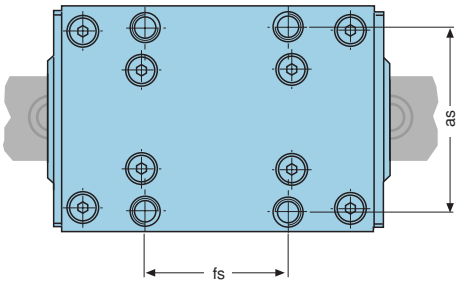
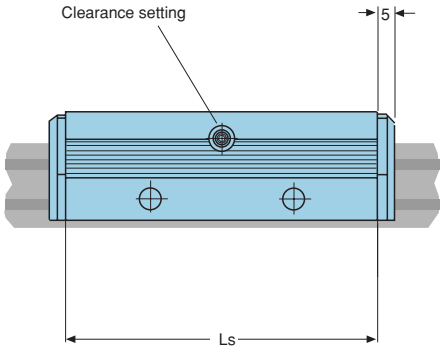
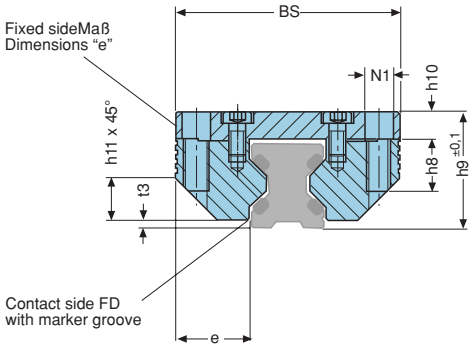
Aluminium Cassette

Standard







Size	Load rating		Moment load rating				Dimensions			other dimensions cassette								Weight	Order number
	C	Co	Mocx	Mcx	Mocy/Mocz	Mcy/Mcz	Ls	Bs	h9	as	fs	e	h8	h10	h11	t3	N1	Cassette	Cassette
12	2800	3000	27	25	43	40	64	37	19	30	25	12,50	8	4,0	6	1,4	M4	0,1	
15	4200	3400	37	45	58	72	78	47	24	38	30	15,75	10	5,0	8	2,0	M5	0,3	
20	5400	5400	76	76	111	111	92	63	30	53	40	21,00	12	7,0	11	2,0	M6	0,4	
25	9000	10100	158	142	222	198	98	70	36	57	45	23,50	16	8,5	13	2,5	M8	0,6	
35	12500	18000	423	294	559	388	135	100	48	82	62	34,00	20	10,5	20	3,5	M10	1,5	
45	21200	25900	827	678	983	806	165	120	60	100	80	37,50	24	13,5	22	4,0	M12	2,9	

Dimensions [mm], Load rating, Moments [Nm], Weight [kg]

Technical information cassettes and roller shoes (RSP)

Consist of:
- Aluminium body
- 8 rollers in needle bearings
- Plastic plate on both front sides with felt seal (metal wipers optional, see page 70)

Features:
- Maximum load capacity, smooth and silent run
- 45° - position of the rollers for loads from all directions
- Clip-on wipers with felt seal (metal wipers optional)
- Adjustable preload
- High dynamic load capacity
- Endless stroke lengths by coupling of rails (see page 71)
- Calculation programme to find the most suitable guide size
  Our calculation programme can be found in the download area of our homepage www.franke-gmbh.com. We are gladly prepared to calculate the guide size for you.

Traverse speed:
- Traverse speed up to 10 m/s
- Acceleration up to 40 m/s²

Temperature range:
- - 20° up to +100°C, short time operation +120°C

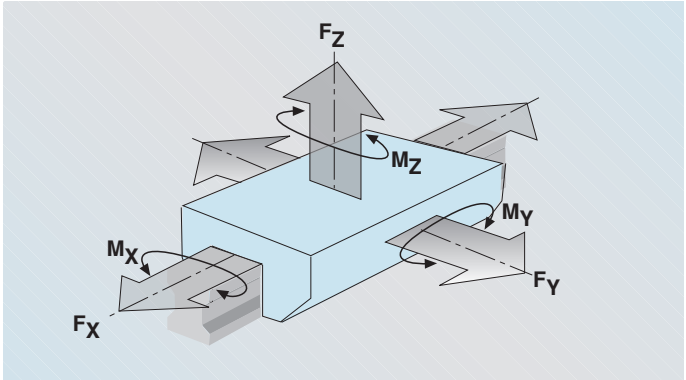
Lubrication:
- Maintenance-free due to lifetime-lubrication with grease Shell Retinax LX2

Fastening:
- with screws quality 8.8,
  tightening torques see technical information (page 74)
- Cassette with 4 fastening screws
- Pair of roller shoes with 12 fastening screws

Adjustment/Preload:
- Easy adjustment by threaded pin on the adjusting side of the cassette. Adjustment of pair of roller shoes by included adjustment plate and threaded pin. Recommended slide resistance see diagr. 1.
- The adjustment should always be made without wipers.

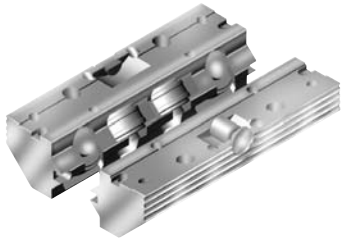
Running accuracy:
- The running accuracy in diagr. 3 refers to a rail length of one meter.

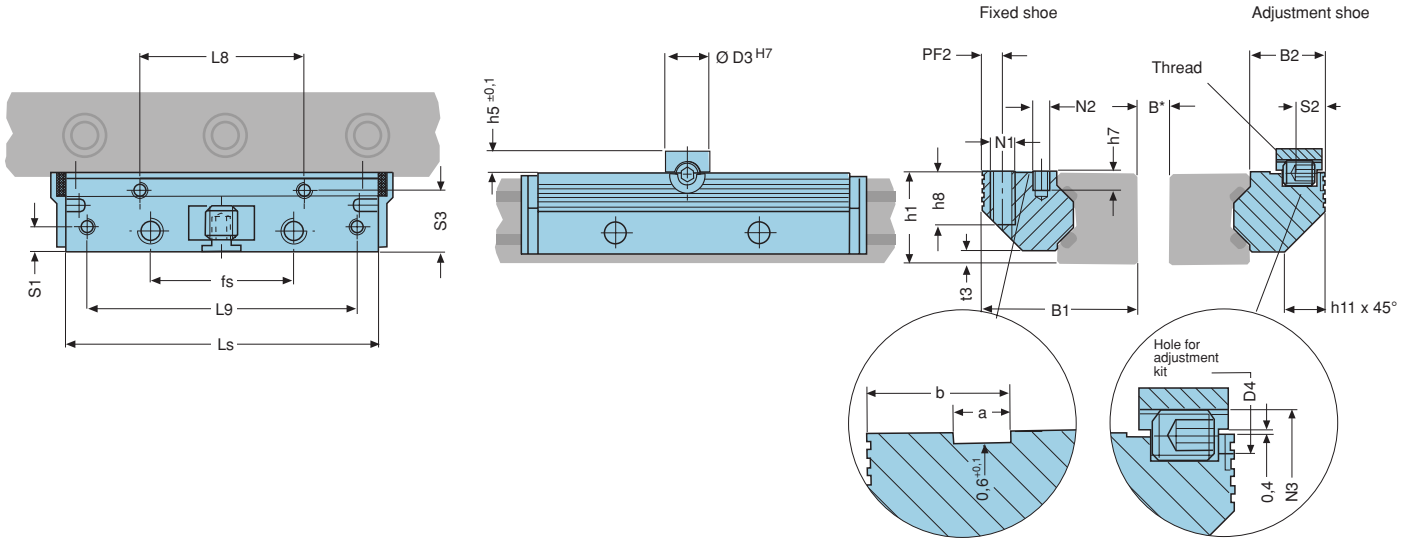
Stiffness:
- With pairs of single rails the stiffness refers to one pair of single rails with one pair of roller shoes (see diagr. 2).



