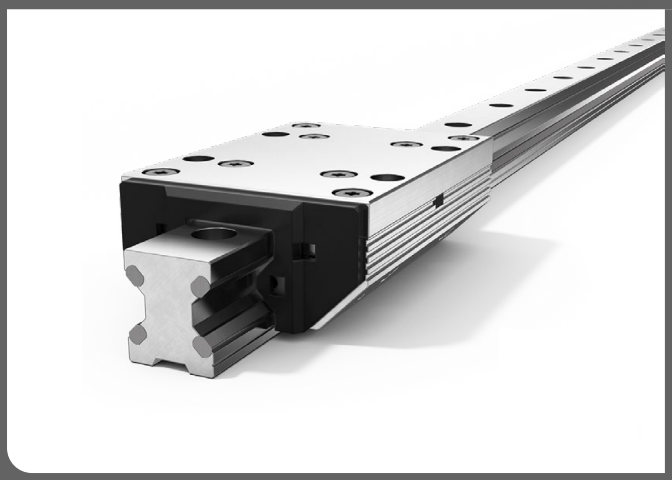
Innovation in Motion

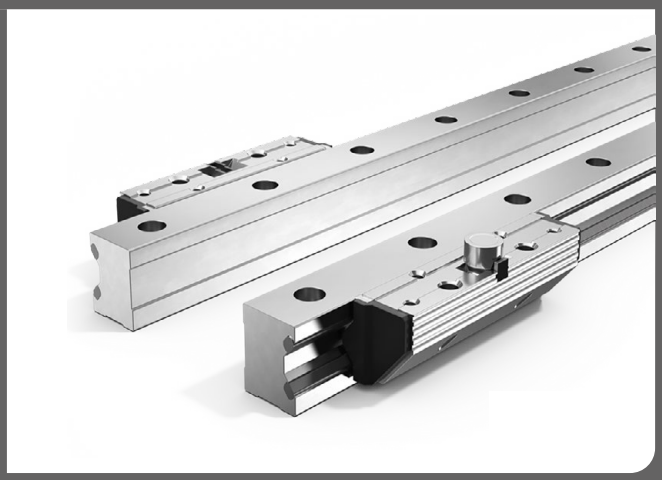
Franke

Linear Guides

Linear Systems

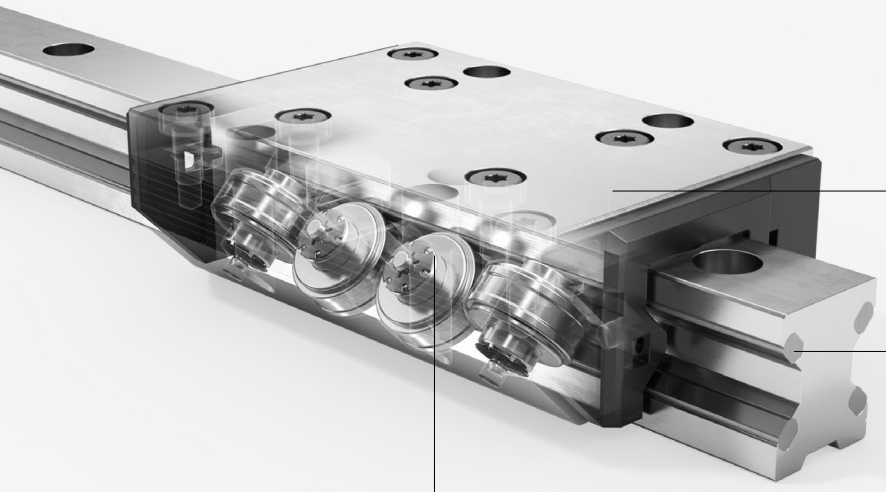
Standard program Linear Movement





Uniquely dynamic.
Uniquely individual.

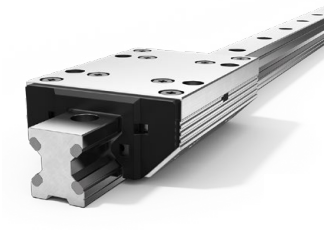
Franke linear systems transfer the ingenious principle of the wire-race bearing to linear movements. Inserted raceways ensure the load capacity on all sides. The rest of the construction can therefore be made of lightweight aluminum. Large guided rollers ensure smooth running - maintenance-free over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



Franke linear systems 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.



Double rail with cassette made of aluminum

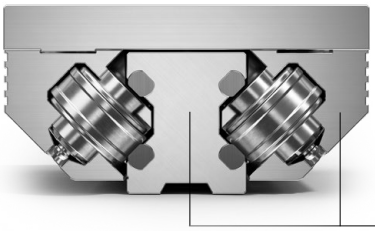
The double rail version consists of only two components: the profile rail and the cassette running on it. Profile and cassette shapes can be adapted individually. It is possible to stabilize the base by means of a wider profile.



Pair of single rails with pair of roller shoes, aluminum

When designed as a pair of individual 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.

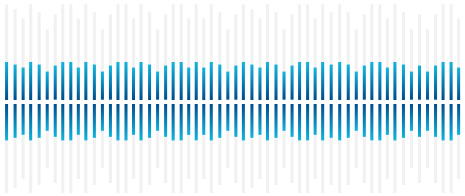
The best system for you



Designing homogeneously with aluminum

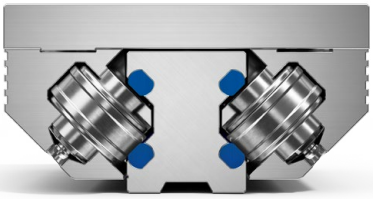
The main components of Franke linear systems - rails and cassettes - are made of aluminium. Franke linear systems are ideally suited for constructions made of aluminum, because the homogeneous materiality excludes temperature-related distortions.

Aluminum
for cassettes and guide rails



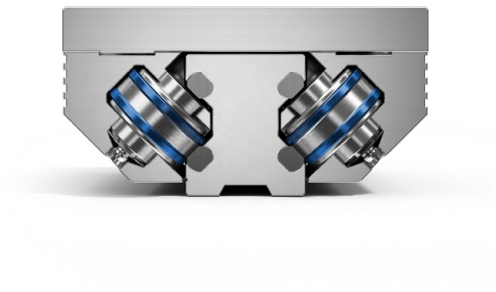
The quieter the better

Where Franke linear systems are used, you hear almost nothing from them. Only a quiet, homogeneous noise can be heard. This makes them ideally suited for noise sensitive applications. Furthermore, the whisper-quiet operation is an audible quality feature.



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.



Patented guidance

Franke track rollers have a groove adapted to the wire tracks. This patented type of guidance prevents the rollers from sliding on their bearing pins and rubbing against the housing. The advantage: a lower friction, more controlled movement.

Loadable on all sides

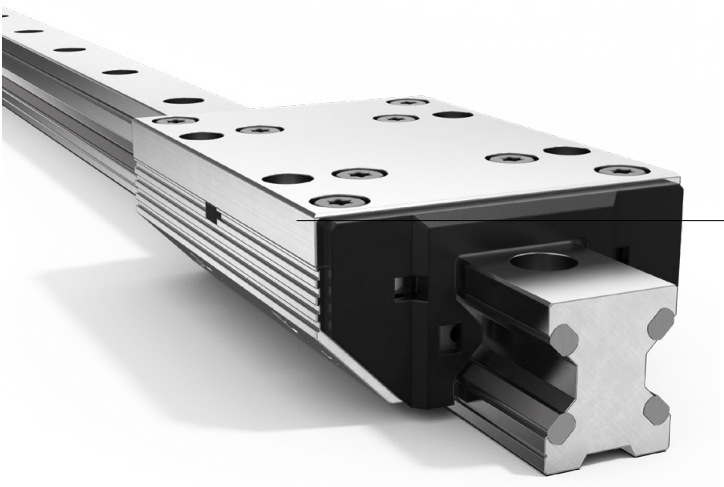
The rollers are arranged crosswise and run on one of the four wires each. In this way, forces are absorbed on all sides and the installation position can be freely determined. Depending on the profile rail used, the bearing can be designed with an external guide in an O arrangement (figure right) or with an internal guide in an X arrangement.



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.





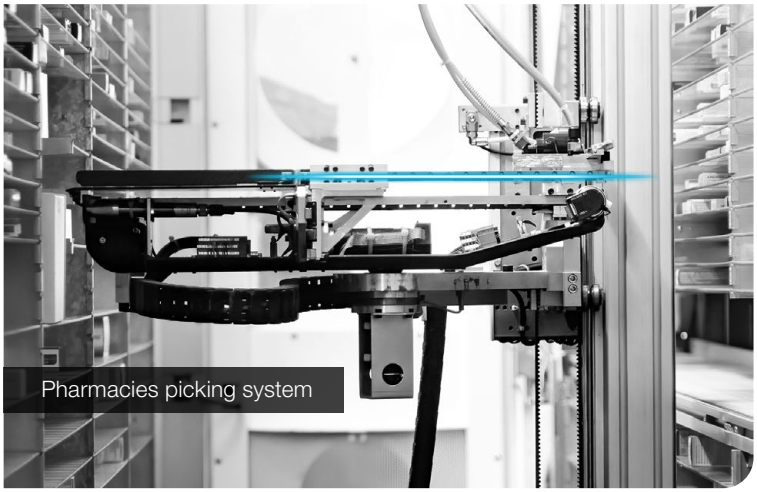
Always the right sliding resistance

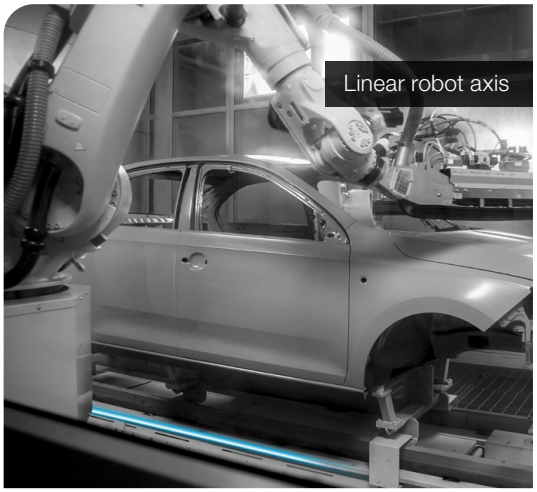
The sliding resistance of Franke linear guides can be adjusted to the application at any time using an adjusting screw. Very fine adjustments are possible. This allows the system to be adapted to the load - in the direction of smooth running or in the direction of stiffness and vibration resistance.


Dental X-ray unit


Food production


End-of-line packaging machine


Pharmacies picking system


Linear robot axis

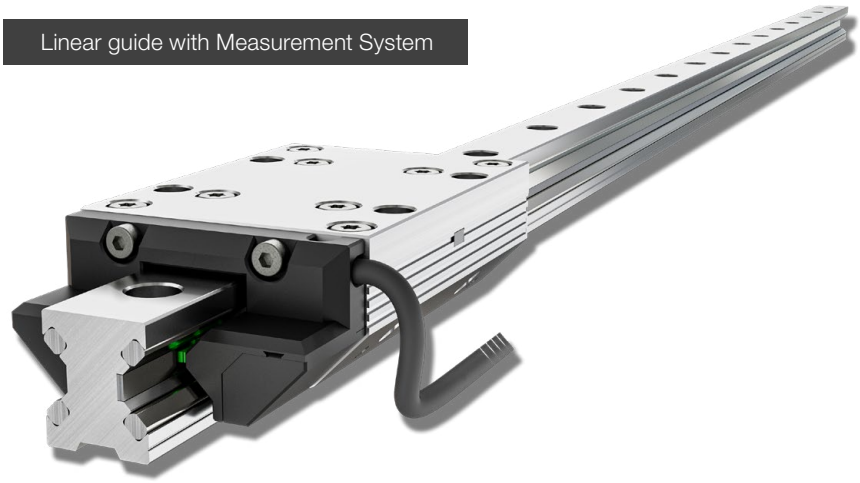
Individual profile design

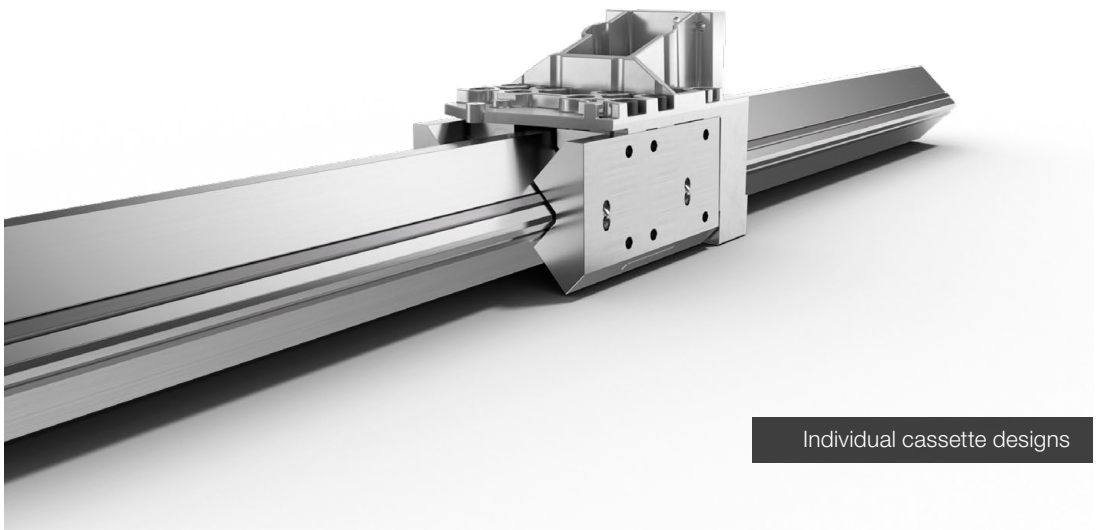


Linear Lightweight

Light. Silent. HIghly-dynamic. Maintenance-free. With integrated Drive Systems. With customized design for serial application.

Linear guide with Measurement System





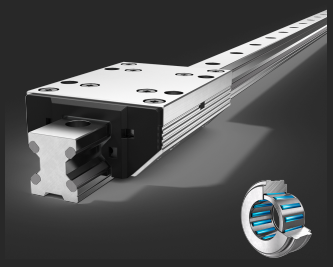
Individual cassette designs

Contents

Standard type FDA 9
Low-cost, type FDB 12
Corrosion-free, type FDC 15
Non magnetic, type FDD 18
Lubricant-free, type FDE 20
Corrosion-free, LC, type FDG 23
Highly dynamic, type FDH 26
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Metal wipers for rough working conditions 57
Stop screws with bumper for guide rail endings 58
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Innovation in Motion

Franke



Profile rail with carriage
Standard type FDA

Description

Franke FDA linear guides are equipped with very quiet, smooth-running, high-quality needle bearings and are made almost entirely of lightweight aluminum. The sealed roller bearings enable maintenance-free operation over the entire service life. Rail elements can be manufactured in a length of 200 mm to 4000 mm and, on request, can also be linked endlessly.

