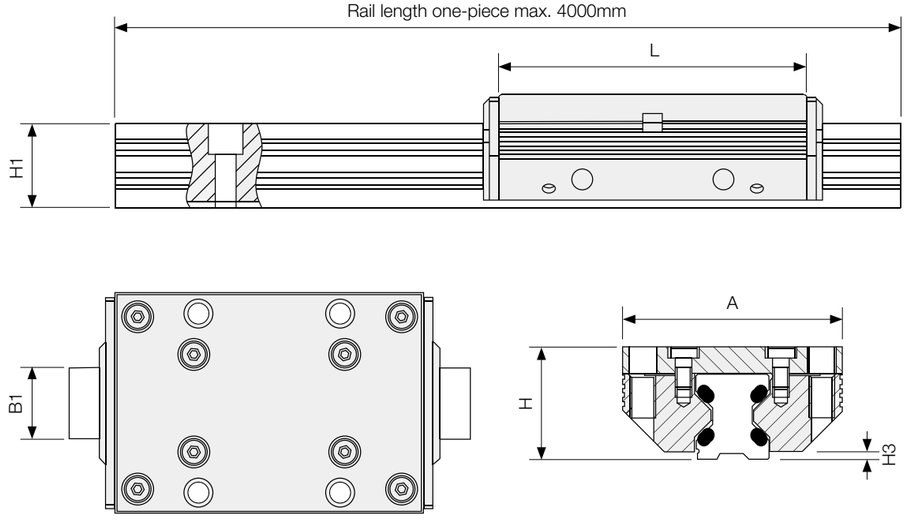


Pair of guide rails & pair of roller shoes

When designed as a pair of rails, the guide width can be freely adjusted over the distance between the two rails. Franke supplies rails and roller shoes. The roller shoes are screwed directly to the continuing construction, therefore a cassette plate is not necessary. The shape of the rail profiles and the roller shoes can be adapted individually.

Linear Guides
with guide rail and slider
Typ FD-K





Dimensions

Size	Dimensions mm						Available series
	A	B1	H	H1	H3	L	
12	37	12.0	19	14.7	1.4	64	FDA, FDB, FDC, - , FDE, FDG, -
15	47	15.5	24	18.7	2.0	78	FDA, FDB, FDC, - , FDE, FDG, -
20	63	21.0	30	22.6	2.0	92	FDA, FDB, FDC, - , FDE, FDG, -
25	70	23.0	36	27.0	2.5	98	FDA, FDB, FDC, FDD, FDE, FDG, FDH
35	100	32.0	48	37.0	3.5	135	FDA, FDB, FDC, - , FDE, FDG, FDH
45	120	45.0	60	46.0	4.0	165	FDA, FDB, FDC, - , FDE, FDG, FDH

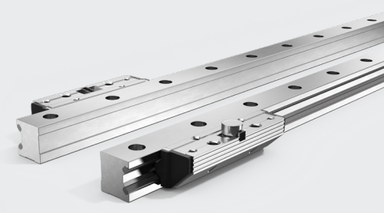
Characteristics

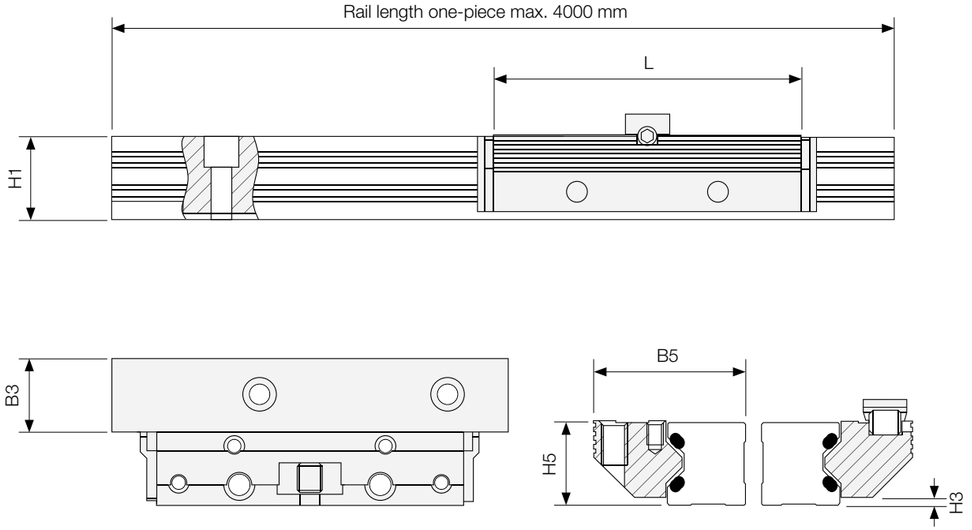
Franke linear guides are the best solution when it comes to speed and lightweight construction. Due to their design principle, Franke linear guides are highly dynamic, quiet and maintenance-free. Thanks to a modular design, Franke linear guides can be individually adapted to customer requirements. By using different rail profiles and roller shoes, special cassettes, variable track widths or an integrated direct drive, you always get a solution optimized for your application. The sliding resistance can be individually adjusted. The guide rails are available in one piece up to 4000 mm and can be coupled endlessly.