Aluminium roller shoes

Standard



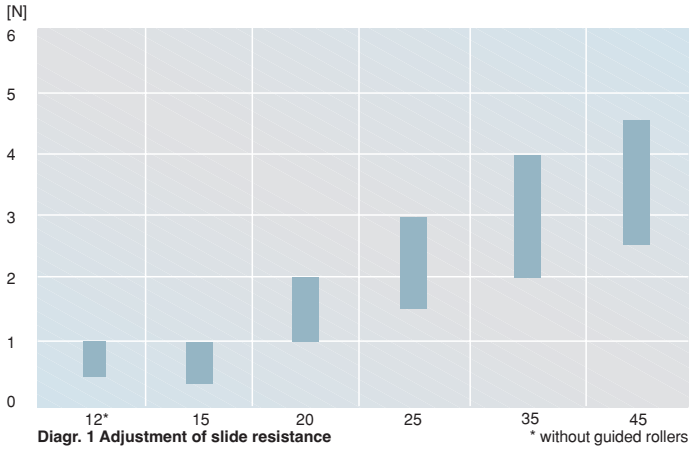


Moment load rating RSP				Dimensions			other dimensions RSP															Weight	Order number
Mocx	Mcx	Mocy/Mocz	Mcy/Mcz	Ls	B1	h1	h5	PF2	fs	B2	D3	D4	h7	h8	L8	L9	N1	N2	N3	S1	S2	S3	RSP	RSP
1,5(B+30,3)	1,4(B+30,3)	43	40	64	24,4	15,0	4	3,4	25	11,9	8	3	6,0	8	29	57	M4	M3	M4	3,4	4,9	9,7	0,06	
1,7(B+36,5)	2,1(B+36,5)	58	72	78	30,9	19,0	5	4,4	30	15,2	10	4	7,5	10	34	68	M5	M4	M6	4,9	5,9	12,4	0,20	
2,7(B+47,0)	2,7(B+47,0)	111	111	92	40,9	23,0	5	4,9	40	20,4	10	4	8,0	12	42	80	M6	M5	M6	5,9	5,9	16,9	0,30	
5,0(B+58,4)	4,5(B+58,4)	222	198	98	48,4	27,5	7	6,4	45	22,9	14	6	5,0	16	48	84	M8	M5	M8	7,4	8,9	19,4	0,50	
9,0(B+85,0)	6,3(B+85,0)	559	388	135	68,9	37,5	7	8,9	62	32,9	14	6	7,5	20	67	117	M10	M6	M8	8,9	8,9	28,4	1,40	
12,9(B+109,0)	10,6(B+109,0)	983	806	165	82,4	46,5	7	9,9	80	36,4	14	6	9,5	24	83	146	M12	M8	M8	9,9	8,9	30,9	2,80	

Dimensions [mm], Load rating, Moments [Nm], Weight [kg]

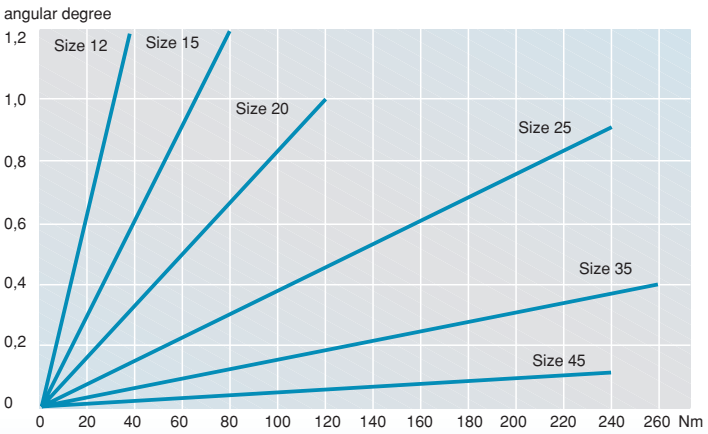
Standard	Basic body	Rollers	Wipers
	anodized Aluminium AlMg Si0,5 F28	Bearing steel 100 Cr 6	Plastic plate PA6 with felt wipers

