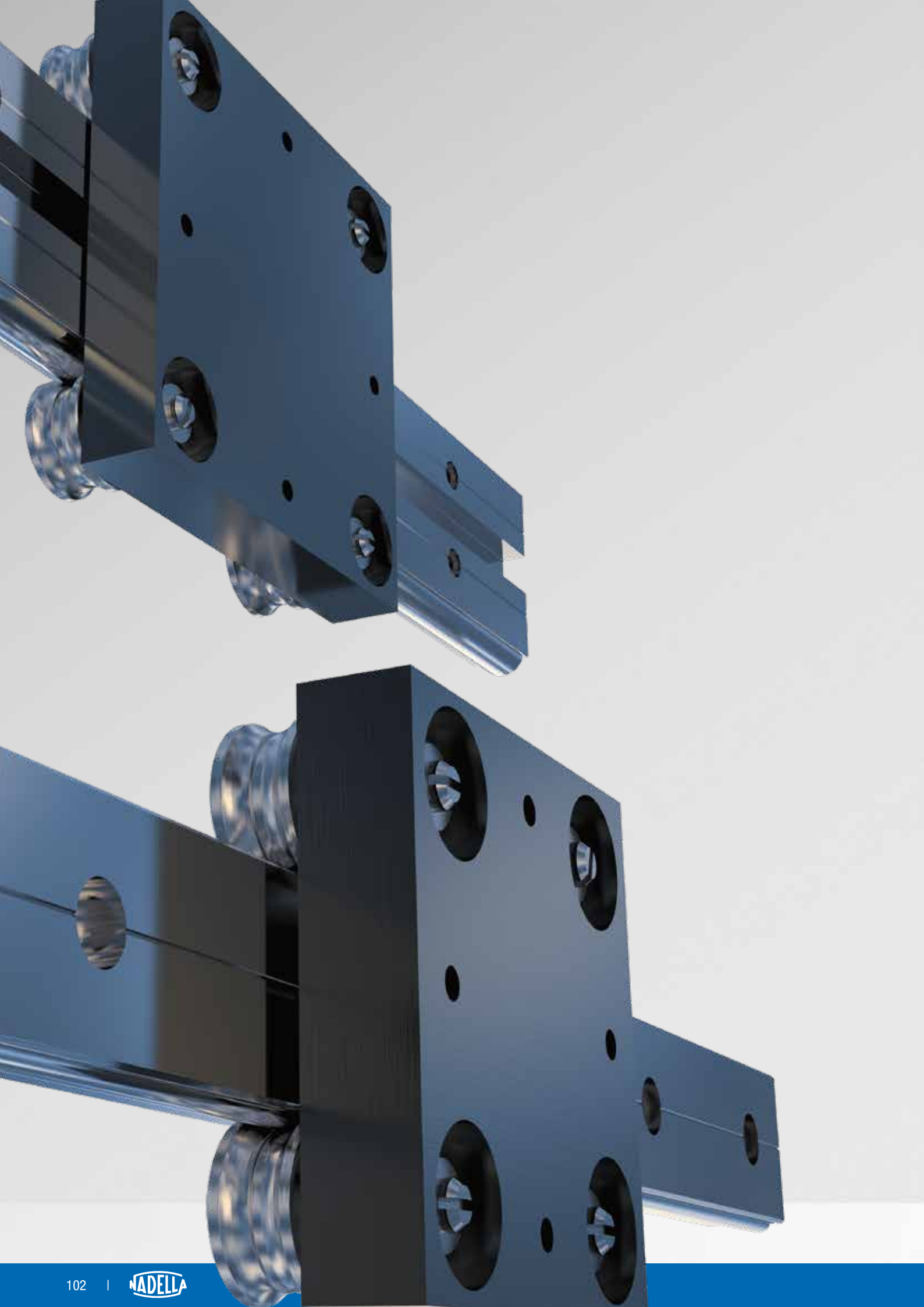




BASE-LINE



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8.1 PRODUCT DESCRIPTION – DC-, C-SYSTEM

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8.2 DC-, C-SYSTEM

For medium loads

- Guide rails DC
- Guide rails C
- Guide rollers PFV with “gothic arch” profile
- Guide rollers PFV
- Guide rollers RKO
- Carriages T4 PFV
- Wiper NAID
- Lubricator LUBC