Characteristics Details

Roller:	Needle bearings
Raceway:	Spring steel

Characteristics

Resilience	●●●●●
Dynamics	●●●●
Corrosion resistant	●●
Non magnetic	●
Lubricant free	●
Price	●●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

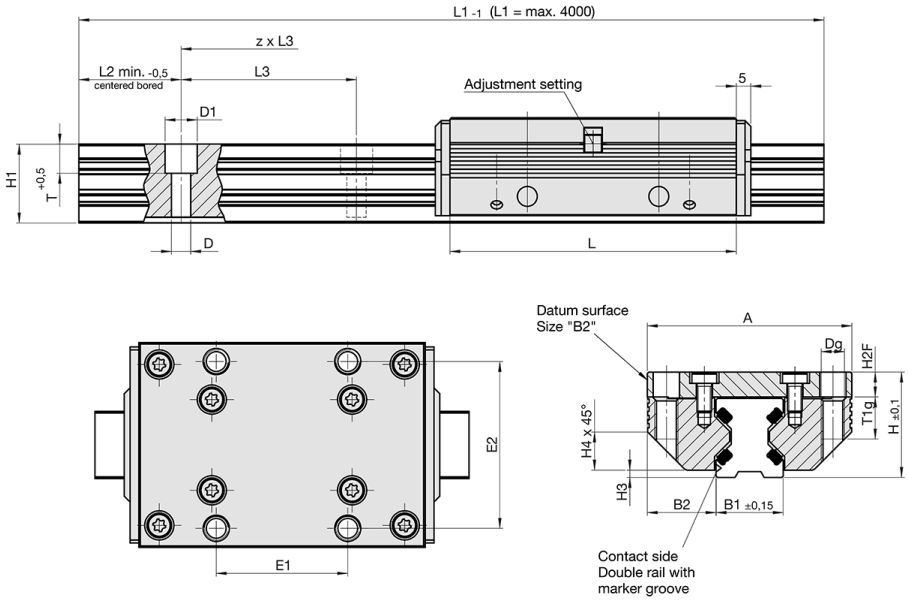
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	24	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	21	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

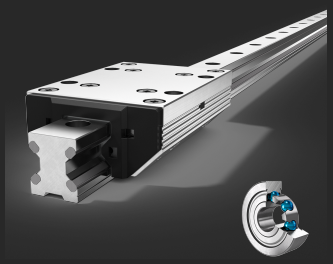
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Standard type FDA

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	2800	3000	27,0	25,0	40	43	0,09	0,40
15	4200	3400	37,0	45,0	72	58	0,17	0,80
20	5400	5400	76,0	76,0	111	111	0,35	1,30
25	9000	10100	158,0	142,0	198	222	0,50	1,60
35	12500	18000	423,0	294,0	388	559	1,40	2,60
45	21200	25900	827,0	687,0	806	983	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Low-cost, type FDB

Description

Load capacity	++
Dynamics	++
Corrosion resist..	+++
Non magnetic	+
Lubricant free	+
Price	+++++

Characteristics Details

Roller:	Ball bearing
Raceway:	Spring steel, standard

Characteristics

Resilience	●●
Dynamics	●●
Corrosion resistant	●●●
Non magnetic	●
Lubricant free	●
Price	●●●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

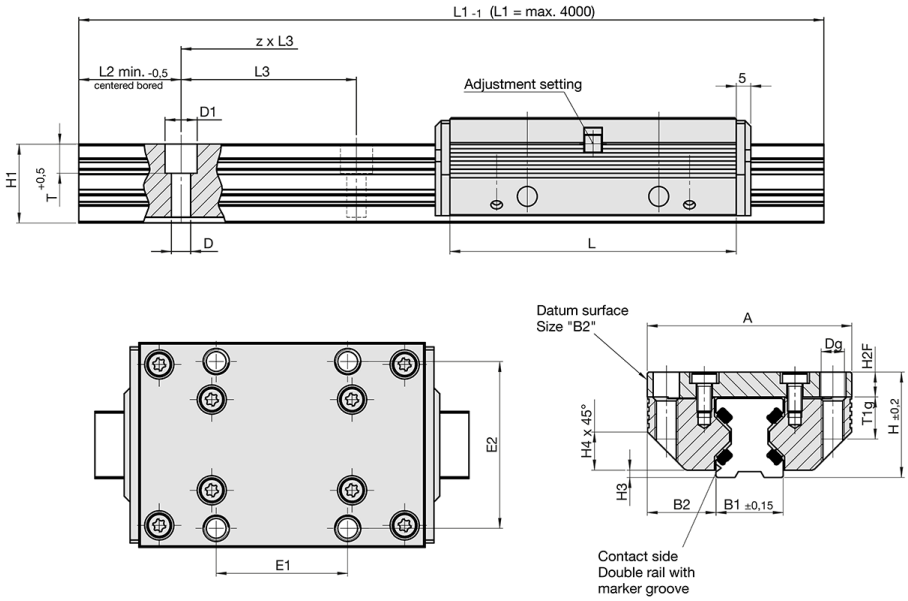
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	24	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	21	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

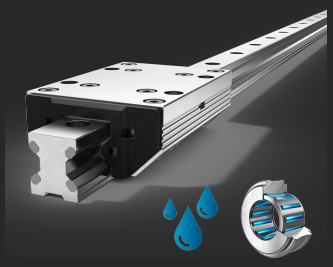
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Low-cost, type FDB

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	620	170	1,6	5,7	2.4	8.9	0,09	0,40
15	700	230	2,5	7,5	4	12	0,17	0,80
20	940	300	4,0	13,0	6	19	0,35	1,30
25	1500	700	11,0	23,0	15	32	0,50	1,60
35	3100	1400	32,0	72,0	42	95	1,40	2,60
45	6300	2700	86,0	200,0	103	238	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Corrosion-free, type FDC

Characteristics Details

Roller:	Needle bearing
Raceway:	NIRO Steel

Characteristics

Resilience	●●●●
Dynamics	●●●●
Corrosion resistant	●●●●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: corrosion resistant steel
Rollers: corrosion resistant bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

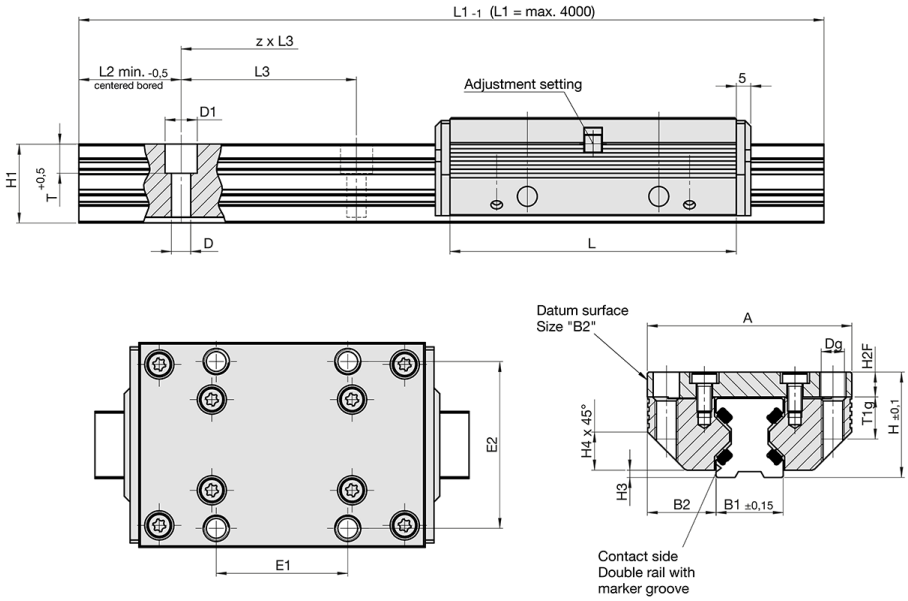
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	24	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	15.8	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

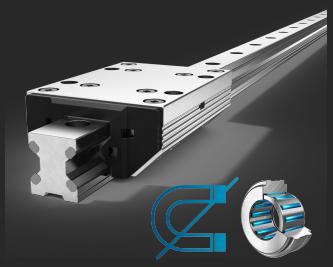
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Corrosion-free, type FDC

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	1100	1200	11,0	10,0	17	16	0,09	0,40
15	2700	3000	33,0	29,0	52	46	0,17	0,80
20	4300	5000	71,0	61,0	103	89	0,35	1,30
25	5800	8300	132,0	92,0	184	128	0,50	1,60
35	10000	14500	343,0	237,0	452	312	1,40	2,60
45	17000	20400	651,0	542,0	774	645	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Non magnetic, type FDD

Characteristics Details

Roller:	Needle bearing
Raceway:	Non-magnetic steel

Characteristics

Resilience	●
Dynamics	●●
Corrosion resistant	●●●●●
Non magnetic	●●●●●
Lubricant free	●
Price	●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: non-magnetic steel
Rollers: non-magnetic bearing steel

Operating temperature

−20 °C to +80 °C

Maximum speed

1 m/s

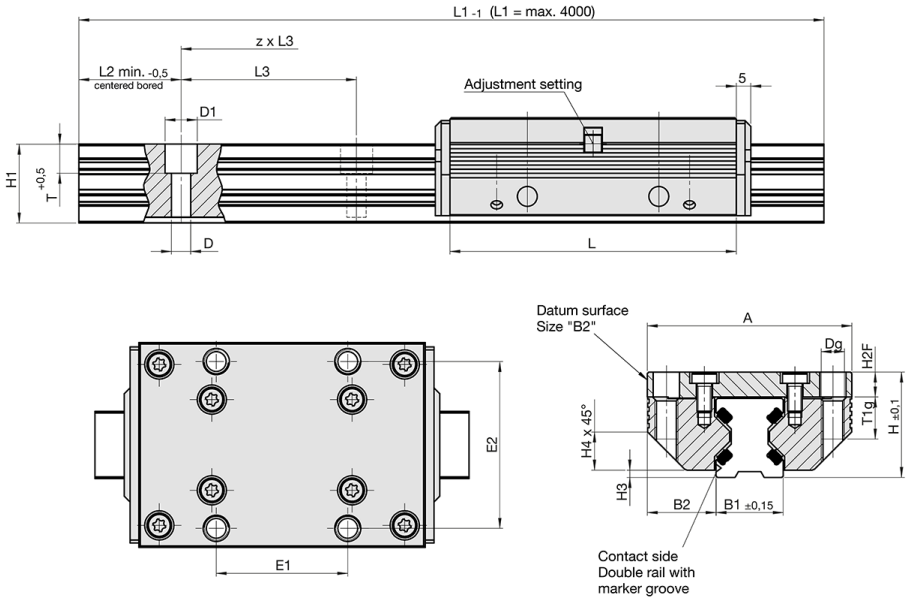
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



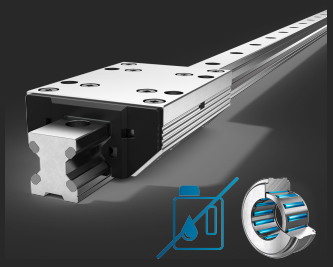
Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
25	70	98	36	23	23.5	6.6	11	M8	45

Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
25	57	27,0	8.5	2.5	13	10	60	10,0	16

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
25	1200	1600	25,0	18,0	35	25	0,50	1,60

Innovation in Motion

Franke



Profile rail with carriage
Lubricant-free, type FDE

Characteristics Details

Roller:	Lubricant-free needle bearings
Raceway:	Spring steel, standard

Characteristics

Resilience	●
Dynamics	●●
Corrosion resistant	●●
Non magnetic	●●
Lubricant free	●●●●●
Price	●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

−20 °C to +80 °C

Maximum speed

1 m/s

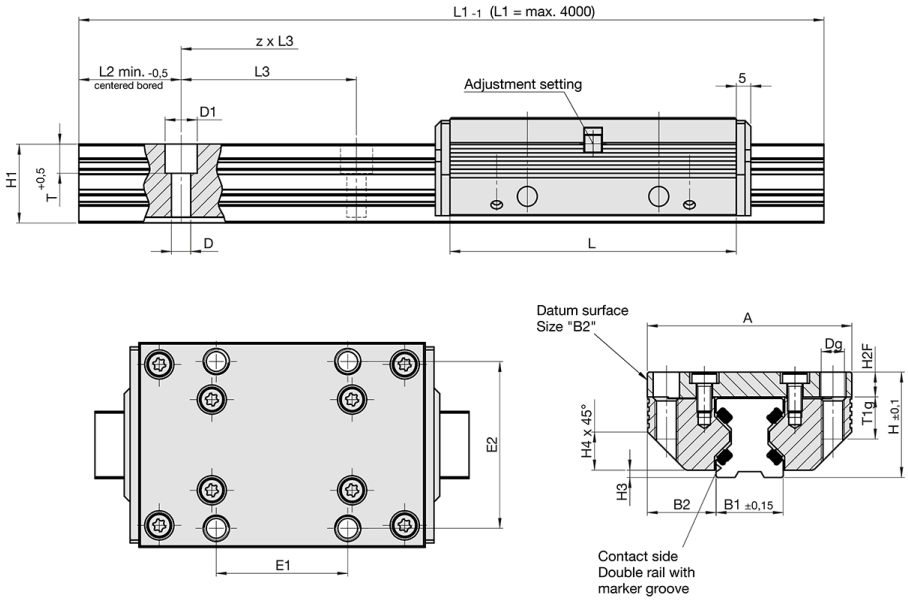
Mounting position

Any

Lubricant

Lubricant free, maintenance free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	19	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	21	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

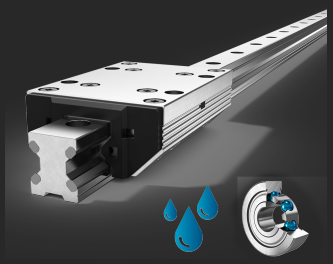
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Lubricant-free, type FDE

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	350	400	4,0	3,0	6	5	0,09	0,40
15	600	700	8,0	6,0	12	10	0,17	0,80
20	700	900	12,0	9,0	17	14	0,35	1,30
25	1200	1600	25,0	18,0	35	25	0,50	1,60
35	2000	2500	58,0	44,0	76	58	1,40	2,60
45	4400	5500	180,0	140,0	210	170	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Corrosion-free, LC, type FDG

Characteristics Details

Roller:	Ball bearing
Raceway:	NIRO steel

Characteristics

Resilience	●●
Dynamics	●●
Corrosion resistant	●●●●●
Non magnetic	●
Lubricant free	●
Price	●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: corrosion resistant steel
Rollers: corrosion resistant bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

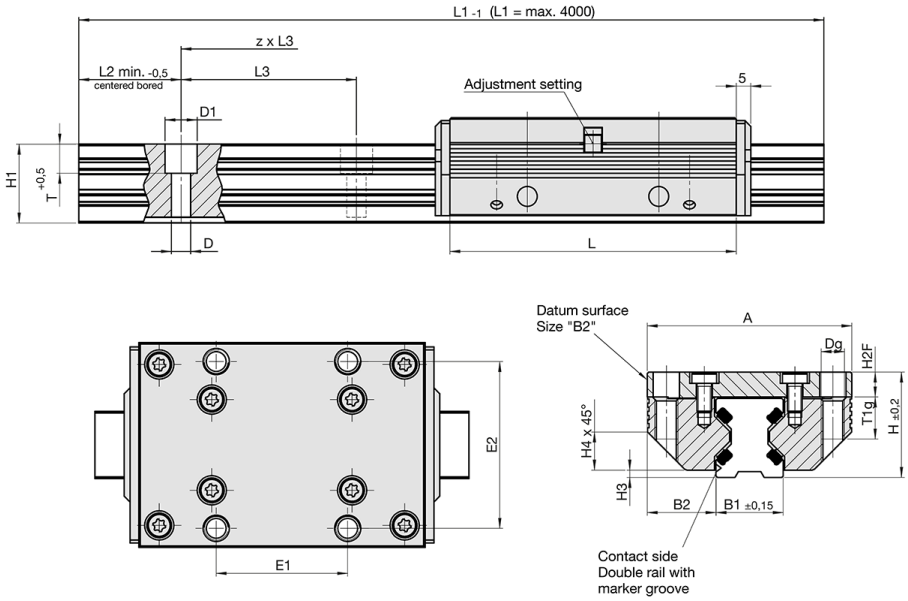
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	24	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	21	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

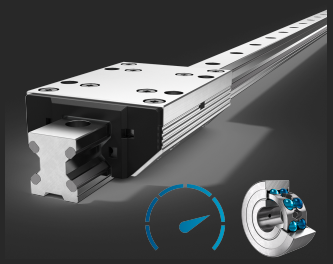
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Corrosion-free, LC, type FDG

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	620	170	1,6	5,7	2.4	8.9	0,09	0,40
15	700	230	2,4	7,5	4	12	0,17	0,80
20	940	300	4,0	13,0	6	19	0,35	1,30
25	1500	700	11,0	23,0	15	32	0,50	1,60
35	3100	1400	32,0	72,0	42	95	1,40	2,60
45	6300	2700	86,0	200,0	103	238	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Highly dynamic, type FDH

Characteristics Details

Roller:	Angular contact ball bearings
Raceway:	Spring steel, standard

Characteristics

Resilience	●●●●
Dynamics	●●●●●
Corrosion resistant	●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