Material

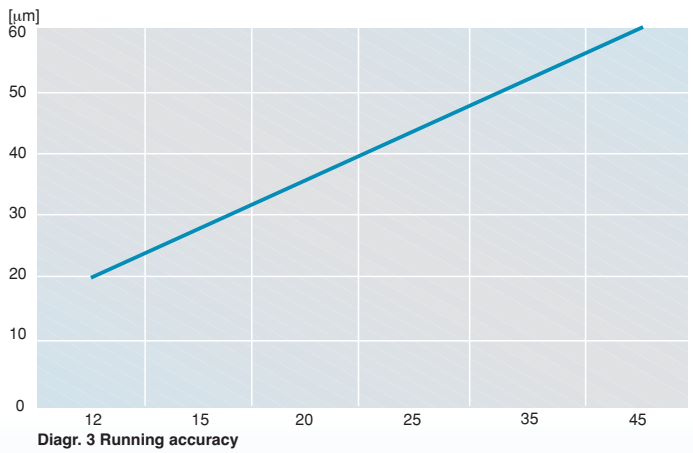


Diagr. 1 Adjustment of slide resistance

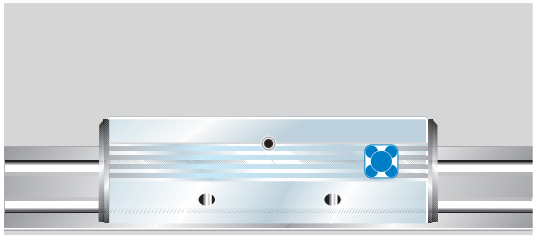
* without guided rollers

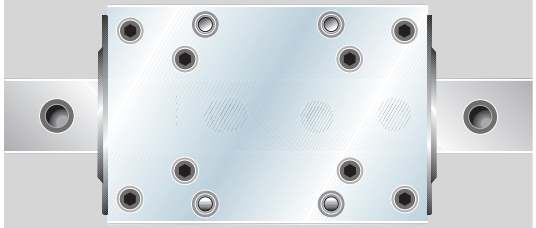


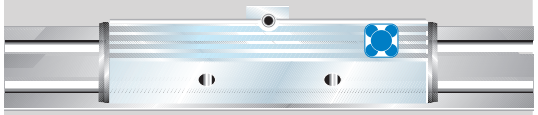
Diagr. 2 Stiffness

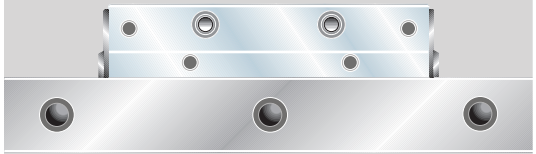


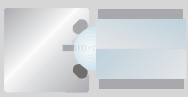
Diagr. 3 Running accuracy

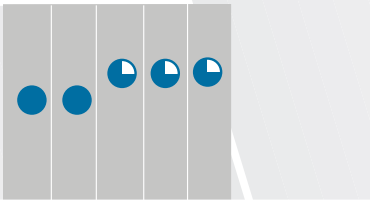


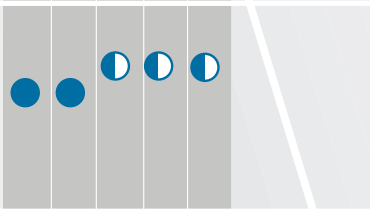


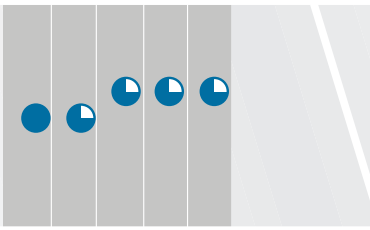


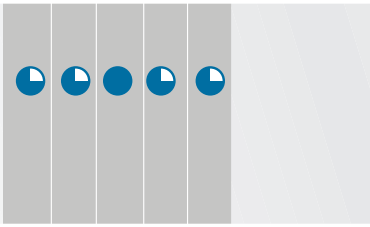


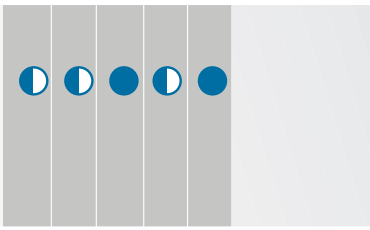


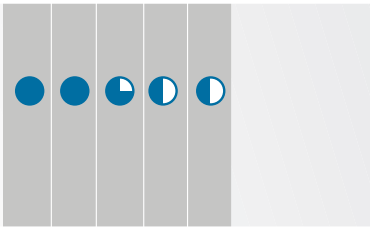


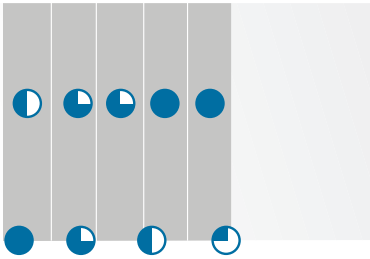


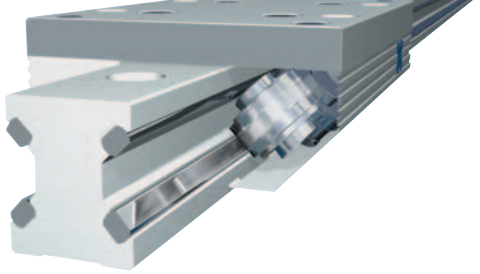




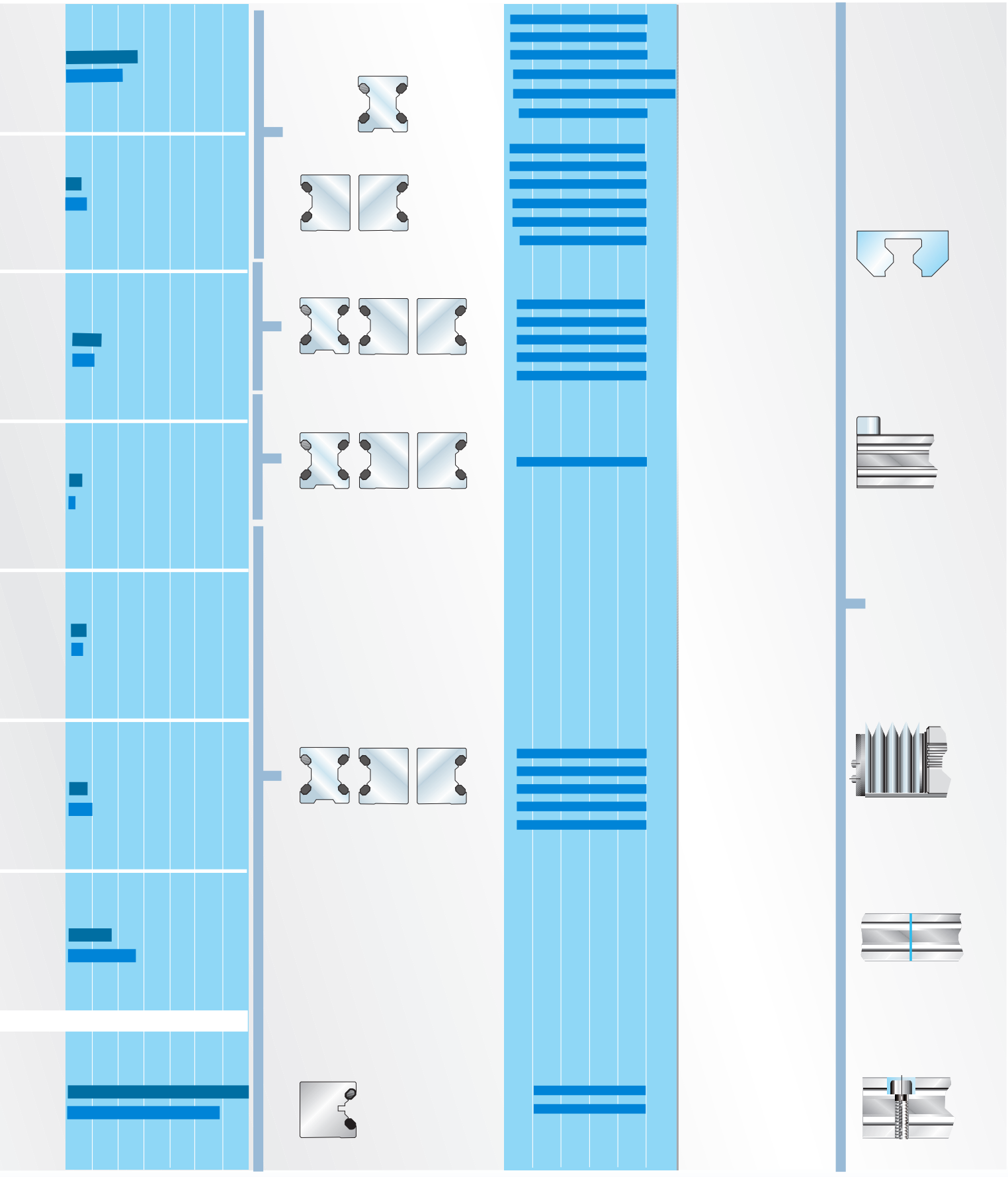








[mm]