Technical data

Material	slider plate, roller shoes and rail body: aluminum; rollers and running bars: steel, non-corrosive or non-magnetic steel
Operating temp.	–10 °C to +80 °C
Vmax	10 m/s
Mounting position	any
Lubricant	lifetime-lubricated, maintenance-free

Linear Guides
with pair of rails and pair of roller shoes
Type FD-R





Dimensions

Size	Dimensions mm						Available series
	B3	B5	H1	H3	H5	L	
12	12.00	24.4	14.7	1.4	15.0	64	FDA, FDB, FDC, - , FDE, FDG, -
15	15.25	30.9	18.7	2.0	19.0	78	FDA, FDB, FDC, - , FDE, FDG, -
20	20.00	40.9	22.6	2.0	23.0	92	FDA, FDB, FDC, - , FDE, FDG, -
25	25.00	48.4	27.0	2.5	27.5	98	FDA, FDB, FDC, FDD, FDE, FDG, FDH
35	35.00	68.9	37,0	3.5	37.5	135	FDA, FDB, FDC, - , FDE, FDG, FDH
45	45.00	82.4	46.0	4.0	46.5	165	FDA, FDB, FDC, - , FDE, FDG, FDH

Characteristics

Franke linear guides are the best solution when it comes to speed and lightweight construction. Due to their design principle, Franke linear guides are highly dynamic, quiet and maintenance-free. Thanks to a modular design, Franke linear guides can be individually adapted to customer requirements. By using different rail profiles and roller shoes, special cassettes, variable track widths or an integrated direct drive, you always get a solution optimized for your application. The sliding resistance can be individually adjusted. The guide rails are available in one piece up to 4000 mm and can be coupled endlessly.

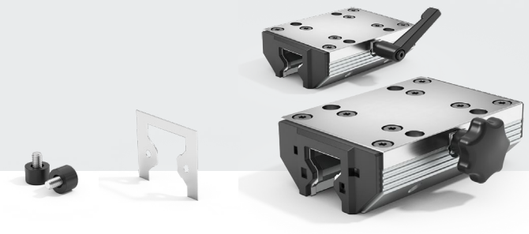
Technical data

Material	roller shoes and rail body: aluminum; rollers and running bars: steel, non-corrosive or non-magnetic steel
Operating temp.	–10 °C to +80 °C
Vmax	10 m/s
Mounting position	any
Lubricant	lifetime-lubricated, maintenance-free

Linear Guides Type FD
Available types

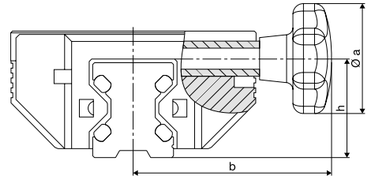
Type	Characteristics	Specialized application options
FDA	• aluminum roller guides in standard design • inlaid steel raceways • rollers with needle bearings for easy and quiet running	Packaging industry Sealed track rollers for maintenance-free operation over the entire service life. Smooth, clean running.
FDB	• aluminum roller guides in LowCost design • inlaid steel raceways • ball bearing mounted rollers for very smooth running	Handling and Automation Particularly suitable for cost-sensitive applications with reduced load and noise requirements.
FDC	• aluminum roller guides in stainless steel design • inserted raceways made of corrosion-free steel • stainless steel track rollers with needle bearings for smooth and quiet running	Food industry and Medical technology Insensitive to environmental influences as well as moisture or cleaning agents.
FDD	• aluminum roller guides in amagnetic design • inlaid raceways made of amagnetic steel • rollers with needle bearings for easy and quiet running	Medical technology and Electrical production Amagnetic raceways without influence on prevailing magnetic fields.
FDE	• aluminum roller guides in lubricant-free design • inlaid raceways made of steel • Lubricant-free rollers for special ambient conditions	Mechanical Engineering Special track rollers without lubricants. Suitable for use in vacuum or clean rooms.
FDG	• aluminum roller guides in stainless steel-LowCost Design • inserted raceways made of corrosion-free steel • ball bearing mounted rollers for very smooth running	Food industry and Medical technology Especially suitable for cost-sensitive applications in harsh environments or when using cleaning agents.
FDH	• aluminum roller guides in highly dynamic design • inserted raceways made of steel • track rollers with sealed angular contact ball bearings	Packaging industry Track rollers with angular contact ball bearings for maximum acceleration and speed values, for example when using linear motors as a drive source.
FDI	• aluminum roller guides in vacuum-compatible design • inserted raceways made of corrosion-free steel • rollers in full-needle, corrosion-free design	Research and Development Full complement needle rollers without cage to avoid outgassing.

Linear guides
Accessories



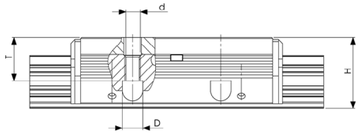
Slider with clamping

Sliders with clamping levers or star grip allow the slider to be locked in any position along the guideway. The clamping acts without force on the guide system. It is used for manually movable devices, clamping and holding stops, delivery of tools and processing parts. We would be happy to advise you on application and design.



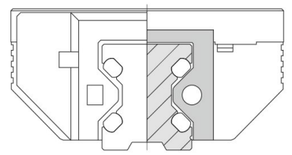
Slider for mounting from below

In the case of sliders for screwing from below, the existing mounting holes are reworked so that screwing from below is possible. Please note any deviating positions of the holes and screw connection sizes.



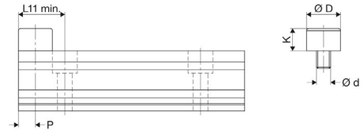
Metal wipers

In addition to the felt wipers, the metal wipers are inserted into the wiper plate and clipped on. They are used to remove coarse dirt such as metal shavings, welding spatter or wood dust from the track of the rail.



Stop screws

The stop screws are screwed into the thread (option) of the guide rails. An attached rubber cap dampens the stop. For rail lengths with initial hole dimensions below L11 min. we deliver the drilling pattern offset by half a drilling jump.



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Standard program 2025_e, errors and omissions excepted.