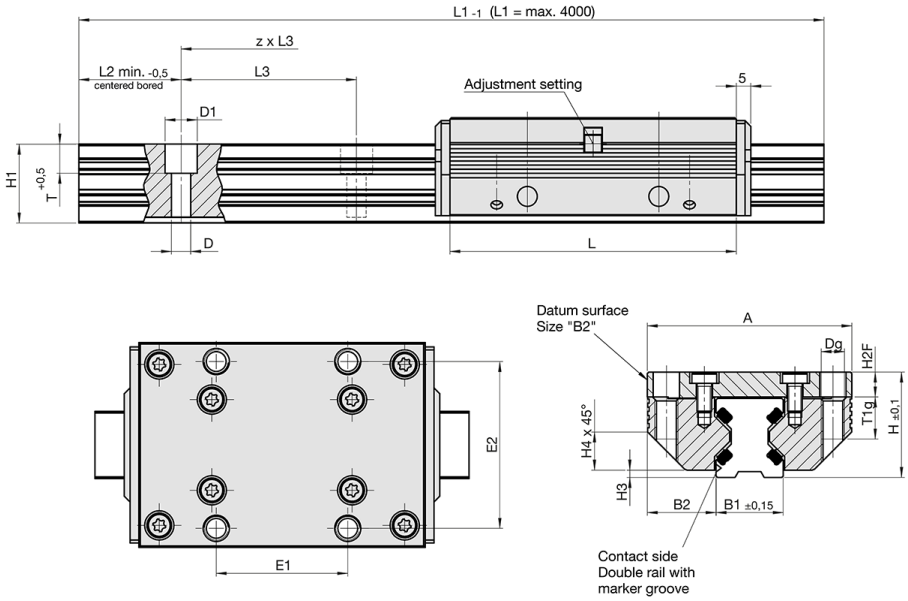
Mounting position

Any

Lubricant

Lifetime-lubricated, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	-	-	-	12	-	3.4	6	-	-
15	-	-	-	15.5	-	4.5	8	-	-
20	-	-	-	21	-	5.5	10	-	-
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

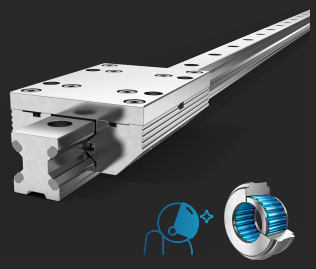
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	-	14,7	-	-	-	10	40	5,5	-
15	-	18,7	-	-	-	10	60	6,0	-
20	-	22,6	-	-	-	10	60	8,0	-
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Highly dynamic, type FDH

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	-	-	-	-	-	-	-	0,40
15	-	-	-	-	-	-	-	0,80
20	-	-	-	-	-	-	-	1,30
25	7500	3700	58,0	118,0	81	165	0,50	1,60
35	13400	8100	189,0	315,0	250	416	1,40	2,60
45	24300	14400	461,0	777,0	548	924	2,50	4,50

Innovation in Motion

Franke



Profile rail with carriage
Vaccuum compatible, type FDI

Characteristics Details

Roller:	Needle bearing
Raceway:	Non corrosive steel

Characteristics

Resilience	●●
Dynamics	●
Corrosion resistant	●●●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 500 mm to 4000 mm, longer strokes on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, not anodised
Raceways: non-corrosive steel
Rollers: non-corrosive bearing steel, full needled

Operating temperature

−20 °C to +80 °

Maximum speed

1 m/s

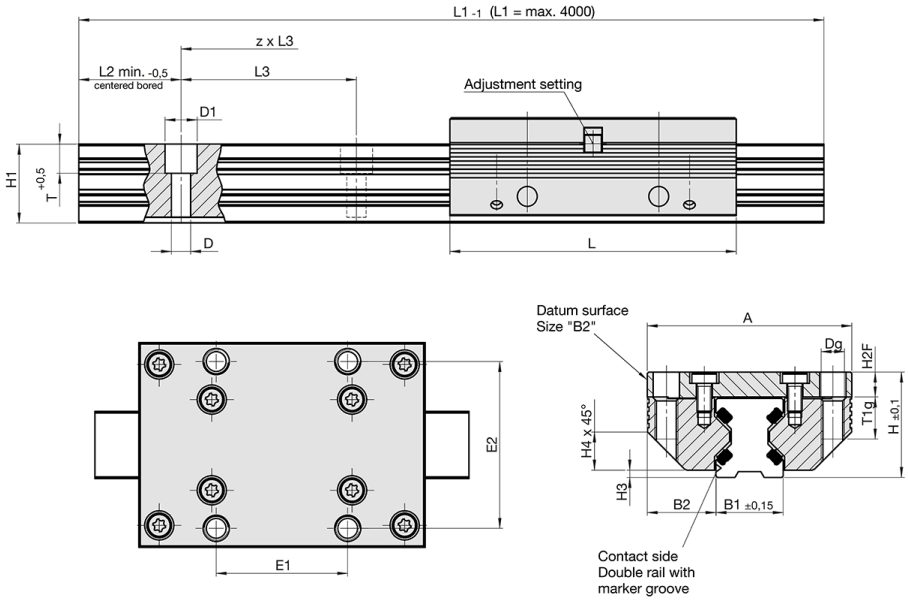
Mounting position

Any

Lubricant

Lifetime-lubricated with high-vacuum suitable grease, maintenance-free

Dimensions and Data Tables



Size	Dimensions mm								
	A	L	H	B1	B2	D	D1	Dg	E1
12	37	64	19	12	12.5	3.4	6	M4	25
15	47	78	24	15.5	15.8	4.5	8	M5	30
20	63	92	30	21	21	5.5	10	M6	40
25	70	98	36	23	23.5	6.6	11	M8	45
35	100	135	48	32	34	9	15	M10	62
45	120	165	60	45	37.5	11	18	M12	80

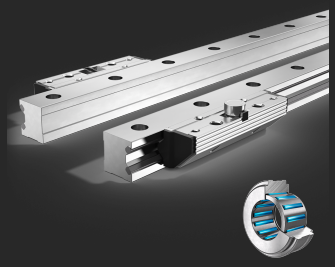
Size	Dimensions mm								
	E2	H1	H2F	H3	H4	L2	L3	T	T1g
12	30	14,7	4	1.4	5.5	10	40	5,5	8
15	38	18,7	5	2	8	10	60	6,0	10
20	53	22,6	7	2	11	10	60	8,0	12
25	57	27,0	8.5	2.5	13	10	60	10,0	16
35	82	37,0	10.5	3.5	20	12	80	11,5	20
45	100	46,0	13.5	4	22	16	105	14,5	24

Profile rail with carriage
Vaccuum compatible, type FDI

Size	Load Ratings N		Moment capacities carriage Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	Weight	Rail/m
12	550	600	5,5	5,0	8.5	8	0,09	0,40
15	1350	1500	17,0	15,0	26	23	0,17	0,80
20	2150	2500	36,0	30,0	51.5	44	0,35	1,30
25	2900	4150	66,0	46,0	92	64	0,50	1,60
35	5000	7250	171,0	118,0	226	125	1,40	2,60
45	8500	10200	325,0	271,0	387	322	2,50	4,50

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Standard type FDA

Characteristics Details

Roller:	Needle bearing
Raceway:	Spring steel

Characteristics

Resilience	●●●●●
Dynamics	●●●●
Corrosion resistant	●●
Non magnetic	●
Lubricant free	●
Price	●●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

Mounting position

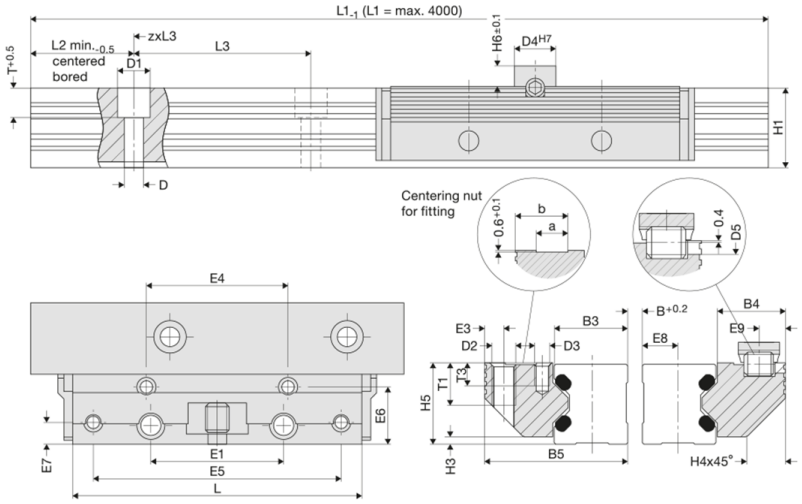
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Standard type FDA

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	12	11.9	M3	3.4	6	M4	8	3	25	3.4	29	57
15	78	30.9	19	15.25	15.2	M4	4.5	8	M5	10	4	30	4.4	34	68
20	92	40.9	23	20	20.4	M5	5.5	10	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	35	32.9	M6	9	15	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	45	36.4	M8	11	18	M12	14	6	80	9.9	83	146

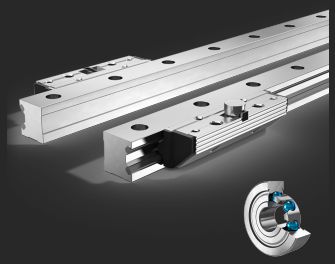
Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	5.5	4.9	14.7	1.4	5.5	4	10	40	5.5	6	4.5	9.5
15	12.4	4.9	7	5.9	18.7	2	8	5	10	60	6	7.5	5	12.5
20	16.9	5.9	9.5	5.9	22.6	2	11	5	10	60	8	8	7.5	16
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	5	10.5	17.5
35	28.4	8.9	17	8.9	37	3.5	20	7	12	80	11.5	8.5	12.5	26
45	30.9	9.9	22	8.9	46	4	22	7	16	105	14.5	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Standard type FDA

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	2800	3000	0,6*(B+30,3)	0,6*(B+30,3)	40	43	0.07	0.4
15	4200	3400	1,5*(B+36,5)	1,4*(B+36,5)	72	58	0.12	0.8
20	5400	5400	2,5*(B+47,0)	2,2*(B+47,0)	111	111	0.23	1.2
25	9000	10100	4,2*(B+58,4)	2,9*(B+58,4)	198	222	0.35	1.8
35	12500	18000	7,3*(B+85,0)	5,0*(B+85,0)	388	559	1	3.1
45	21200	25900	10,2*(B+109,0)	8,5*(B+109,0)	806	983	1.8	5

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Low-cost, type FDB

Characteristics Details

Roller:	Ball bearing
Raceway:	Spring steel, standard

Characteristics

Resilience	●●
Dynamics	●●
Corrosion resistant	●●●
Non magnetic	●
Lubricant free	●
Price	●●●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes, rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

Mounting position

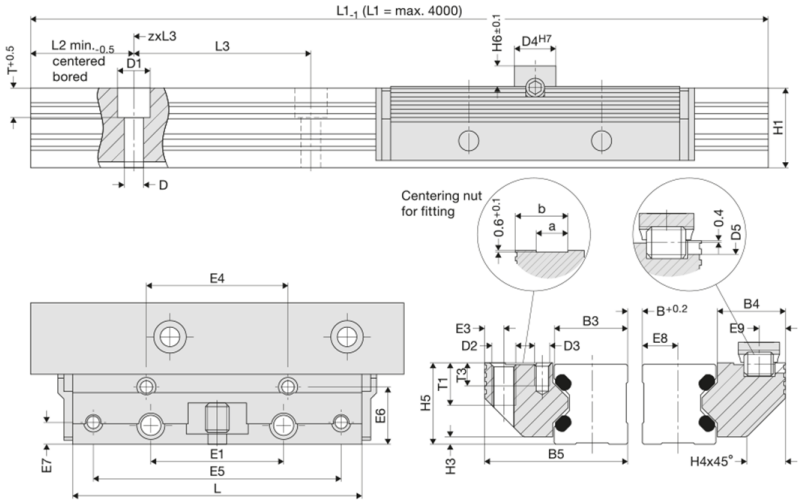
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Low-cost, type FDB

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	12	11.9	M3	3.4	6	M4	8	3	25	3.4	29	57
15	78	30.9	19	15.25	15.2	M4	4.5	8	M5	10	4	30	4.4	34	68
20	92	40.9	23	20	20.4	M5	5.5	10	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	35	32.9	M6	9	15	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	45	36.4	M8	11	18	M12	14	6	80	9.9	83	146

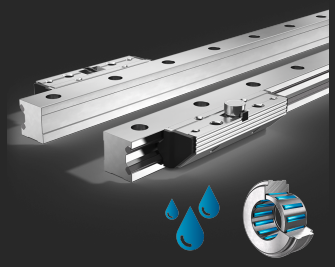
Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	5.5	4.9	14.7	1.4	5.5	4	10	40	5.5	6	4.5	9.5
15	12.4	4.9	7	5.9	18.7	2	8	5	10	60	6	7.5	5	12.5
20	16.9	5.9	9.5	5.9	22.6	2	11	5	10	60	8	8	7.5	16
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	7	10.5	17.5
35	28.4	8.9	17	8.9	37	3.5	20	7	12	80	11.5	8.5	12.5	26
45	30.9	9.9	22	8.9	46	4	22	7	16	105	14.5	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Low-cost, type FDB

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	620	270	0,08*(B+30,3)	0,3*(B+30,3)	2.4	8.9	0.07	0.4
15	700	230	0,10*(B+36,5)	0,35*(B+36,5)	4	12	0.12	0.8
20	940	300	0,15*(B+47,0)	0,50*(B+47,0)	6	19	0.23	1.2
25	1500	700	0,35*(B+58,4)	0,70*(B+58,4)	15	32	0.35	1.8
35	3100	1400	0,70*(B+85,0)	1,50*(B+85,0)	42	95	1	3.1
45	6300	2700	1,40*(B+109,0)	3,10*(B+109,0)	103	238	1.8	5

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Corrosion-free, type FDC

Characteristics Details

Roller:	Needle bearing
Raceway:	NIRO steel

Characteristics

Resilience	●●●●
Dynamics	●●●●
Corrosion resistant	●●●●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: corrosion resistant steel
Rollers: corrosion resistant bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

Mounting position

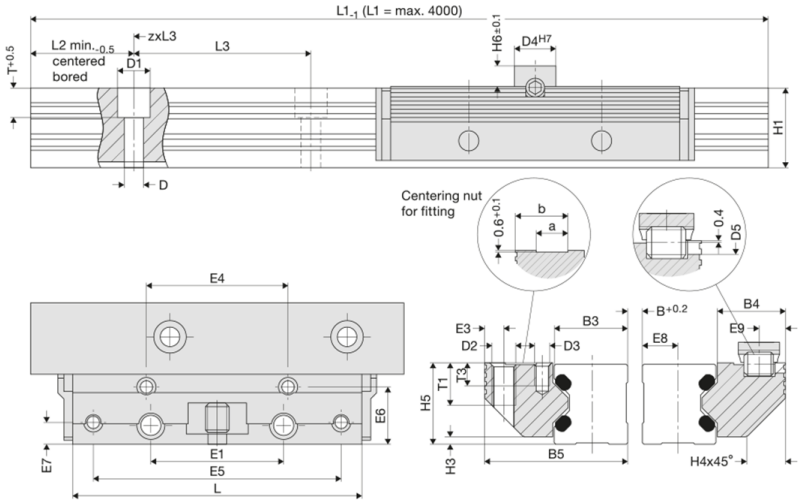
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Corrosion-free, type FDC

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	-	11.9	M3	-	-	M4	8	3	25	3.4	29	57
15	78	30.9	19	-	15.2	M4	-	-	M5	10	4	30	4.4	34	68
20	92	40.9	23	-	20.4	M5	-	-	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	-	22.9	M5	-	-	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	-	32.9	M6	-	-	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	-	36.4	M8	-	-	M12	14	6	80	9.9	83	146

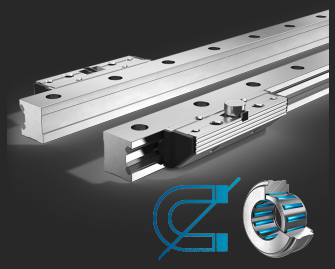
Size	Dimensions mm												
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	-	4.9	-	1.4	5.5	4	-	-	-	6	4.5	9.5
15	12.4	4.9	-	5.9	-	2	8	5	-	-	-	7.5	5	12.5
20	16.9	5.9	-	5.9	-	2	11	5	-	-	-	8	7.5	16
25	19.4	7.4	-	8.9	-	2.5	13	7	-	-	-	5	10.5	17.5
35	28.4	8.9	-	8.9	-	3.5	20	7	-	-	-	8.5	12.5	26
45	30.9	9.9	-	8.9	-	4	22	7	-	-	-	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Corrosion-free, type FDC