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8.3 FWS, FWH SYSTEM

For medium loads

- Guide rails FWS
- Guide rails FWH
- Guide rollers FR ... EU
- Guide rollers FR ... EU AS, FR ... EU AZ
- Floating guide rollers FRL ... EU
- Carriage T4FR

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8.4 GUIDE ROLLERS COMBINATION

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8.5 MOUNTING EXAMPLES

BASE-LINE

PRODUCT DESCRIPTION – DC-, C-SYSTEM

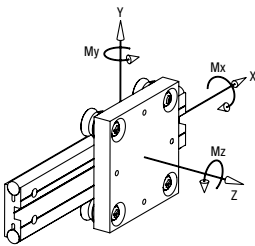
KEY BENEFITS

- For light and medium loads
- Low and space-saving design
- Guide rails with stainless steel shafts
- Carriage with stainless guide rollers



DC system is based on rails, guide rollers and carriages that provide a complete guiding system. Rails and rollers can be used as single elements. In most cases the application is based on standard carriages.

The load capacities are tabulated with reference to the axis system shown in the sketch below:



MAXIMUM LOADS ON SINGLE CARRIAGE

The following table shows the maximum loads that can be applied on a single carriage.

Rails	Carriage	Fy (N)	Fz (N)	Mx (Nm)	My (Nm)	Mz (Nm)
DC 10.54	T4 PFV 25 10 80	1590	800	22	18	35
	T4 PFV 25 10 120	1590	800	22	33	67
DC 16.80	T4 PFV 35 16 165	3000	1400	58	92	198
	T4 PFV 35 16 250	3000	1400	58	155	333
DC 18.65	T4 PFV 35 18 150	3000	1400	47	83	178
	T4 PFV 35 18 250	3000	1400	47	155	336
DC 25.95	T4 PFV 50 25 220	7890	3900	180	320	640
	T4 PFV 50 25 300	7890	3900	180	480	950

The maximum loads are based on the stud and bearing strengths and on a maximum contact pressure, between rail and roller, of 1250 N/mm². The loads in the table are considered as acting singularly. For applications with many loads acting at the same time the loads must be reduced.

BASIC DYNAMIC LOADS OF SINGLE CARRIAGE

The following table shows the nominal loads that correspond to a nominal life of the bearing at 100 km.

The nominal lifetime of the carriage can be estimated from the standard bearing formula

$$L_{10} = (C_i / P_i)^3 \times 100 \text{ km}$$

C_i is the basic dynamic load capacity in a specific direction i and P_i is the external load applied in the same specific direction.

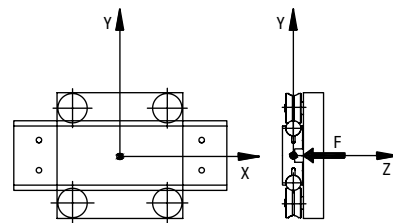
Rails	Carriage	Cy (N)	Cz (N)	CMx (Nm)	CMy (Nm)	CMz (Nm)
DC 10.54	T4 PFV 25 10 80	3700	1200	32	27	84
	T4 PFV 25 10 120	3700	1200	32	51	158
DC 16.80	T4 PFV 35 16 165	9000	2950	115	185	570
	T4 PFV 35 16 250	9000	2950	115	310	950
DC 18.65	T4 PFV 35 18 150	9000	2950	95	165	510
	T4 PFV 35 18 250	9000	2950	95	315	970
DC 25.95	T4 PFV 50 25 220	17500	6100	290	500	1400
	T4 PFV 50 25 300	17500	6100	290	750	2150

CALCULATION EXAMPLE:

CARRIAGE LOADED WITH AN EXTERNAL LOAD F

Carriage T4 PFV 50 25 220

$F = 2000 \text{ N}$



The external load F acts in the z -axis direction:

$$P_z = F = 2000 \text{ N}$$

In the table of the “maximum loads” you find that the load capacity F_z for carriage T4 PFV 50 25 220 is equal to 3900 N, so the system is validated against breakage. To estimate the system lifetime we proceed as follows: from the table of the “basic dynamic loads” we see that C_z , for the carriage T4 PFV 50 25 220, is equal to 6100 N.