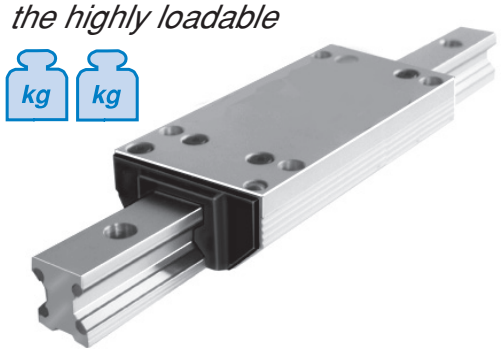


Aluminium Cassette / Aluminium roller shoes

Special version

Special types

the highly loadable



Size	Order number cassette	Order number Roller shoes
12	on request	on request
15		
20		
25		
35		
45		

Dimensions [mm]

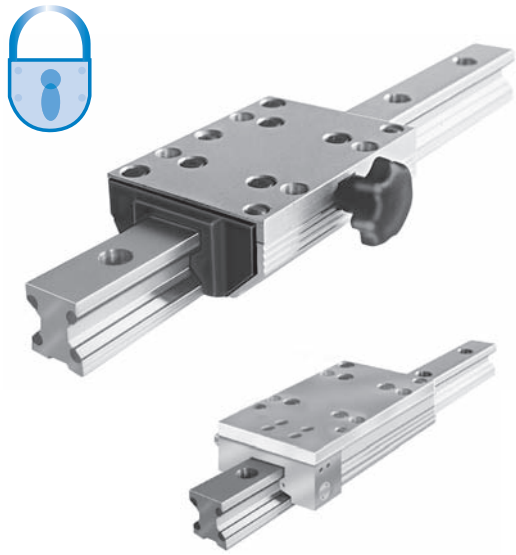
Aluminium roller guides are very variable. Depending on the case of application we supply e.g.:

- Cassettes with overlength for higher loads
- Cassettes for fastening from below

Please consult us.

Clamping devices

the manually fixable

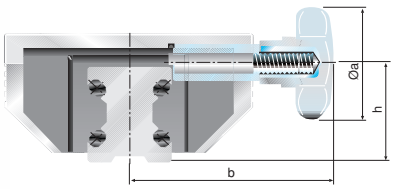


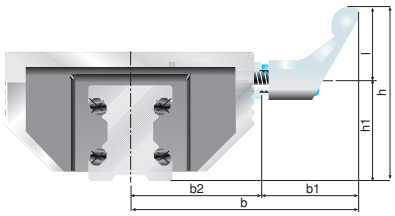
Size	Ø a	b	h	Lock force	Order nu. Star grip
15	25	41	19,0	200	84396AK
20	25	49	23,0	250	84441AK
25	32	56	28,0	250	84363AK
35	50	83	38,5	350	84364AK
45	63	101	48,0	750	84365AK

Dimensions [mm], Force [N] with normal power
at the moment only the standard version available

Size	b	b1	b2	h	h1	l	Thread	Order nu. Lever clamp
15	59,5	35	24,5	64,0	19,0	45	M5	84396AH
20	67,5	35	32,5	68,0	23,0	45	M5	84441AH
25	71,0	35	36,0	73,0	28,0	45	M6	84363AH
35	96,0	45	51,0	101,5	38,5	63	M8	84364AH
45	116,0	55	61,0	126,0	48,0	78	M10	84365AH

Dimensions [mm], Force [N] with normal power
at the moment only the standard version available



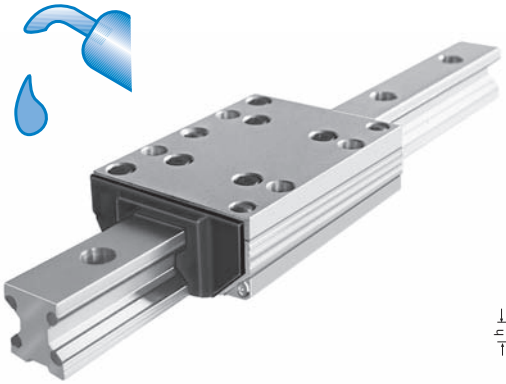


The cassette with star grip can be fixed at any optional place along the guide path. The clamping device does not exert forces on the guide system.

The clamping device is used in fixtures which are movable manually, clamping and stop ledgers, feeding of tools and work pieces. Also available with clamping lever. Please consult us.

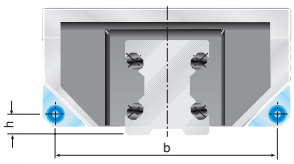
Central lubrication

the re-lubricatable



Size	b	h	Lubricating nipple DIN3405	Order number
15	42,0	4,4	D1AØ3,5	84396AF
20	56,3	5,2	D1AØ4,0	84441AF
25	61,8	6,6	D1AØ4,0	84363AF
35	87,9	9,4	D1AØ6,0	84364AF
45	106,0	11,0	D1AØ6,0	84365AF

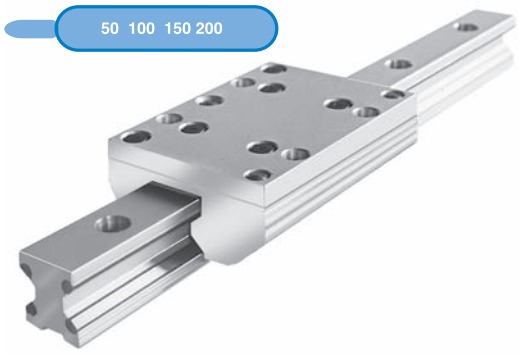
Dimensions [mm]



For long running periods and especially long life we recommend to use cassettes and roller shoes with relubrication facility. Relubrication in mounted condition becomes easy by the lubricating nipples on the front side.

High temperature

the heat-resistant



Size	Order number	
	Cassette	Roller shoes
12	on request	on request
15		
20		
25		
35		
45		

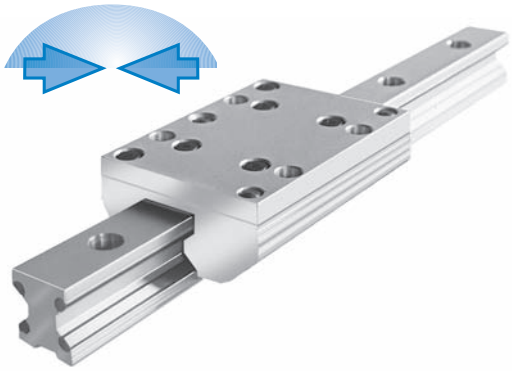
For applications in high temperature environment.

The cassette can be used with temperatures up to 200° C.

Please consult us.