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	1100	1200	0,6*(B+30,3)	0,6*(B+30,3)	17	16	0.07	-
15	2700	3000	1,5*(B+36,5)	1,4*(B+36,5)	52	46	0.12	-
20	4300	5000	2,5*(B+47,0)	2,2*(B+47,0)	103	89	0.23	-
25	5800	8300	4,2*(B+58,4)	2,9*(B+58,4)	184	128	0.35	-
35	10000	14500	7,3*(B+85,0)	5,0*(B+85,0)	452	312	1	-
45	17000	20400	10,2*(B+109,0)	8,5*(B+109,0)	774	645	1.8	-

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Non magnetic, type FDD

Characteristics Details

Roller:	Needle bearing
Raceway:	non-magnetic steel

Characteristics

Resilience	●
Dynamics	●●
Corrosion resistant	●●●●●
Non magnetic	●●●●●
Lubricant free	●
Price	●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: non-magnetic steel
Rollers: non-magnetic bearing steel

Operating temperature

–20 °C to +80 °C

Maximum speed

1 m/s

Mounting position

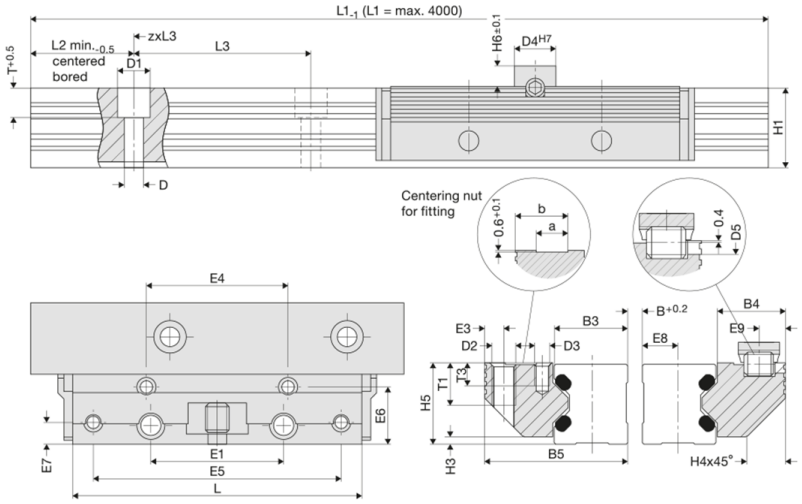
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Non magnetic, type FDD

Dimensions and Data Tables



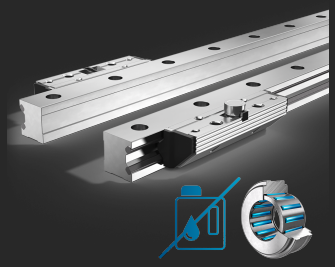
Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84

Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	-	10.5	17.5

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
25	1200	1600	0,80*(B+58,4)	0,60*(B+58,4)	35	25	0.35	1.8

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Lubricant-free, type FDE

Characteristics Details

Roller:	Lubricant-free needle bearings
Raceway:	Spring steel, standard

Characteristics

Resilience	●
Dynamics	●●
Corrosion resistant	●●
Non magnetic	●●
Lubricant free	●●●●●
Price	●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: bearing steel

Operating temperature

−20 °C to +80 °C

Maximum speed

1 m/s

Mounting position

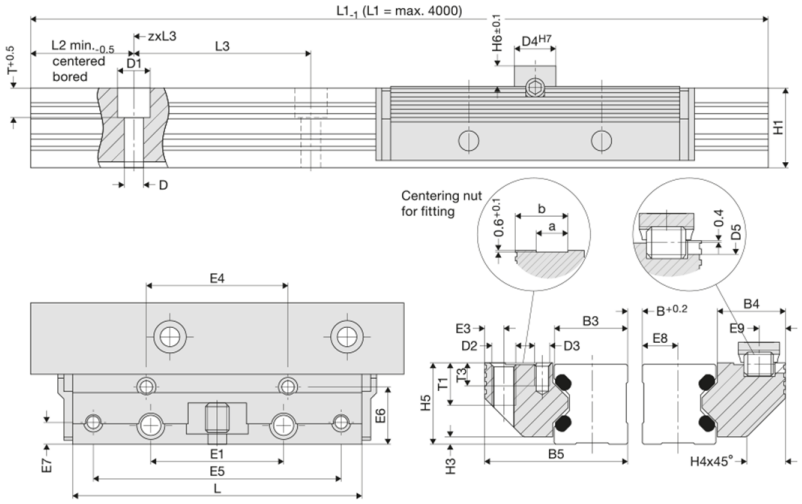
Any

Lubricant

Lubricant free, maintenance free

Pair of profile rails with pair of roller shoes
Lubricant-free, type FDE

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	12	11.9	M3	3.4	6	M4	8	3	25	3.4	29	57
15	78	30.9	19	15.25	15.2	M4	4.5	8	M5	10	4	30	4.4	34	68
20	92	40.9	23	20	20.4	M5	5.5	10	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	35	32.9	M6	9	15	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	45	36.4	M8	11	18	M12	14	6	80	9.9	83	146

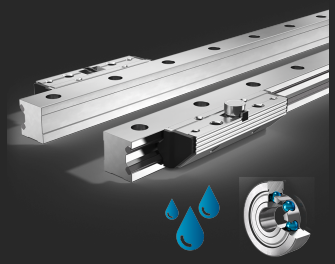
Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	5.5	4.9	14.7	1.4	5.5	4	10	40	5.5	6	4.5	9.5
15	12.4	4.9	7	5.9	18.7	2	8	5	10	60	6	7.5	5	12.5
20	16.9	5.9	9.5	5.9	22.6	2	11	5	10	60	8	8	7.5	16
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	5	10.5	17.5
35	28.4	8.9	17	8.9	37	3.5	20	7	12	80	11.5	8.5	12.5	26
45	30.9	9.9	22	8.9	46	4	22	7	16	105	14.5	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Lubricant-free, type FDE

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	350	400	0,20*(B+30,3)	0,2*(B+30,3)	6	5	0.07	0.4
15	600	700	0,35*(B+36,5)	0,3*(B+36,5)	12	10	0.12	0.8
20	700	900	0,40*(B+47,0)	0,33*(B+47,0)	17	14	0.23	1.2
25	1200	1600	0,80*(B+58,4)	0,60*(B+58,4)	35	25	0.35	1.8
35	2000	2500	1,20*(B+85,0)	0,90*(B+85,0)	76	58	1	3.1
45	4400	5500	2,70*(B+109,0)	2,20*(B+109,0)	210	170	1.8	5

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Corrosion-free, LC, type FDG

Characteristics Details

Roller:	Ball bearing
Raceway:	NIRO steel

Characteristics

Resilience	●●
Dynamics	●●●
Corrosion resistant	●●●●●
Non magnetic	●
Lubricant free	●
Price	●●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: NIRO steel
Rollers: NIRO steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

Mounting position

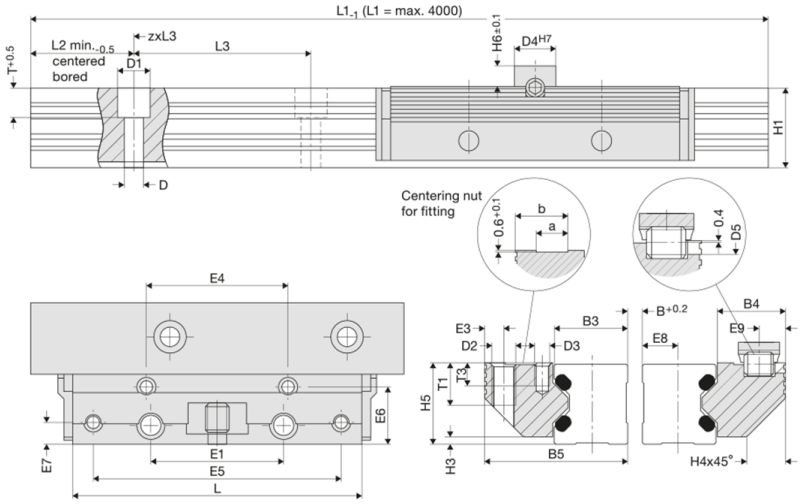
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Corrosion-free, LC, type FDG

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	12	11.9	M3	3.4	6	M4	8	3	25	3.4	29	57
15	78	30.9	19	-	15.2	M4	-	-	M5	10	4	30	4.4	34	68
20	92	40.9	23	-	20.4	M5	-	-	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	-	22.9	M5	-	-	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	-	32.9	M6	-	-	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	-	36.4	M8	-	-	M12	14	6	80	9.9	83	146

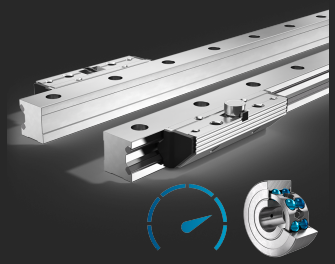
Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	5.5	4.9	14.7	1.4	5.5	4	10	40	5.5	6	4.5	9.5
15	12.4	4.9	-	5.9	-	2	8	5	-	-	-	7.5	5	12.5
20	16.9	5.9	-	5.9	-	2	11	5	-	-	-	8	7.5	16
25	19.4	7.4	-	8.9	-	2.5	13	7	-	-	-	7	10.5	17.5
35	28.4	8.9	-	8.9	-	3.5	20	7	-	-	-	8.5	12.5	26
45	30.9	9.9	-	8.9	-	4	22	7	-	-	-	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Corrosion-free, LC, type FDG

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	620	170	0,08*(B+30,3)	0,3*(B+30,3)	2.4	8.9	0.07	0.4
15	700	230	0,10*(B+36,5)	0,35*(B+36,5)	4	12	0.12	-
20	940	300	0,15*(B+47,0)	0,50*(B+47,0)	6	19	0.23	-
25	1500	700	0,35*(B+58,4)	0,70*(B+58,4)	15	32	0.35	-
35	3100	1400	0,70*(B+85,0)	1,50*(B+85,0)	42	95	1	-
45	6300	2700	1,40*(B+109,0)	3,10*(B+109,0)	103	238	1.8	-

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Highly dynamic, type FDH

Characteristics Details

Roller:	Angular contact ball bearings
Raceway:	Spring steel, standard

Characteristics

Resilience	●●●●
Dynamics	●●●●●
Corrosion resistant	●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 200 mm to 4000 mm, connectable on request

Material

Cassette plate, roller shoes,
Rail body: aluminum, anodized
Raceways: spring steel
Rollers: steel

Operating temperature

–20 °C to +80 °C

Maximum speed

10 m/s

Mounting position

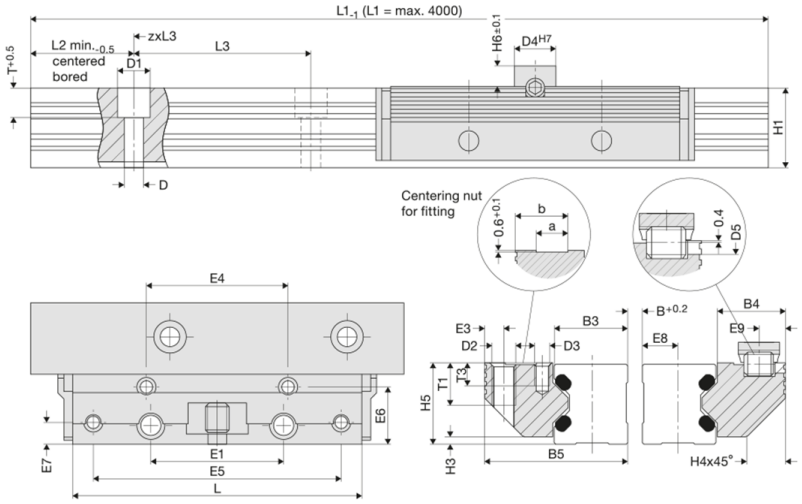
Any

Lubricant

Lifetime-lubricated, maintenance-free

Pair of profile rails with pair of roller shoes
Highly dynamic, type FDH

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	-	-	-	12	-	-	3.4	6	-	-	-	-	-	-	-
15	-	-	-	15.25	-	-	4.5	8	-	-	-	-	-	-	-
20	-	-	-	20	-	-	5.5	10	-	-	-	-	-	-	-
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	35	32.9	M6	9	15	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	45	36.4	M8	11	18	M12	14	6	80	9.9	83	146

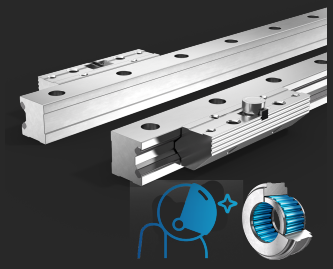
Size	Dimensions mm												
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	-	-	5.5	-	14.7	-	-	-	10	40	5.5	-	-	-
15	-	-	7	-	18.7	-	-	-	10	60	6	-	-	-
20	-	-	9.5	-	22.6	-	-	-	10	60	8	-	-	-
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	5	10.5	17.5
35	28.4	8.9	17	8.9	37	3.5	20	7	12	80	11.5	8.5	12.5	26
45	30.9	9.9	22	8.9	46	4	22	7	16	105	14.5	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Highly dynamic, type FDH

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	-	-	-	-	-	-	-	0.4
15	-	-	-	-	-	-	-	0.8
20	-	-	-	-	-	-	-	1.2
25	7500	3700	1,8*(B+58,4)	3,7*(B+58,4)	81	165	0.35	1.8
35	13400	8100	4,0*(B+85,0)	6,7*(B+85,0)	250	416	1	3.1
45	24300	14400	7,2*(B+109,0)	12,2*(B+109,0)	548	924	1.8	5

Innovation in Motion

Franke



Pair of profile rails with pair of roller shoes
Vaccuum compatible, type FDI

Characteristics Details

Roller:	Needle bearing
Raceway:	Non corrosive steel

Characteristics

Resilience	●●
Dynamics	●
Corrosion resistant	●●●●
Non magnetic	●
Lubricant free	●
Price	●●

Technical Data

Stroke length

One piece from 500 mm to 4000 mm, longer strokes on request

Material

Roller shoes,
Rail body: aluminum, not anodised
Raceways: non-corrosive steel
Rollers: non-corrosive bearing steel, full needled

Operating temperature

−20 °C to +80 °C

Maximum speed

1 m/s

Mounting position

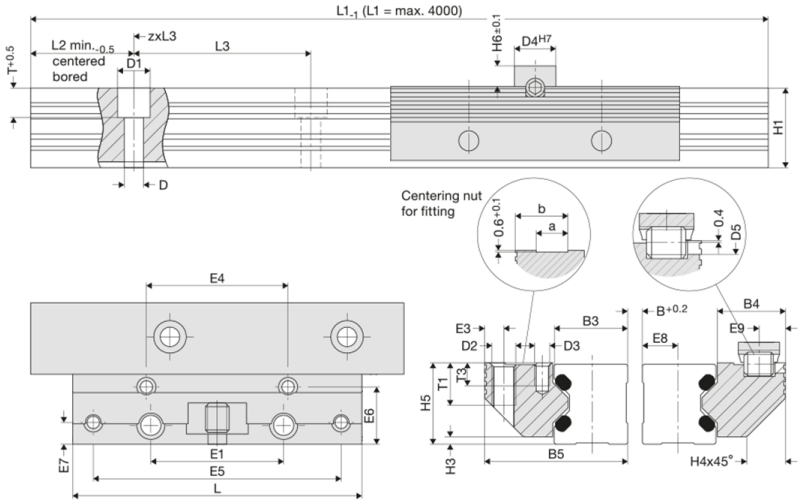
Any

Lubricant

Lifetime-lubricated with high-vacuum suitable grease, maintenance-free

Pair of profile rails with pair of roller shoes
Vaccuum compatible, type FDI

Dimensions and Data Tables



Size	Dimensions mm														
	L	B5	H5	B3	B4	D3	D	D1	D2	D4	D5	E1	E3	E4	E5
12	64	24.4	15	12	11.9	M3	3.4	6	M4	8	3	25	3.4	29	57
15	78	30.9	19	15.25	15.2	M4	4.5	8	M5	10	4	30	4.4	34	68
20	92	40.9	23	20	20.4	M5	5.5	10	M6	10	4	40	4.9	42	80
25	98	48.4	27.5	25	22.9	M5	6.6	11	M8	14	6	45	6.4	48	84
35	135	68.9	37.5	35	32.9	M6	9	15	M10	14	6	62	8.9	67	117
45	165	82.4	46.5	45	36.4	M8	11	18	M12	14	6	80	9.9	83	146