The nominal lifetime will be:

$$L_{10} = (6100 / 2000)^3 \times 100 = 2837 \text{ km}$$

IMPORTANT REMARK

- In order to reach the calculated lifetime it is important to lubricate the rails.
- For load configurations with many loads and moments acting at the same time in different directions, please refer to the calculation examples you can find at the end of the catalogue or contact our technical department.

BASE-LINE – DC-, C-SYSTEMS

GUIDE RAILS DC

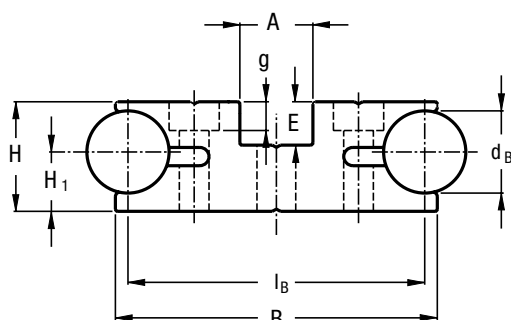
8.2

Rail composed by an aluminium body and two shafts in steel, with two raceways.

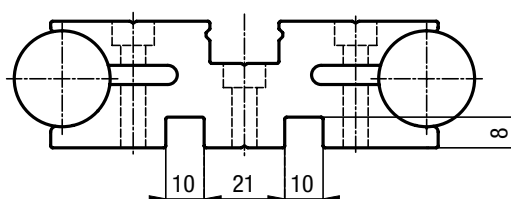
Available in stainless steel version.



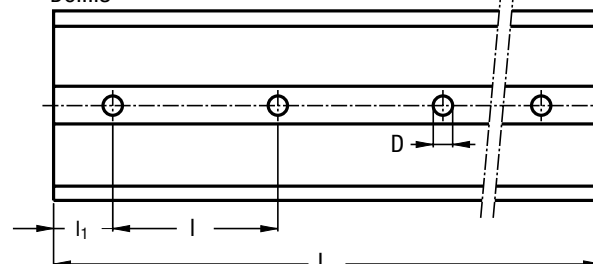
DC 16.80
DC 18.65
DC 10.54



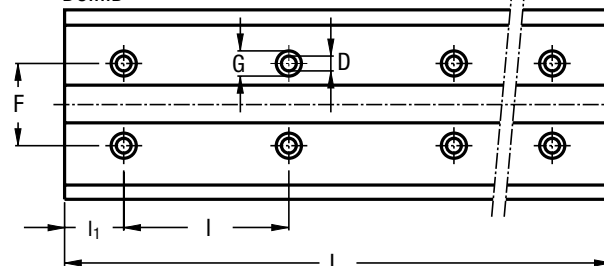
DC 25.95



DC...S



DC...D



Type	Dimensions (mm)													Moments of inertia ²⁾ (cm ⁴)		Weight (kg/m)
	d _B	l _B	B	H	H ₁	A	E	D	G	g	F	l	l ₁	J _x	J _y	
DC 10.54 S ¹⁾	10	54	57	19.5	13	25	10.5	6.5	—	—	—	150	30	2.16	20.5	3.15
DC 10.54 D ¹⁾	10	54	57	19.5	13	25	10.5	4.4	8	4.2	36	150	30	2.16	20.5	3.15
DC 16.80 S ¹⁾	16	80	86	25.5	14.5	18	9.5	8.5	—	—	—	150	30	9.6	85	7.1
DC 16.80 D ¹⁾	16	80	86	25.5	14.5	18	9.5	6.5	11	6.3	54	150	30	9.6	85	7.1
DC 18.65 S	18	65	70.5	24	13	16	9.5	8.5	—	—	—	150	30	6.1	34.7	7
DC 18.65 D	18	65	70.5	24	13	16	9.5	6.5	11	6.3	36	150	30	6.1	34.7	7
DC 25.95 S ¹⁾	25	95	101	33	18	19	13	10.5	—	—	—	150	30	21.8	142.2	13.5
DC 25.95 D ¹⁾	25	95	101	33	18	19	13	6.5	11	6.3	58	150	30	21.8	142.2	13.53

Max. length in single element L = 6000 mm.