Vacuum

the vacuum-fit



Size	Order number	
	Cassette	Roller shoes
12	on request	on request
15		
20		
25		
35		
45		

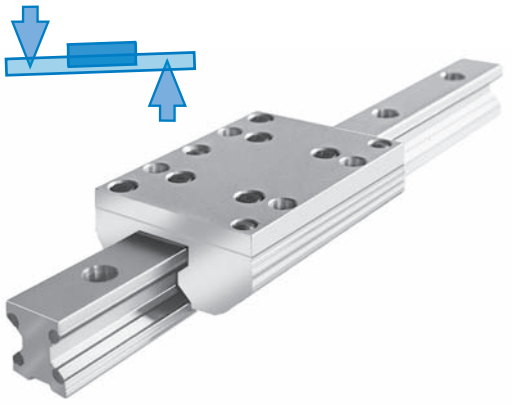
For applications in vacuum fields.

Special bore shapes and grease for high vacuum.

Please consult us.

Elastic roller

the equalizer



Size	Order number	
	Cassette	Roller shoes
25	84363E	84367E
45	84365E	84369E

Cassette with 8 elastically supported rollers for special absorbability. Maximum loads, especially silent and easy running behaviour. Electrically insulated.

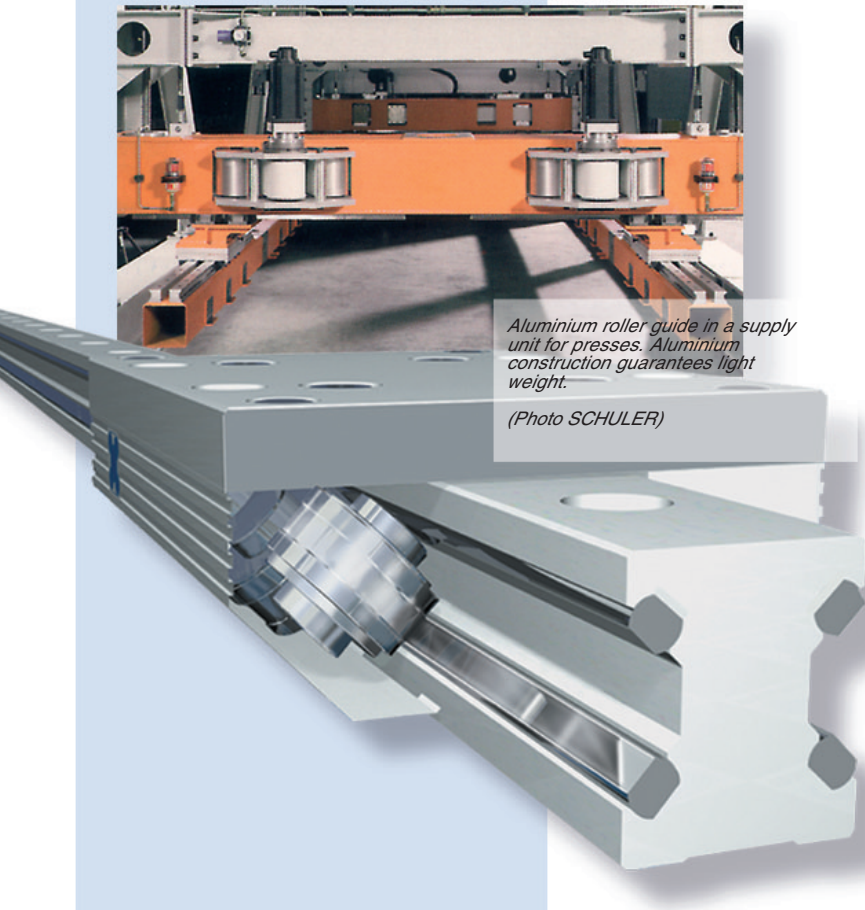
Application examples Linear Guides

Aluminium roller guide in food industries. Non-corrosive components make the guide system suitable for food and packaging.

(Photo VOLPAK)

Aluminium roller guide in a filter folding machine. Very short strokes and high frequencies are possible because of the big dimensioned rollers of the guide.

(Photo RABOFSKY)



Aluminium roller guide in a supply unit for presses. Aluminium construction guarantees light weight.

(Photo SCHULER)

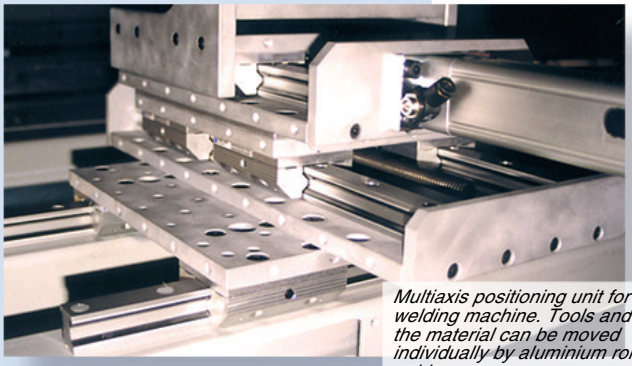
Aluminium roller guides are available in various series. You can select the series that suits your application best.

Due to the modular design the components of the different series can be combined individually.

With serial request we also offer customized cassettes.

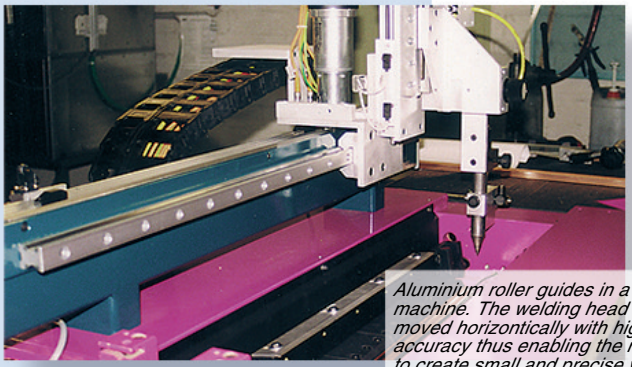
All series and sizes are available as double rails with cassettes or as single rails with roller shoes.

Application examples Linear Guides



Multiaxis positioning unit for a welding machine. Tools and the material can be moved individually by aluminium roller guides.

(Photo SCHNELLDORFER)