Size	Dimensions mm													
	E6	E7	E8	E9	H1	H3	H4	H6	L2	L3	T	T3	a	b
12	9.7	3.4	5.5	4.9	14.7	1.4	5.5	4	10	40	5.5	6	4.5	9.5
15	12.4	4.9	7	5.9	18.7	2	8	5	10	60	6	7.5	5	12.5
20	16.9	5.9	9.5	5.9	22.6	2	11	5	10	60	8	8	7.5	16
25	19.4	7.4	12	8.9	27	2.5	13	7	10	60	10	5	10.5	17.5
35	28.4	8.9	17	8.9	37	3.5	20	7	12	80	11.5	8.5	12.5	26
45	30.9	9.9	22	8.9	46	4	22	7	16	105	14.5	9.5	15.5	31

Pair of profile rails with pair of roller shoes
Vaccuum compatible, type FDI

Size	Load Ratings N		Moment capacities pair of roller shoes Nm				Weight kg	
	C	C_0	M_{0cx}	M_{cx}	M_{0cy}/M_{0cz}	M_{cy}/M_{cz}	PRS	Rail/m
12	550	600	0,3*(B+30,3)	0,3*(B+30,3)	8.5	8	0.07	0.4
15	1350	1500	0,7*(B+36,5)	0,7*(B+36,5)	26	23	0.12	0.8
20	2150	2500	1,2*(B+47,0)	1,1*(B+47,0)	51.5	44	0.23	1.2
25	2900	4150	2,1*(B+58,4)	1,4*(B+58,4)	92	64	0.35	1.8
35	5000	7250	3,6*(B+85,0)	2,5*(B+85,0)	226	156	1	3.1
45	8500	10200	5,1*(B+109,0)	4,2*(B+109,0)	387	322	1.8	5

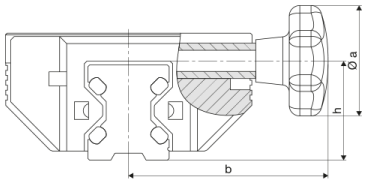
Innovation in Motion

Franke



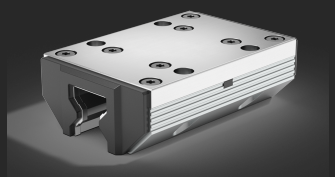
Accessories for Linear Guides Cassettes with clamp lever or star grip

Dimensions and Data Tables



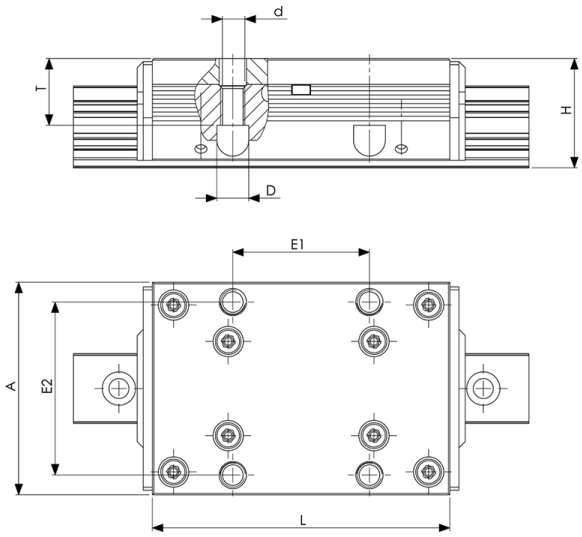
Innovation in Motion

Franke



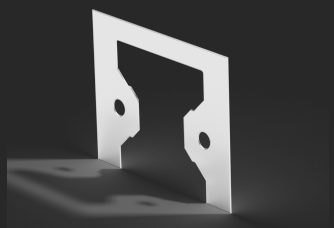
Accessories for Linear Guides
Cassette for mounting from underneath

Dimensions and Data Tables



Innovation in Motion

Franke

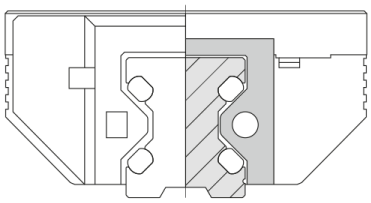


Accessories for Linear Guides
Metal wipers for rough working conditions

Description

Die Metallräumer werden zusätzlich zu den Filzabstreifern in die Abstreiferplatte eingelegt und aufgeclipst. Sie dienen zur Entfernung von grobem Schmutz wie z.B. Metallspänen, Schweißspritzern oder Holzstaub von der Laufbahn der Schiene.

Dimensions and Data Tables



Size	Bestellnummer
-	-
-	-
-	-
-	-
-	-
-	-

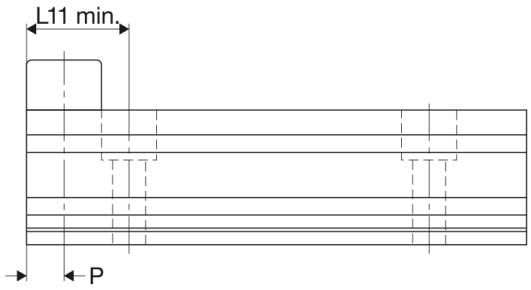
Innovation in Motion

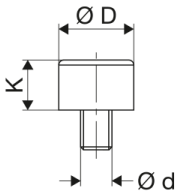
Franke

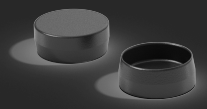


Accessories for Linear Guides
Stop screws with bumper for guide rail endings

Dimensions and Data Tables







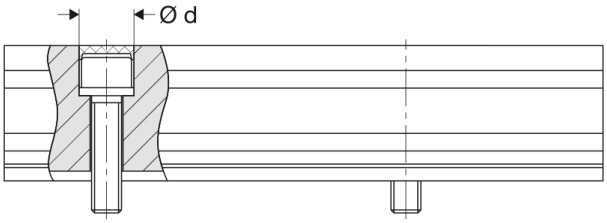
Accessories for Linear Guides
Plastic covers for bore holes of guide rails

Description

Zur optimalen Funktion der Abstreifer sollten die Bohrungen der Führungsschienen mit Kunststoffabdeckungen verschlossen werden, die jeder Lieferung beiliegen. Als Ersatz können Sie sie auch einzeln bestellen.

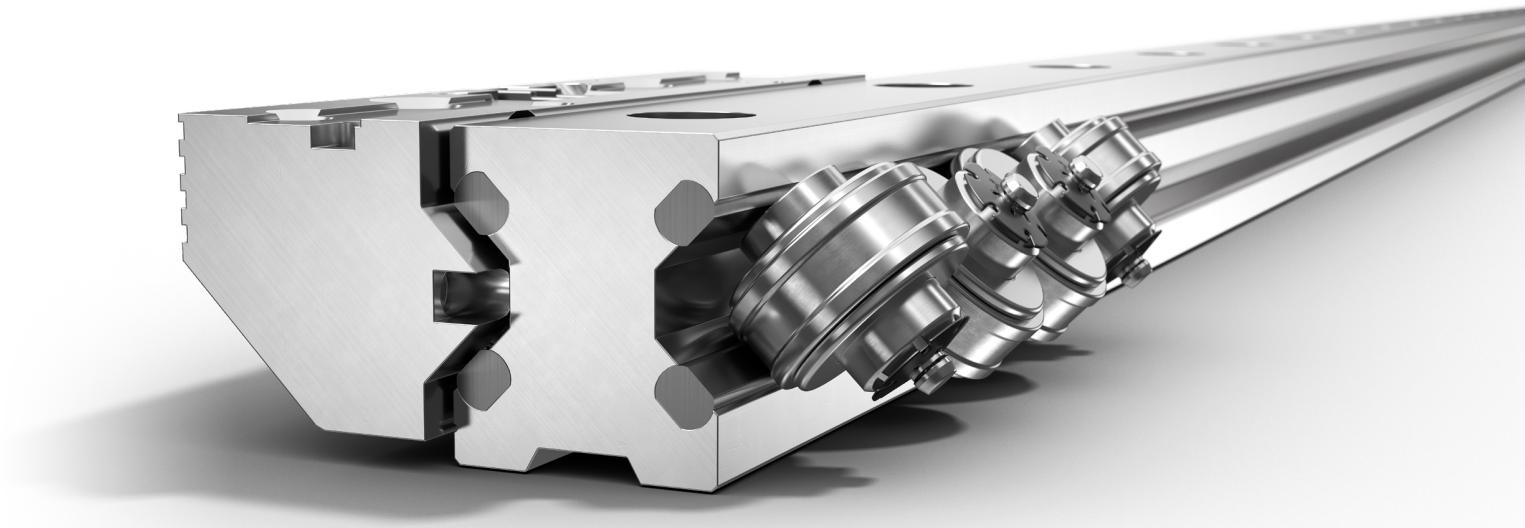
Werkstoff: POM verschleißfester Kunststoff, öl- und alterungsbeständig.

Dimensions and Data Tables



Technical documentation

Aluminum roller guide type FD



Assembling instructions (video)

Product presentation (video)

Technical documentation FD / EN / Art. no. 612223

Franke

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2.3 Linear System Calculation 7
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- 2.3.2 Static Calculation
- 2.3.3 Nominal Life

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- 2.4.2 Multi-Track Arrangements
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1. Linear Guides Type FD

1.1 Available Series

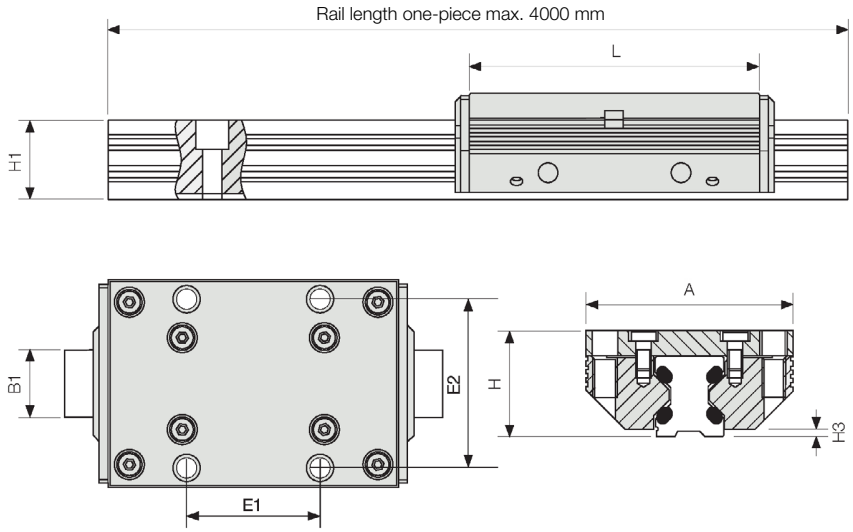
Designation	Characteristics	Size	Applications
FDA	• aluminum roller guides in **standard** design • inlaid steel raceways • rollers with needle bearings for easy and quiet running	12, 15, 20, 25, 35, 45	Suitable for linear motion applications in virtually all industries. Sealed track rollers for maintenance-free operation over the entire service life. Smooth, clean running.
FDB	• aluminum roller guides in **LowCost** design • inlaid steel raceways • ball bearing mounted rollers	12, 15, 20, 25, 35, 45	Suitable for linear motion applications in virtually all industries. Particularly suitable for cost-sensitive applications with reduced load and noise requirements.
FDC	• aluminum roller guides in **NIRO** design • Inserted raceways made of corrosion-free steel • Stainless steel track rollers with needle bearings for smooth and quiet running	12, 15, 20, 25, 35, 45	Suitable for linear motion applications in virtually all industries. 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	25	Suitable for linear motion applications in virtually all industries. Amagnetic raceways without influence on prevailing magnetic fields (e.g. in medical technology or electronics manufacturing).
FDE	• aluminum roller guides in **lubricant-free** design • inlaid raceways made of steel • lubricant-free rollers for easy and quiet running	12, 15, 20, 25, 35, 45	Suitable for linear motion applications in virtually all industries. Special track rollers without lubricants.
FDG	• Aluminum roller guides in **NIRO-LowCost** Design • Inserted raceways made of corrosion-free steel • ball-bearing track rollers made of corrosion-free steel	12, 15, 20, 25, 35, 45	Suitable for linear motion applications in virtually all industries. 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	25, 35, 45	Suitable for linear motion applications in virtually all industries. 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	12, 15, 20, 25, 35, 45	For linear motion tasks in the vacuum range for low loads and dynamics. The carriages are equipped with a lubricant suitable for vacuum and without plastic parts.

Franke

Technical Data

Materials	Carriage plate, roller shoes and rail body: aluminium; running rollers and raceways depending on series: steel, stainless steel or non-magnetic steel
Operating Temperature	-20 °C to +80 °C
Maximum Speed	10 m/s
Installation Orientation	Any
Lubrication	Lifetime-lubricated, maintenance-free

Profile rail with carriage



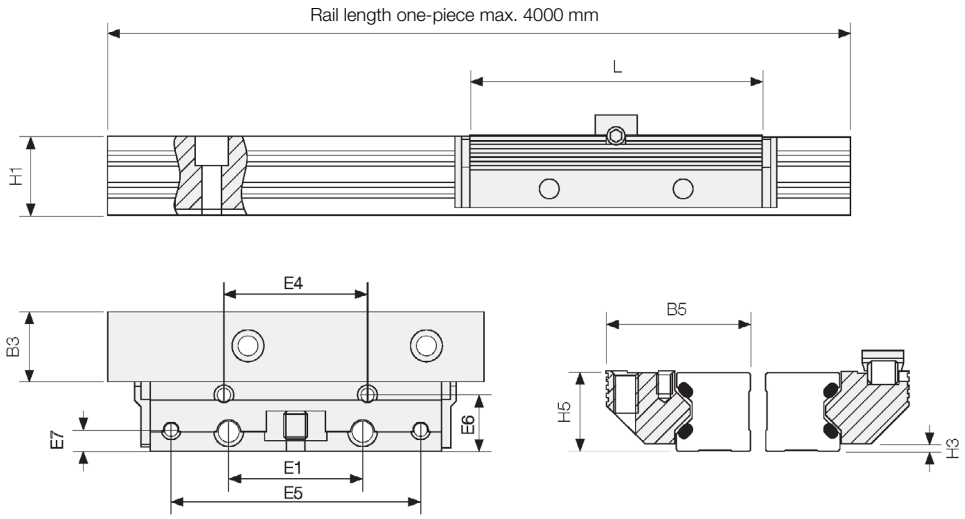
Dimensions

Size	Dimensions (mm)							
	A	B1	H	H1	H3	L	E1	E2
12	37	12.0	19	14.7	1.4	64	25	30
15	47	15.5	24	18.7	2.0	78	30	38
20	63	21.0	30	22.6	2.0	92	40	53
25	70	23.0	36	27.0	2.5	98	45	57
35	100	32.0	48	37.0	3.5	135	62	82
45	120	45.0	60	46.0	4.0	165	80	100

Characteristics

Designed for high travel speeds while maintaining low weight. The running roller principle enables high dynamics, smooth running, and low maintenance requirements. The modular system offers various rail profiles, roller shoes, carriages, and variable track widths. The sliding resistance (preload) can be adjusted. Rail lengths up to 4000 mm are available in one piece; longer travel distances can be realized using rail joints.

Pair of profile rails with pair of roller shoes



Dimensions

Size	Dimensions (mm)										
	B3	B5	H1	H3	H5	L	E1	E4	E5	E6	E7
12	12.00	24.4	14.7	1.4	15.0	64	25	29	57	9.7	3.4
15	15.25	30.9	18.7	2.0	19.0	78	30	34	68	12.4	4.9
20	20.00	40.9	22.6	2.0	23.0	92	40	42	80	16.9	5.9
25	25.00	48.4	27.0	2.5	27.5	98	45	48	84	19.4	7.4
35	35.00	68.9	37.0	3.5	37.5	135	62	67	117	28.4	8.9
45	45.00	82.4	46.0	4.0	46.5	165	80	83	146	30.9	9.9

2. Type FD – Franke Dynamic

2.1 Versions and System Description

Franke Aluminium Roller Guides are available either as a Profile Rail with Carriage or as a Pair of Profile Rails with a Pair of Roller Shoes.