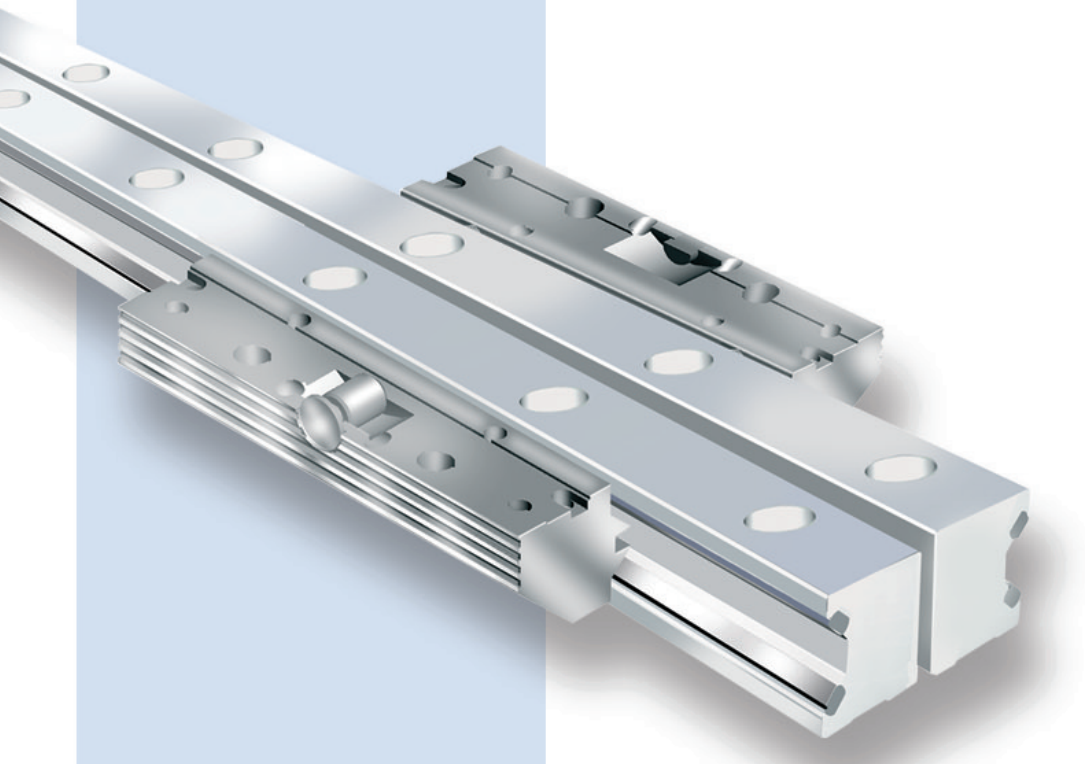
Aluminium roller guides in a welding machine. The welding head is moved horizontically with high accuracy thus enabling the machine to create small and precise welding marks.

(Photo SCHNELLDORFER)

Aluminium roller guides have been sucessful in various branches and applications.

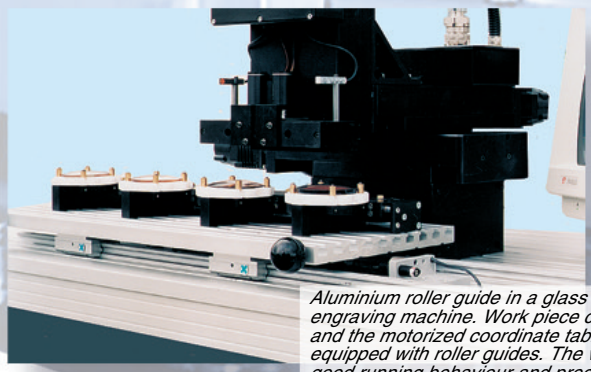
They are reliable components in machinery, packaging, food industries, handling, roboting and transport.

Take advantage of the performance and universality of Franke guide systems. We are gladly prepared to make a quotation for your special application.



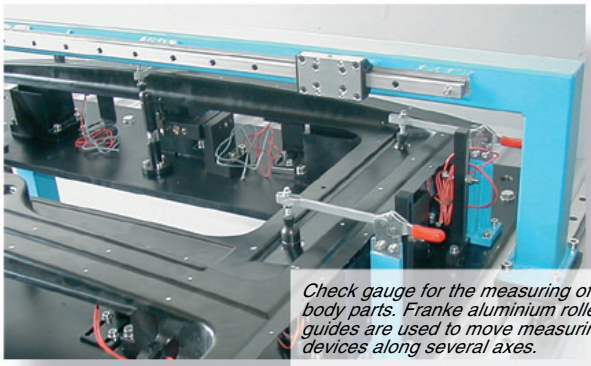
Aluminium roller guide in a welding machine. High accuracy and low weight for perfect welding.

(Photo HTC)



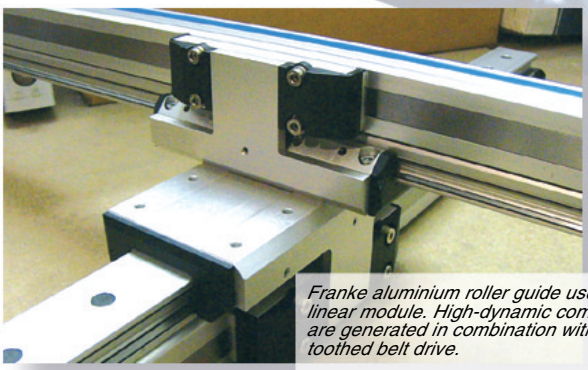
Aluminium roller guide in a glass engraving machine. Work piece carrier and the motorized coordinate tables are equipped with roller guides. The very good running behaviour and precision of the installation allows extremely fine engraving.

(PhotoKasch)



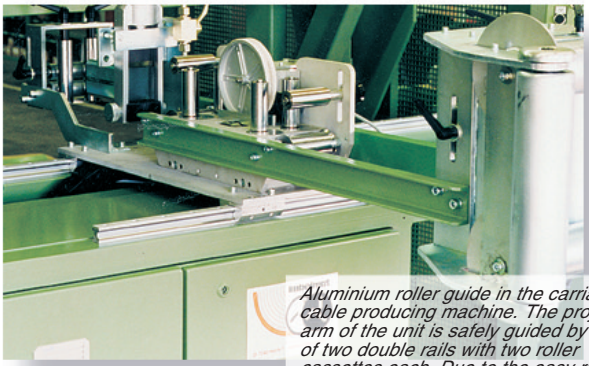
Check gauge for the measuring of car body parts. Franke aluminium roller guides are used to move measuring devices along several axes.

(Photo HTC)



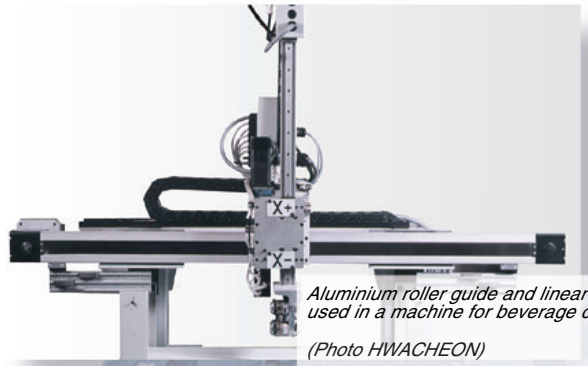
Franke aluminium roller guide used in a linear module. High-dynamic components are generated in combination with a toothed belt drive.

(Photo FRANKE)



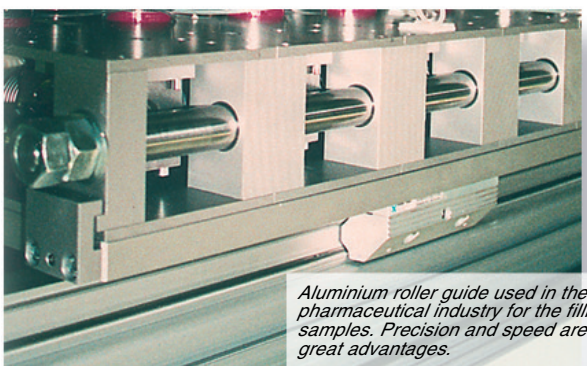
Aluminium roller guide in the carriage of a cable producing machine. The projecting arm of the unit is safely guided by means of two double rails with two roller cassettes each. Due to the easy run of the guide it can be moved manually with low energy .

(Photo KABELMAT)



Aluminium roller guide and linear module used in a machine for beverage cans.

(Photo HWACHEON)

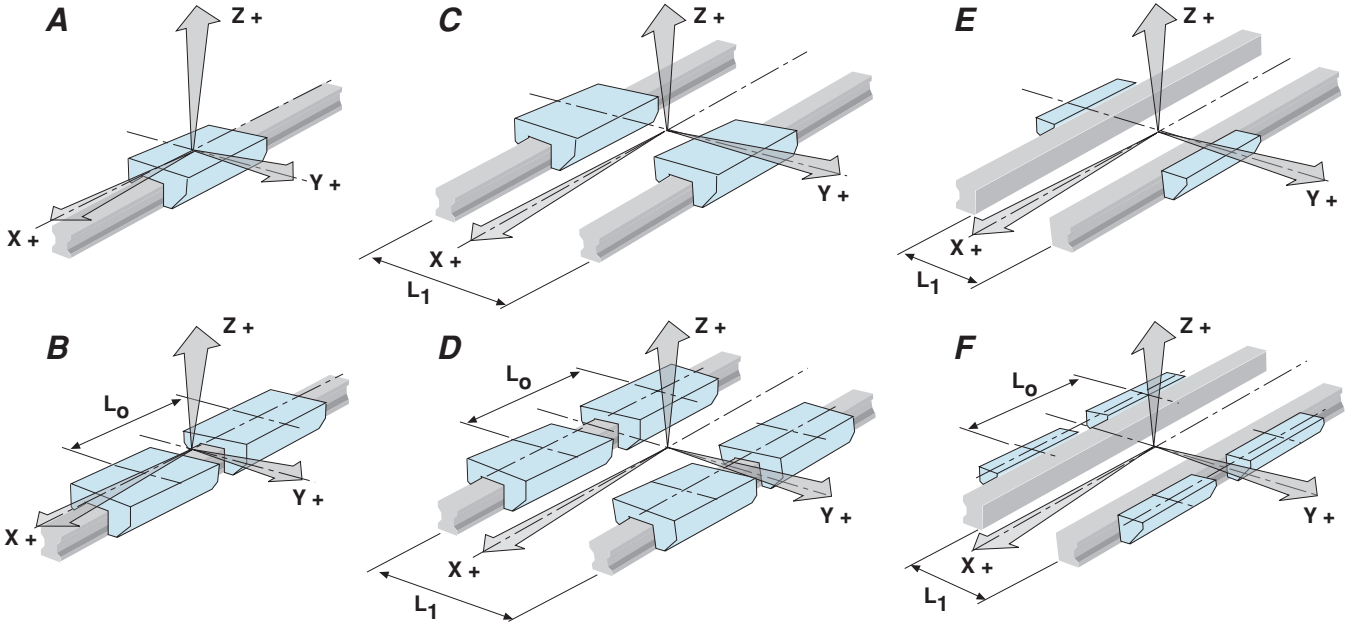


Aluminium roller guide used in the pharmaceutical industry for the filling of samples. Precision and speed are the great advantages.

(Photo KNOSKE)

Franke aluminium roller guide in an ink jet printer. The main requirements are high respective accuracy with easy and silent run.

(Photo HTC)


A
Z +
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D
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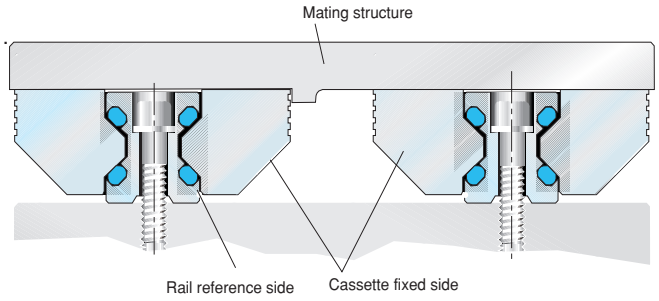
Technical information

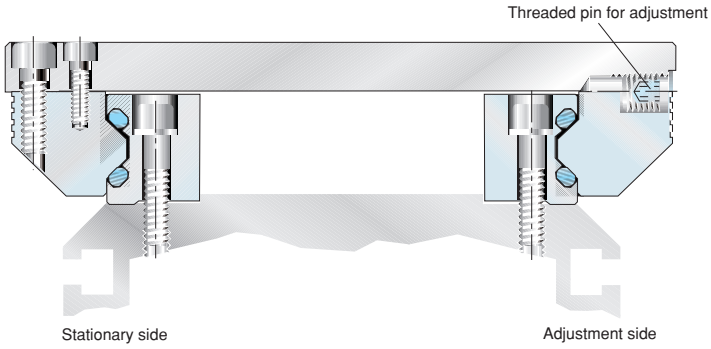
1. Construction hints

1.1 Double rail and cassette



With double track arrangement precise alignment in terms of parallelism and height is necessary.

1.2 Single rail and roller shoes



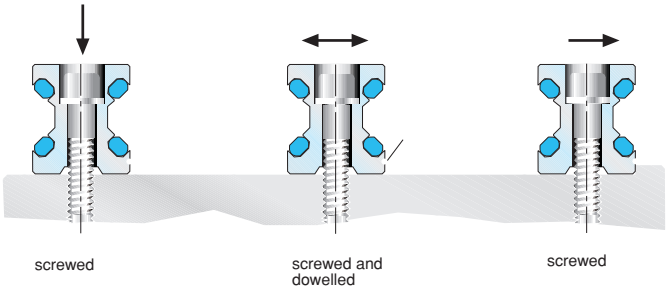
Aluminium roller guides consisting of single rails and roller shoes can be varied in the guide width. They are excellently suitable for assembly on profiled aluminium carriers, because their corrosion and temperature behaviour is homogenous.

2. Mounting instructions

The usable load capacity is influenced by the connection between the guide elements and the mating structure.

2.1 Double rails and cassettes

Depending on the load situation double rails should either be screwed or screwed and dowelled, resp. be put into grooves or against a shoulder.



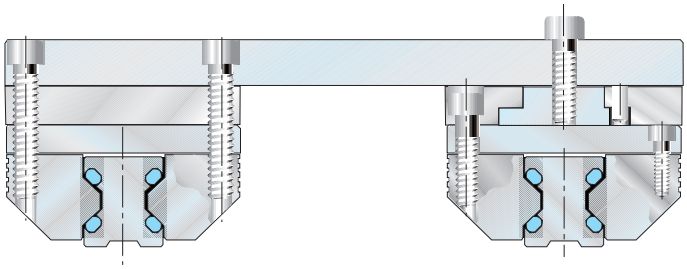
The rails rest against shoulders and are screwed resp. screwed and dowelled to the mating structure. After final checking of the linearity resp. parallelism the screws are tightened alternately from the centre outwards with the given torque.

Afterwards the total stroke distance is passed with the cassette. If it runs in uniform motion the mounting process can go on.