Profile Rail with Carriage (Figure 1)

The Profile Rail with Carriage version is supplied as a fully adjusted linear guide.

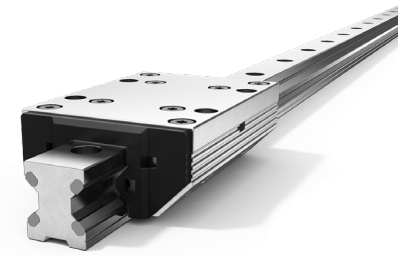


Figure 1: Profile Rail with Carriage

Pair of Profile Rails with Pair of Roller Shoes (Figure 2)

The carriage or the pair of roller shoes of the standard FDA version runs on four cross-arranged needle-bearing running rollers on raceways made of tough spring steel. For applications with special requirements, additional versions are available, such as stainless steel raceways or customer-specific special designs.

The Aluminium Roller Guides are lifetime-lubricated. Travel speeds up to 10 m/s and accelerations up to 40 m/s² can be achieved. Operating temperatures range from -20 °C to +80 °C. Franke also provides solutions for temperature ranges beyond these limits.

Carriages supplied mounted on rails are factory-adjusted to be free of clearance. The integrated preload adjustment allows subsequent adaptation to the actual load situation. The adjustment is ideally carried out by measuring the sliding resistance under unloaded conditions.

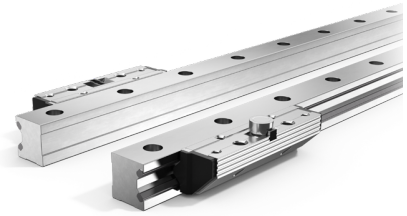


Figure 2: Pair of Profile Rails with Pair of Roller Shoes

Adjusting the Preload

To adjust the guide:
Slightly loosen the screws of the carriage plate on the adjustment side. Adjust the integrated threaded adjustment screw located on the longitudinal side of the carriage. Turning the adjustment screw moves the roller shoe and therefore increases or decreases the preload. Adjustment values can be found in Section 2.4.6 Sliding Resistance Values. Detailed mounting and adjustment information is provided in the mounting instructions for Aluminium Roller Guides.

2.2 Guide Design

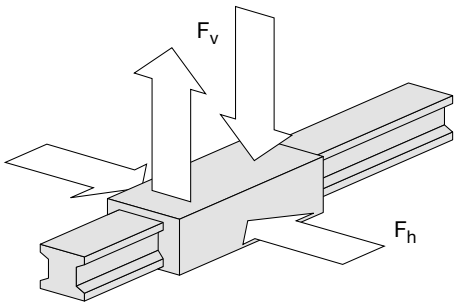
The following parameters are required for the correct design of the guide:

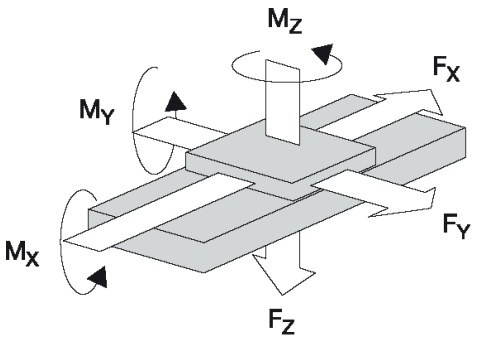
- Rail arrangement
- Acting loads according to the load diagram
- Type of load (alternating, static, cyclic)
- Environmental influences (e.g. temperature) and Operating conditions (e.g. vacuum, cleanroom)
- Speed and acceleration
- Required target nominal life

2.3 Linear System Calculation

2.3.1 Terms and Dimensions

C	= Dynamic load capacity			
C_0	= Static load capacity			
D_a	= Running roller diameter			
F	= Dynamic equivalent load	L	= Nominal life	(km)
F_a	= Offset load	M_{0cx}, 0_{cy}, 0_{cz}	= Permissible static moment load	(Nm)
F_0	= Static equivalent load	M_{cx}, c_y, c_z	= Permissible static or dynamic torque	(Nm)
F_1, F_2, F_n	= Individual loads	q_1, q_2	= Time proportion for loads	(%)
F_h, F_v	= Horizontal force / vertical force	S	= Safety factor	





2.3.2 Static Calculation

A static calculation is sufficient for stationary loads or when linear movement is limited to v ≤ 0.1 m/s. The selected linear guide is considered adequate when the recommended static safety factor is achieved.

Static Safety Factor: $S = \frac{C_0}{F_0}$

Recommended Safety Factors
Compression Load S > 1.2
Tensile Load S > 2.5
Moment Load S > 4.0

The equivalent load is determined by the sum of the individual external loads F_v and F_h.

stat. äquivalente Belastung: $F_0 = F_v + F_h$

For an offset load F_a resulting in torque M_0, the corresponding torque load component must be included in the equivalent load calculation:

$$F_0 = F_0 + C_0 \cdot \frac{M_x}{M_{0cx}} + C_0 \cdot \frac{M_{yz}}{M_{0cy,0cz}}$$

2.3.3 Nominal Life

$$L = \left(\frac{C}{F}\right)^{p} \cdot \pi \cdot D_a$$

The nominal life can be calculated automatically using the calculation tool available on our website.

2.4 Notes for the Connection Design

2.4.1 Connection Plate for Type FD

When using Single Rails and Roller Shoes, an additional Connection Plate (customer-side structure) must be provided. The Roller Shoes and the Connection Plate together form the Carriage.

For easier alignment during mounting, the Roller Shoes are equipped with centering grooves. A corresponding centering rib should therefore be integrated into the Connection Plate (Figure 4). The dimensions for manufacturing the centering rib are shown in Table 1. All other dimensions, tolerances, and accuracies are specified in the respective sections of this documentation.

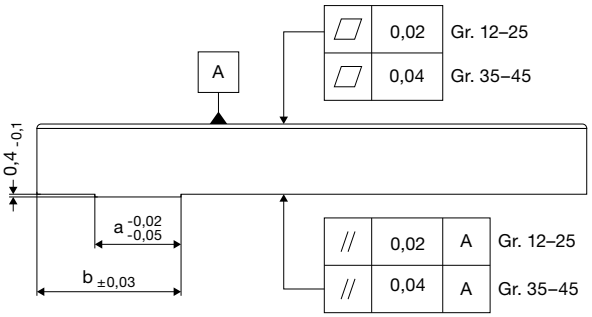


Figure 4: corresponding centering

size	a (mm)	b (mm)
12	4.5	9.6
15	5.0	12.6
20	7.5	16.1
25	10.5	17.6
35	12.5	26.1
45	15.5	31.1

Table 1: Centering Rib Dimensions

2.4.2 Multi-Track Arrangements

For multi-track arrangements, it is recommended to define one side as a fixed bearing side and the opposite side as a floating bearing side. This allows manufacturing tolerances between the rails to be compensated most effectively. For example, the floating bearing side may be designed with a driver element and lift-off protection. The fixed bearing side performs the guiding function, while the floating bearing side compensates for parallelism and height deviations. The drive should be positioned as close as possible to the guide side, since this side absorbs the drive torques.

2.4.3 Mounting Surface

The mounting and locating surfaces have a decisive influence on the performance and accuracy of the guide system. Surface deviations can directly affect the running accuracy of the guide. In twin-track configurations, precise parallelism and height alignment are required. The following tolerances must be observed to ensure guide accuracy:

Rail Mounting Surface	Size 12 - 20 (mm)	Size 25 - 45 (mm)		Size 12 - 15	Size 20 - 45
Max. parallelism tolerance	0.03/m	0.05/m	Recommended Flatness of Connection Structure	0.03 mm	0.05 mm
Max. flatness of mounting surface	0.05/m	0.10/m			

Table 2: Accuracy Requirements for Mounting and Locating Surfaces

2.4.4 Rail Mounting

Rails should preferably be aligned using a straightedge or a locating shoulder. Depending on the load conditions, the guide rails should be:

1. Bolted
2. Bolted and pinned
3. Bolted against a locating shoulder
   (Figure 5).

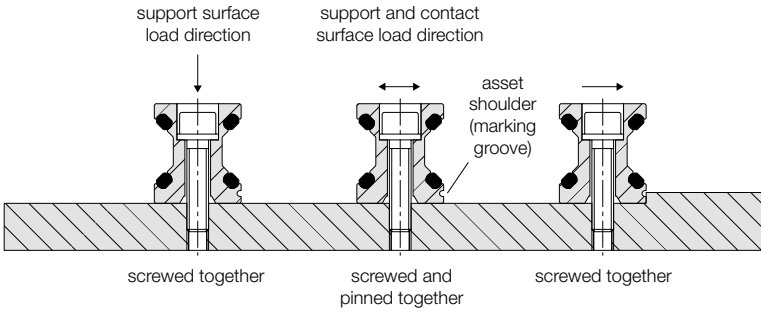


Figure 5: Rail Mounting

The load-carrying capacity of the guide depends on the connection between the guide components and the surrounding structure. Mounting to the connection structure must be carried out using grade 8.8 screws with DIN 433 washers.

2.4.5 Mounting Instructions for Coupled Rails

Rails longer than 4000 mm are supplied as coupled rails according to the Franke standard. This standard ensures a continuous hole pattern and optimum utilization of the available rail length. Customer-specific rail divisions are also possible.

For correct assembly, all rail sections are consecutively numbered (for example: A/1 – 1/1 – 2/2 – 2/E).

To achieve gap-free alignment of rail joints, auxiliary cylinders are used (Figure 6). The required dimensions are listed in Table 3. The auxiliary cylinders are inserted into the raceways at the joint locations and fixed using parallel clamps until the rails are aligned without internal stress. The tightening torques to be applied for the screw connections are listed in Table 4.

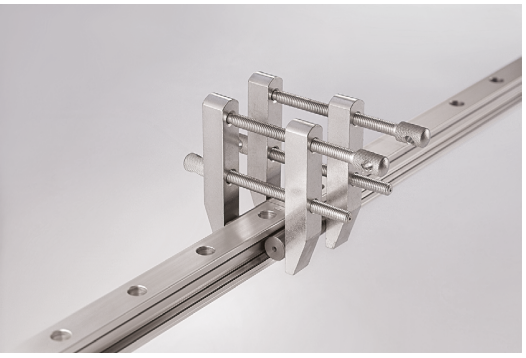


Figure 6: Coupled Rails / Auxiliary Cylinders

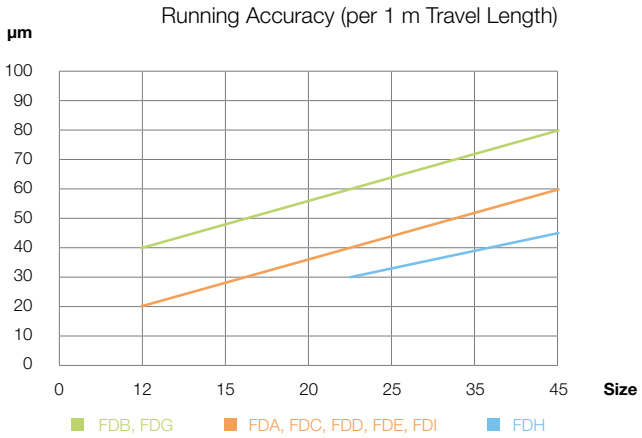
Size	Auxiliary Cylinder (mm)
12	11
15	11
20	14
25	16
35	27
45	35

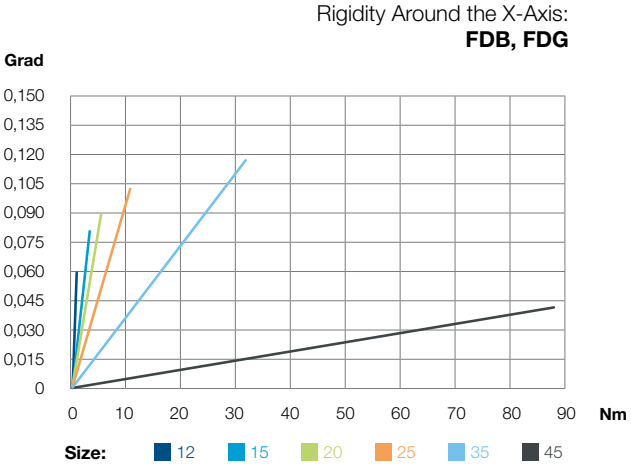
Table 3: Auxiliary Cylinder Dimensions

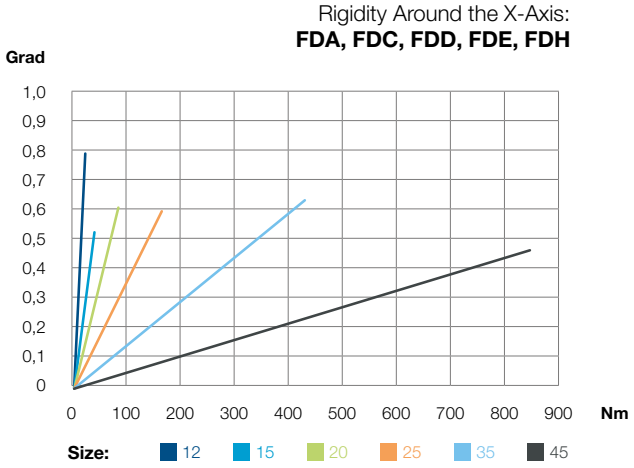
Screw Size	Tightening Torque
M3	1.1
M4	2.5
M5	5.0
M6	8.5
M8	21.0
M10	41.0
M12	71.0

Table 4: Tightening Torques

2.4.6 Running Accuracy and Rigidity







3. Integrated Measuring System

A magnetic miniature incremental encoder is integrated as the measuring system. The measuring accuracy is ±10 µm.
The signal is provided via an incremental quadrature output (RS422). The connector pin assignment is described in Section 4.8.3.

4. Mounting

4.1 General

4.1.1 Symbols and Signs Used

1. Used to describe a sequence of actions.

Information and recommendations (For example, recommendations regarding tightening torques)

Failure to follow the instructions may result in property damage or impaired functionality of the Aluminium Roller Guide.

4.1.2 Intended Use

Franke Linear Guides are designed for the linear movement of loads in technical systems. Operation is only permitted within the specified operating limits. The integrated measuring system available in certain versions is not intended for direct use as a safety sensor in safety-related control circuits without additional protective measures. It is not considered safety-related and may therefore only be used, together with other components, as a subsystem of Control Category B according to EN ISO 13849-1, provided all technical limits are observed. The measuring system is not considered a proven safety component within the meaning of EN ISO 13849-1.

Permitted Operating Conditions:
- Ambient temperature: -20 °C to +80 °C
- Use without modification of the rail or Roller Shoes
- Mounting and operation in accordance with this documentation

Any modification of components or operation outside the specified conditions is considered improper use. The manufacturer accepts no liability for resulting damage.

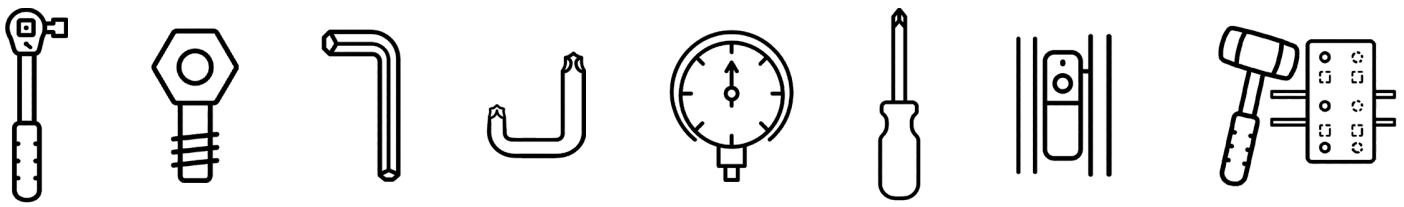
4.1.3 Protection and Maintenance Measures

Store Franke Aluminium Roller Guides in their original packaging until installation to protect them from moisture and damage. Only original Franke components may be used for assembly and repair work.

Franke Roller Guides are maintenance-free and lifetime-lubricated. Relubrication of the running rollers is not required.