2.2 Stationary and movable rest side

With multitrack arrangement we recommend you to define a stationary and a movable side of the guide.This way tolerances in parallelism can be compensated best.

The example shows how this setup can be arranged.
Afterwards the slider is moved along the guide path. When the movement is uniform you can proceed with mounting.



With this multitrack arrangement the movable side of the bearing is equipped with driver and locking device. The floating slider plate has a stationary and a movable rest side. The stationary side has the guiding function the movable side compensates tolerances in parallelism and height.

We recommend you to place the drive immediately near the guiding side because this side has to sustain the driving torque.

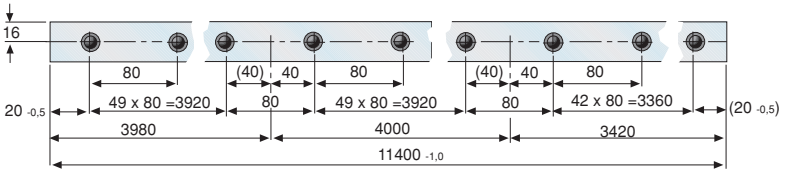
2.3 Single rails and roller shoes

Where single rails and roller shoes are used the mating structure takes the function of the slider.
The guide rails are put against the contact shoulder and screwed resp. screwed and dowelled. After the final control of linearity resp. parallelism the screws are tightened alternately starting from the centre outwards. Afterwards the slider is moved along the guide path. When the movement is uniform you can proced with mounting.

2.4 Spacing

Coupled rails with a length over L=4000mm resp. 6000mm are coupled together according to the Franke standard. Spacing according to the Franke standard guarantees an uniform bore shape over the whole guide length and its optimum utilisation.

Spacing according to Franke standard e.g. FDK35 - 11400



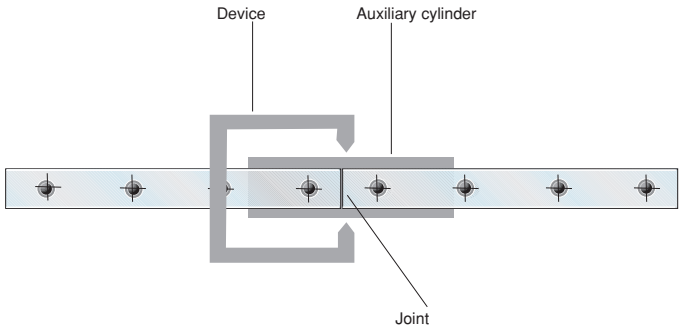
For further mounting proceed as described under point 2.1.

2.5 Mounting

Clean contact and rest surfaces then put the rails lose on the guide path one behind the other one. With this the correct sequence of the production numbers has to be kept. (e.g. ....1....2....3.....4 etc.) The marking groove on the lower surface of the rail has always to be on the same side.

Now the complete guide path is aligned without gap and slightly fastened. The joints are to be aligned exactly. This is effected best by means of two auxiliary cylinders (length 200 mm). They are inserted into the raceway at the joints and clamped with a device.

For further mounting proceed as described under point 10.1.



Size	Auxiliary cylinder Ø mm
12	11
15	11
20	14
25	16
35	27
45	35

3. Guide selection / Adjustment

3.1 Size of the guide system

To select the right guide size first the moments and forces acting on the bearing have to be determined. The guide size can be calculated with our calculation programme which you can download from our homepage.

Recommended safety (with screws quality 8.8):
Thrust load S > 1,2
Tensile load S > 2,5
Moment load S > 4,0

Generally the first decision has to be whether the guide system should be built with double rails and cassettes, or whether individual rails with roller shoes are to be used. Hereby there are a number of variants.

3.2 Screwed connections

The units are fixed to the mating structure by the bore holes in the rails and the guides. Hereby the srew quality should be 8.8, washers DIN433.

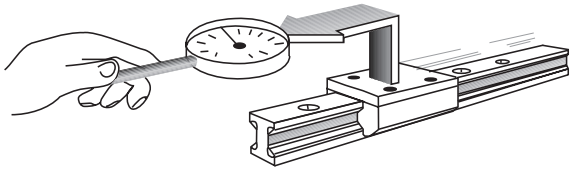
To secure the screwed connections we recommend you to use suitable locking means.

Tightening moments:

	Quality 8.8 [Nm]
M3	1,1
M4	2,5
M5	5,0
M6	8,5
M8	21,0
M10	41,0
M12	71,0

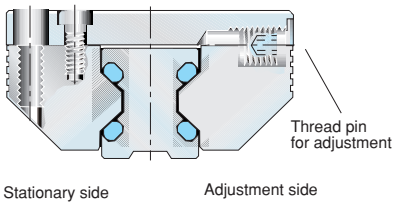
3.3 Slide resistance / adjustment

Aluminium roller guides are adjusted in such a way that the required stiffness under load is obtained. We recommend you to measure the slide resistance as shown below. However, before doing so the mating structure should be checked for dimensional accuracy and flatness.



The cassettes which are mounted on the rails are adjusted clearance-free ex works. This adjusting mode refers to the point on the rail where the cassette moves most smoothly. Adjustment is effected in the non-loaded condition. The adjustment forces are shown in the diagramms on the product pages in this catalogue.

3.4 Double rail and roller shoes



With multitrack arrangement the movable side of the bearing is equipped with driver and locking device. The floating slider plate has a stationary and a movable rest side. The stationary side has the guiding function, the movable side compensates tolerances in parallelism and height.

We recommend to place the drive closely near the guiding side because this side has to sustain the driving torque.

3.5 Single rails and roller shoes

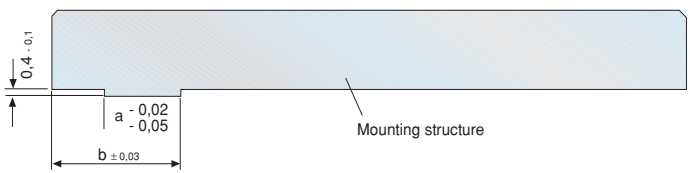
Where single rails and roller shoes are used the mating structure takes the function of the slider.

The guide rails are put against the contact shoulder and screwed resp. screwed and dowelled. After final control of linearity resp. parallelism the screws are tightened alternately starting from the center outwards. Afterwards the slider is moved along the guide path. When the movement is uniform you can proceed with mounting.

Principally clearance setting is effected in unloaded condition.

Centering groove on the stationary side

The roller shoes are provided with centering grooves for better alignment during mounting. If you want to use it you need centering shoulders according to the data given below.



Size	a	b
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

3.6 Running accuracy

The running accuracy is measured from the screw-on-surface of the cassette to the ideal straight line of stroke. It is 0,06 mm along the whole stroke length.

3.7 Contact and support surfaces

The contact and support surfaces exert an substantial influence on functioning and precision of linear guides. Depending on the functional requirements of the system the mating structure has to be machined with the corresponding degree of precision, because machining errors on the mating structure are added to the running errors of the guide system. In order to guarantee troublefree functioning we recommend to observe a max. accumulated deviation of < 0.1 mm per running meter of the guide distance on the mating structure.