4.1.4 Preparation for Mounting – Tools and Equipment

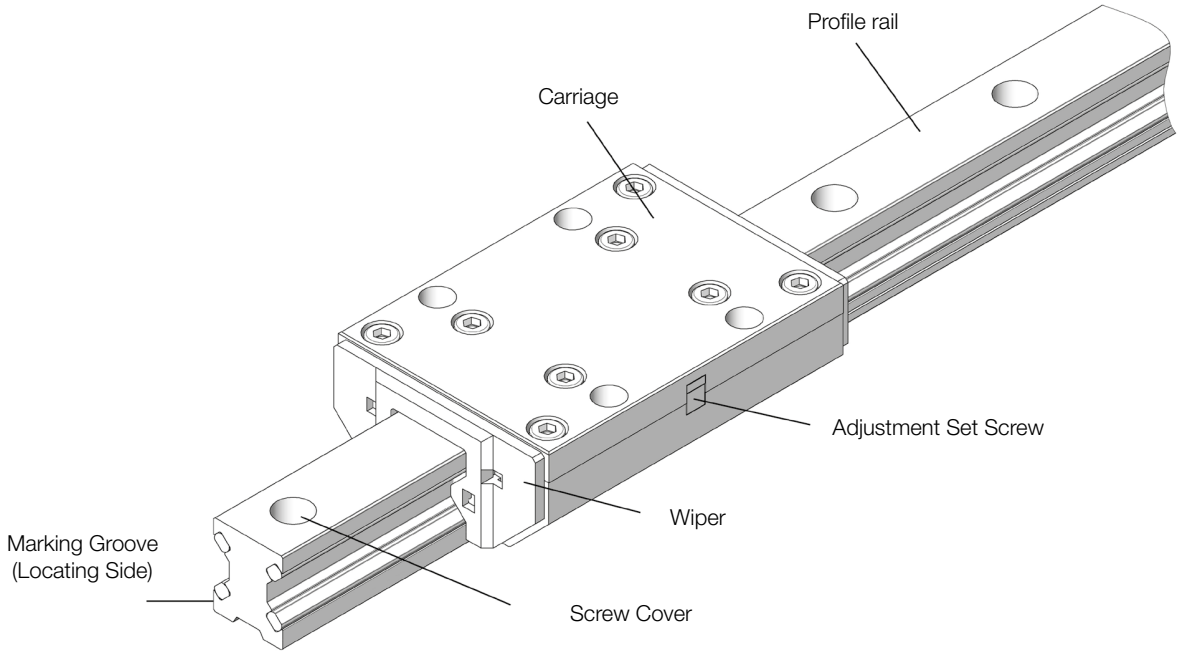
1. Torque wrench
2. Mounting screws
3. Hex key
4. Torx key
5. Dial indicator
6. Screwdriver
7. Auxiliary cylinders for coupled rails
8. Plastic hammer and plastic plate for installing screw covers



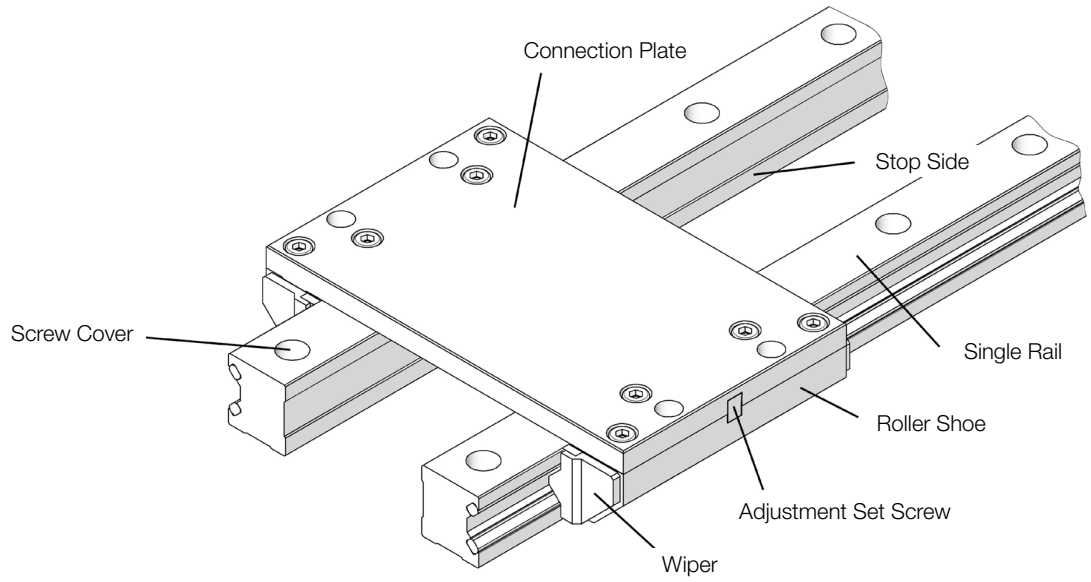
1. 2. 3. 4. 5. 6. 7. 8.

4.1.5 Overview of Guide Versions

Profile Rail with Carriage (Mounting: Section 2)

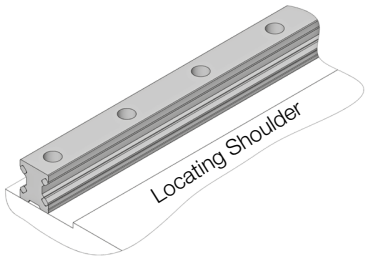


Pair of Profile Rails with Pair of Roller Shoes (Mounting: Section 3)



4.2 Mounting Profile Rails

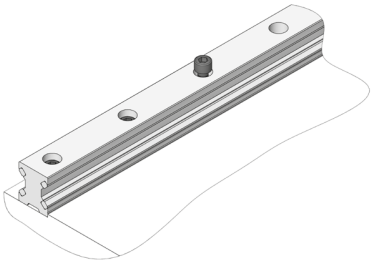
The rails are mounted using screw connections. Wherever possible, they should be positioned against a locating shoulder. Washers must be used.



1. Remove the Roller Shoe from the rail if necessary for installation. Ensure that all locating surfaces are clean and undamaged.
2. Position the rail so that the Locating Side (Marking Groove) is seated against the locating shoulder.
3. Insert the mounting screws and tighten them only lightly until the rail is secured in position. Then check rail linearity according to Table 1.

Rail Size	Maximum Linearity Tolerance (mm/m)
12 - 20	0.5
25 - 45	0.3

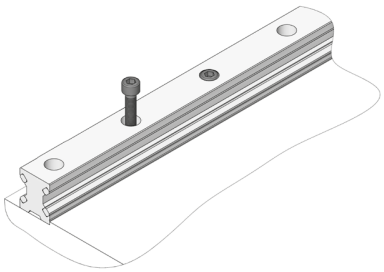
Table 1: Linearity of Profile Rail / Single Rail



Tightening Torques for Screw Connections

Screw Size	Tightening Torque (Nm)
M3	1.1
M4	2.5
M5	5.0
M6	8.5
M8	21.0
M10	41.0
M12	71.0

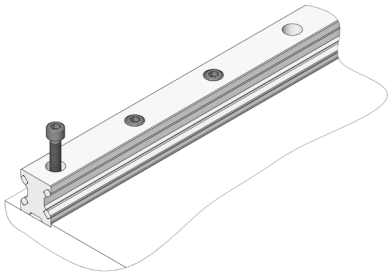
Table 2: Tightening Torques for Screw Connections [Nm]



4. Tighten the rail screws starting from the center and working alternately toward both ends.

Observe the specified tightening torques (Table 2).

a. Slide the Carriage onto the Profile Rail.



Ensure the correct arrangement of the fixed side and adjustment side.
The rail marking groove must be located on the side opposite the adjustment set screw, as illustrated in the figure.

b. Move the carriage over the complete stroke length. The carriage must run smoothly and evenly across the entire travel distance. If not, recheck the mounting procedure.

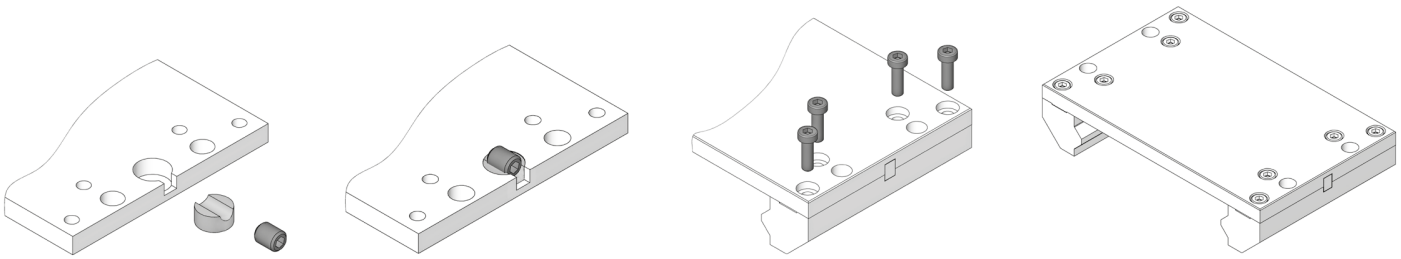
4.3 Mounting Single Rails with a Pair of Roller Shoes

4.3.1 Mounting the Roller Shoes (Carriage)

Roller Shoes are supplied as matched pairs. Only install Roller Shoes taken from the same package onto one Connection Plate. The Roller Shoes include a centering groove for secure positioning on the fixed side. The Connection Plate therefore incorporates a centering rib.

1. Prepare the Connection Plate together with the adapter piece and adjustment screw.
2. Insert the adapter piece and the adjustment screw into the Connection Plate bore.
3. Position the Roller Shoes on the Connection Plate and fasten them. Press the fixed side (with centering groove) outward against the centering rib.
4. Tighten all four mounting screws and both connection screws.

Observe the specified tightening torques (Section 9).



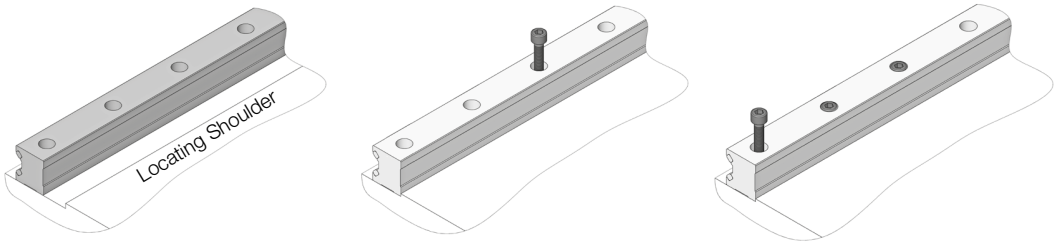
4.3.2 Mounting the Single Rails

The rails are fastened using screws. Whenever possible, mount the Single Rails against a locating shoulder and use washers.

Mounting the First Rail (Fixed Side):

1. Check all locating surfaces for contamination and damage.
2. Position the rail with its locating side against the locating shoulder.
3. Lightly tighten the screws and verify rail linearity (tolerance values according to Table 1, Page 5).
4. Tighten the rail starting at the center and progressing alternately toward both ends.

Observe the specified tightening torques (Section 9).



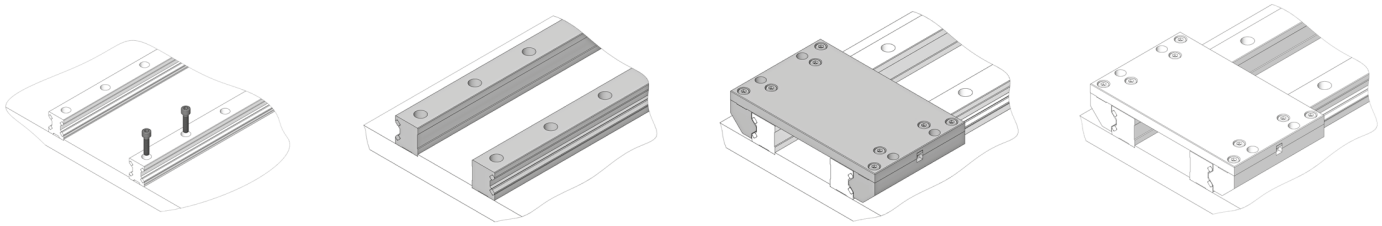
Mounting the Second Rail (Adjustment Side):

1. Position the second rail and align it parallel to the first rail. Initially tighten the mounting screws by hand only.
2. Verify the parallelism of both rails according to Table 3 below.
3. Tighten the rail starting from the center and moving outward alternately on both sides.
4. Tighten all mounting screws and connection screws using the specified torques.

Rail Size	Maximum Parallelism Tolerance (mm/m)
12 - 20	0.03
25 - 45	0.05

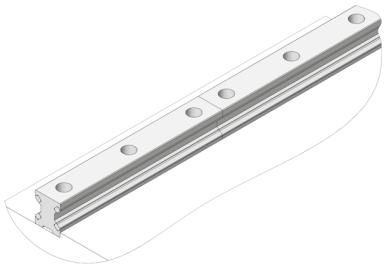
Table 3: Parallelism of Single Rails

5. Slide the assembled carriage onto the rails and use the adjustment set screw to establish an approximate sliding resistance. Final adjustment will be performed later.
6. Move the carriage across the entire stroke length. The carriage must operate smoothly over the full travel distance. If not, verify the mounting procedure and rail alignment.



4.4 Mounting Coupled Double Rails and Single Rails

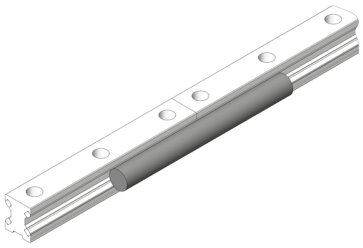
The rails of the Aluminium Roller Guide may also consist of several individual rail sections. Rails with a length greater than 4000 mm are supplied as coupled rails.



1. Check all mounting surfaces for contamination and damage.

   Coupled rails are precisely matched to one another. Arrange the rail sections according to their consecutive production markings (e.g. A/1 – 1/2 – 2/3 – 3/E).

   Arbitrary combinations are not permitted. For Profile Rails, the marking groove must remain on the same side throughout the complete assembly.

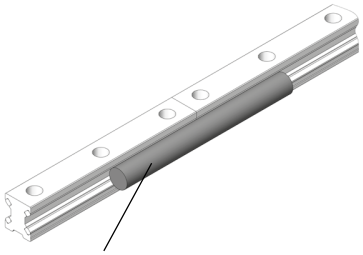


2. Align the rail sections without any gap and lightly tighten the screws.

3. Use Auxiliary Cylinders to precisely align the transition area between the rail sections (see Table 4).

Size	12	15	20	25	35	45
Auxiliary Cylinder Ø [mm]	11	11	14	16	27	35
Length [mm]	60	60	60	60	100	100

Table 4: Auxiliary Cylinders



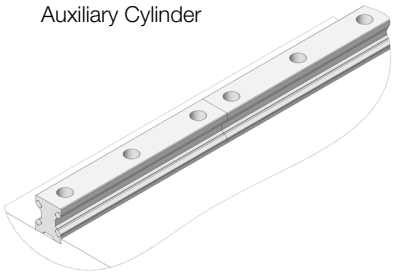
a. Insert the auxiliary cylinders into the Raceway at the rail joint.

b. Clamp the cylinders using a parallel clamp.

4. Check the linearity (tolerances according to Table 1, Page 5). For Single Rails, also verify rail parallelism (tolerances according to Table 3, Page 8).

a. Tighten the rail screws. Observe the specified tightening torques.

   Observe the specified tightening torques (Section 9).



b. Slide the Carriage or the Pair of Roller Shoes onto the rails and adjust the Sliding Resistance as described in Section 4.7.

4.5 Mounting Multi-Track Arrangements

Carriages supplied mounted on rails are already adjusted to the correct Sliding Resistance.

Do not interchange Carriages and Rails after delivery.
Individually supplied Carriages must be adjusted to the corresponding rails.

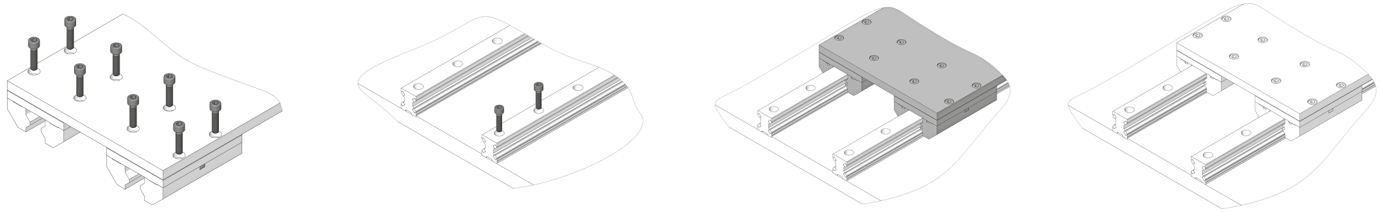
1. Fasten the Carriages to the connection plate.
2. Mount one of the Profile Rails (guide rail) as described in Section 4.2.

a. Position the second rail, roughly align it, and tighten the screws lightly.

b. Slide the Carriages together with the connection plate onto the rails.

3. Move the carriage across the complete rail length in order to align the second rail parallel to the first rail. The permissible parallelism tolerances are specified in Table 3 on Page 15.
4. Tighten the second rail.

Observe the specified tightening torques (Table 2, Page 13).

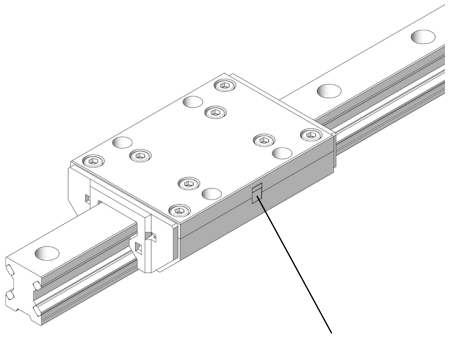


4.6 Installing Screw Covers

Use the supplied covers to protect the Wipers of the Carriage.

1. Insert the Screw Covers into the mounting holes of the rail.
2. Cover the rail with a plastic plate and tap the covers flush with a plastic hammer.
3. Remove any burrs if necessary.





4.7 Adjusting the Carriage

Carriages that are supplied mounted on a rail have already been adjusted to the correct Sliding Resistance. Do not interchange Rails and Carriages after delivery. Individually supplied Carriages must be adjusted to their corresponding rails:

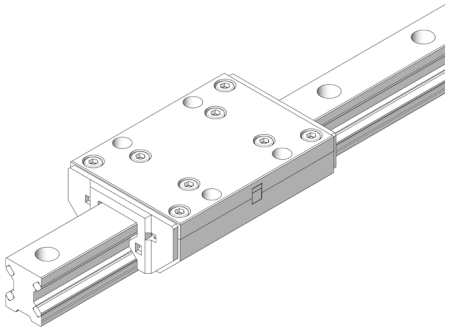
1. Remove the Wipers from the Carriage or from the Roller Shoes (see Section 4.8.2). Slide the Carriage onto the rail.

   Ensure the correct arrangement of the fixed side and adjustment side. For Profile Rails, the rail marking groove must be located on the opposite side of the adjustment set screw.

2. Loosen the four mounting screws on the adjustment side and lightly retighten them.

3. Adjust the Sliding Resistance using the adjustment set screw. Turning the screw shifts the Roller Shoe and therefore increases or decreases the preload.

4. Retighten the four screws on the adjustment side.



1. Check the Sliding Resistance using a spring scale. Use the values shown in Table 5.

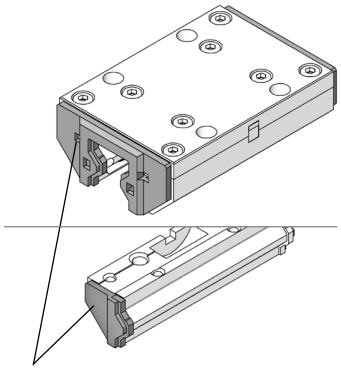
   Repeat steps 2 through 4 until the correct value has been achieved. Afterwards tighten all mounting screws using the prescribed tightening torque.

Series		FDA	FDB	FDC	FDD	FDE	FDG	FDH	FDI
12	Min.	0.7	0.3	0.7	-	0.5	0.3	-	3.0
	Max.	1.3	0.6	1.3	-	1.0	0.6	-	4.0
15	Min.	1.0	0.4	1.0	-	0.8	0.4	-	3.0
	Max.	2.0	0.8	2.0	-	1.5	0.8	-	4.0
20	Min.	2.0	0.5	2.0	-	1.0	0.5	-	3.0
	Max.	3.0	1.0	3.0	-	2.0	1.0	-	5.0
25	Min.	4.0	0.8	4.0	4.0	1.5	0.8	2.0	6.0
	Max.	5.0	1.2	5.0	5.0	2.5	1.2	4.0	8.0
35	Min.	5.0	1.5	5.0	-	2.5	1.5	8.0	8.0
	Max.	7.0	2.5	7.0	-	3.5	2.5	10.0	10.0
45	Min.	6.0	1.5	6.0	-	3.0	1.5	5.0	8.0
	Max.	8.0	2.5	8.0	-	4.0	2.5	8.0	10.0

Table 5: Guideline Values for Sliding Resistance [N]

4.8 Wipers

If the Wipers are supplied separately, they must be installed on the Carriage or on the Roller Shoes before operation.



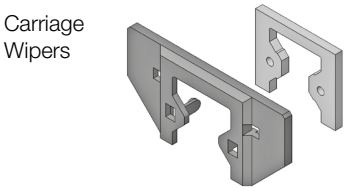
4.8.1 Installing Wipers

1. Remove the Carriage from the guide rail.

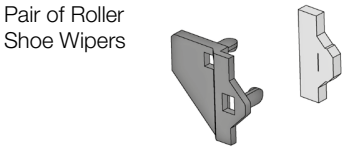
a. If required, soak the felt wiper with oil.

b. Place the felt wiper into the wiper plate and insert the retaining tabs through the slot in the wiper. When using a Metal Wiper, place it into the wiper plate before inserting the felt wiper.

c. Clip the Wiper Assembly onto the Roller Shoe or Carriage.



Make sure that the Wipers are not damaged during installation. The felt wipers should be replaced after a maximum travel distance of 6000 km.



The felt wipers are factory-impregnated with Mobil DTE26.
Their service life can be extended by regular re-oiling.

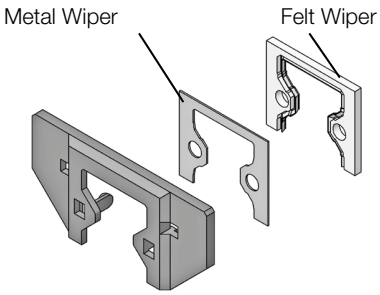
4.8.2 Removing Wipers

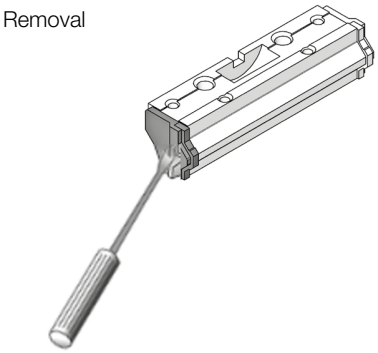
1. Remove the Carriage from the guide rail.

2. Insert a screwdriver into the inner recess and then into the outer recess on one side of the Wiper in order to release the retaining tabs.

a. Repeat the procedure on the opposite side.

b. Remove the Wiper.





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Description of the Measuring System

The Franke FD Measuring System is characterized by:

- Compact design (only 15 mm longer than the standard version)
- Integration of the read head into the Wiper
- Integration of the measuring tape into the side of the rail while retaining the mounting holes

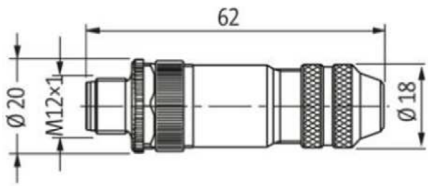


Technical Data of the Measuring System

Component Dimensions:	**129 × 36 × 78 mm**
Measuring Tape:	RLS MS05 Incremental Measuring Tape
Measuring System:	RLS2IC
Temperature Range:	-40 °C to +80 °C
Max. Measuring Length:	20 m (up to 50 m on request)
Max. Length of One Rail:	3980 mm (rail joints possible)
Measuring Tape Accuracy:	±20 µm (±10 µm on request)
Repeatability:	2 µm (depending on drive system)
Read Head Resolution:	**10 µm** (other resolutions on request)
Max. Speed:	**10 m/s** (at 2 MHz)
	5 m/s (at 1 MHz)
	2,5 m/s (at 0,5 MHz)



Open Cable End:	**On request**
Connector & Mating Connector:	Standard M12, 8-pin
Cable Outlet:	Top or side
Cable Chain Connection:	Optional Igus E04.07.015
Reference Marks:	0 (1 or 2 on request)

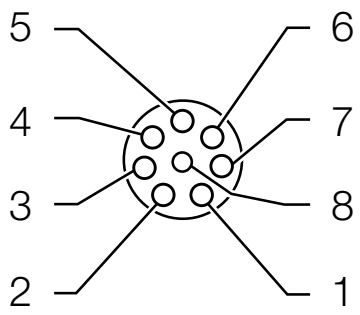


Electrical Data of the Measuring System

Supply Voltage:	5 V ± 0,25 V
Current Consumption:	30-130 mA
Maximum Cable Length:	5 m (extension cables on request)
Interface:	RS422; Differential Signal

4.8.3 Connecting the Measuring System

⚠ The read head is sensitive to electrostatic discharge and may be damaged by it. Before touching the component or its connections, discharge/ground your body. Do not touch the contacts of the connector. Do not connect or disconnect the connector under load.

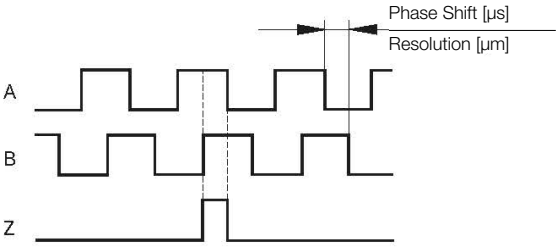


Cable Color	Function	PIN
White	Vdd	1
-	Z+	-
-	Z-	-
Grey	B+	5
Pink	B-	6
Green	A+	3
Yellow	A-	4
Brown	GND	2

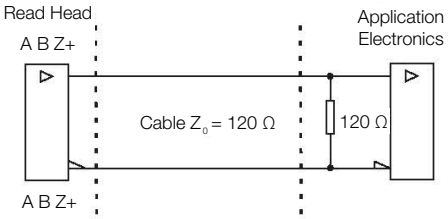
Incremental Encoder Signal, RS422

Output Signals Three square-wave signals: A, B, Z and their inverted signals A-, B-, Z-
Signal A leads signal B
Reference signal one or more square-wave pulses Z and the corresponding inverted signal
Signal Driver Differential line driver according to EIA RS422
Permissible Load Z0 ≥ 120 Ω between corresponding outputs

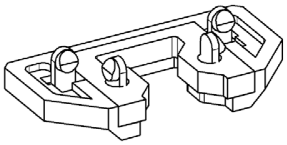
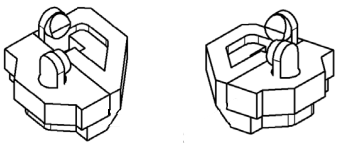
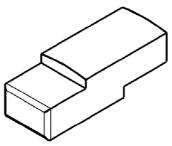
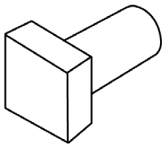
Timing Diagram



Recommended Input Signal Termination



4.9 Spare Parts for Carriages

Description	Size	Part Number	
Carriage Wipers 	12	84457B	
	15	84480B	
	20	84481B	
	25	84482B	
	35	84483B	
	45	84484B	
Pair of Roller Shoe Wipers 	12	84508A (left)	85018A (right)
	15	84509A (left)	85019A (right)
	20	84510A (left)	85020A (right)
	25	84511A (left)	85021A (right)
	35	84368A (left)	85022A (right)
	45	84513A (left)	85023A (right)
Filler Piece for Carriage / Pair of Roller Shoes 	12	47386	
	15	47387	
	20	47387	
	25	47388	
	35	47388	
	45	47388	
End Cap for Carriage / Pair of Roller Shoes 	12	47383	
	15	47384	
	20	47384	
	25	47385	
	35	47385	
	45	47385	

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4.11 Spare Parts Package

Cassette / Double Rail

Size	Contents	Part No.
FD12	2 Wipers, 1 End Cap, 1 Filler Piece	616690
FD15	2 Wipers, 1 End Cap, 1 Filler Piece	616691
FD20	2 Wipers, 1 End Cap, 1 Filler Piece	616692
FD25	2 Wipers, 1 End Cap, 1 Filler Piece	616693
FD35	2 Wipers, 1 End Cap, 1 Filler Piece	616694
FD45	2 Wipers, 1 End Cap, 1 Filler Piece	616695

Pair of Roller Shoes / Double Rail

Size	Contents	Part No.
FE12	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616696
FE15	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616697
FE20	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616698
FE25	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616699
FE35	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616700
FE45	2 Right Wipers, 2 Left Wipers, 1 End Cap, 1 Filler Piece	616701

Clamping Elements

Size	Component	Part Number	Set Part Number
FD15 Steel	Clamping Lever	43844	602385
	Clamping Piece	50062	
	Pressure Piece	50061	
FD15 Steel	Star Grip	43348	602440
	Clamping Piece	50062	
	Pressure Piece	50061	
FD20 Steel	Clamping Lever	43844	602438
	Pressure Piece	50443	
	Clamping Piece	50444	
FD20 Steel	Star Grip	43348	602441
	Clamping Piece	50443	
	Pressure Piece	50444	
FD25 Steel	Clamping Lever	44637	602436
	Pressure Piece	39888	
	Clamping Piece	39887	
FD25 Steel	Star Grip	43348	602442
	Pressure Piece	39888	
	Clamping Piece	39887	
FD35 Steel	Clamping Lever	44653	602291
	Pressure Piece	50090	
	Clamping Piece	50091	

Size	Component	Part Number	Set Part Number
FD35 Steel	Star Grip	43349	602443
	Pressure Piece	50090	
	Clamping Piece	50091	
FD45 Steel	Clamping Lever	44654	602439
	Pressure Piece	50451	
	Clamping Piece	50452	
FD45 Steel	Star Grip	43350	602444
	Pressure Piece	50451	
	Clamping Piece	50452	
FD15 Niro	Clamping Lever	46913	603171
	Clamping Piece	44661	
	Pressure Piece	44662	
FD15 Niro	Star Grip	43348	603166
	Clamping Piece	44661	
	Pressure Piece	44662	
FD20 Niro	Clamping Lever	46913	603167
	Pressure Piece	44663	
	Clamping Piece	44664	
FD25 Niro	Clamping Lever	46914	603168
	Pressure Piece	44665	
	Clamping Piece	44666	
FD25 Niro	Star Grip	43348	603173
	Pressure Piece	44663	
	Clamping Piece	44664	
FD35 Niro	Clamping Lever	46915	603169
	Pressure Piece	44153	
	Clamping Piece	44154	
FD35 Niro	Star Grip	43349	603174
	Pressure Piece	44153	
	Clamping Piece	44154	
FD45 Niro	Clamping Lever	46916	603170
	Pressure Piece	44667	
	Clamping Piece	44668	
FD45 Niro	Star Grip	43350	603175
	Pressure Piece	44667	
	Clamping Piece	44668	

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EU Declaration of Conformity

We hereby declare under our sole responsibility that the product Aluminium Roller Guide with Incremental Measuring System Type: FD nn complies with the applicable requirements of the following European Union legislation:
2014/30/EU Electromagnetic Compatibility Directive (EMC Directive)
2011/65/EU RoHS Directive, including all delegated directives published and legally effective on the date of issue of this Declaration of Conformity.

The following harmonized standards have been applied:

EN 60204-1:2018; Safety of machinery – Electrical equipment of machines – Part 1: General requirements.

EN IEC 61000-6-2:2019; Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments.

EN IEC 61000-6-3:2021; Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for equipment in residential environments.

EN IEC 61000-3-2:2019 + A1:2021; Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).

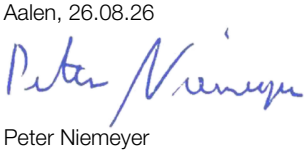
EN 61000-3-3:2013 + A1:2019 + A2:2021 + AC:2022; Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with a rated current ≤ 16 A per conductor and not subject to conditional connection.

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