Longer rails are supplied in sections with ground butt joints and, on request, with pin connection

1) Available with stainless steel shafts

2) Inertia value based on equivalent aluminium yield 70000 N/mm²

HOLE LAYOUT

- Holes according to catalogue (S or D)
- Finishes to drawing (NZ)
- Without holes (NF)

OPTIONAL FEATURES

- Ground one end: side of the first hole (1R), side of the last hole (2R)
- Ground both ends (RR)
- Stainless steel shafts (NX)
- Chromium plated shafts (CH)
- Pin based shaft connection (G)

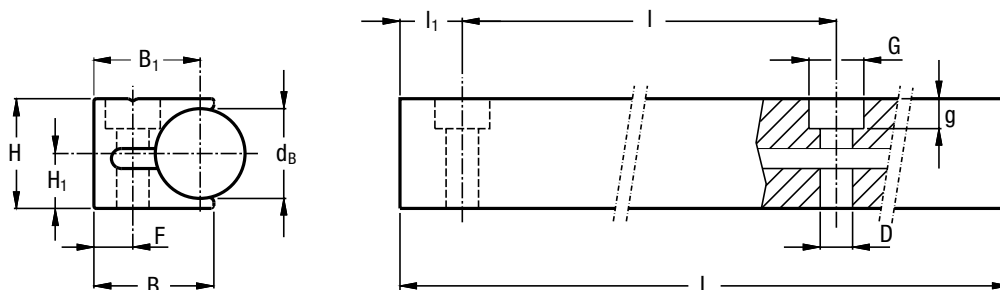
Example of standard designation: DC 2595 S 2010 NX.

BASE-LINE – DC-, C-SYSTEMS

GUIDE RAILS C

Rail composed by an aluminium body and one shaft in steel, with a single raceway.

Available in stainless steel version.



Type	Dimensions (mm)											Moments of inertia ²⁾ (cm ⁴)		Weight (kg/m)
	d _B	B	B ₁	H	H ₁	D	G	g	F	I	I ₁	J _x	J _y	
C 10 ¹⁾	10	16.9	15.4	14.5	8	4.4	8	4.2	6.5	100	30	0.4	0.3	1.1
C 18	18	24	21.3	22	11	6.5	11	6.3	7.8	150	50	1.7	1.1	2.8
C 22	22	28	25	26.5	13.5	6.5	11	6.3	9	160	50	3.5	2	4.1
C 30 ¹⁾	30	36	32.5	36	19	9	15	8.3	11.5	180	60	11.1	5.6	7.6

Max. length in single element L = 6000 mm.

Longer rails are supplied in sections with ground butt joints and, on request, with pin connection

1) Available with stainless steel shafts

2) Inertia value based on equivalent aluminium yield 70000 N/mm²

HOLE LAYOUT

- Holes according to catalogue (SB)
- Finishes to drawing (NZ)
- Without holes (NF)

OPTIONAL FEATURES

- Ground one end: side of the first hole (1R), side of the last hole (2R)
- Ground both ends (RR)
- Stainless steel shafts (NX)
- Chromium plated shafts (CH)
- Pin based shaft connection (G)

Example of standard designation: C 10 2060 SB.

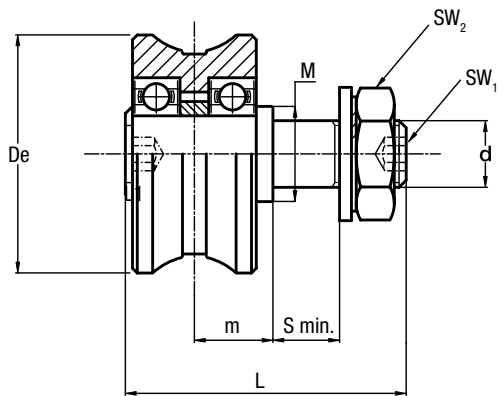
GUIDE ROLLERS PFV WITH “GOTHIC ARCH” PROFILE

Guide roller with “gothic arch” profile, based on ball bearings.

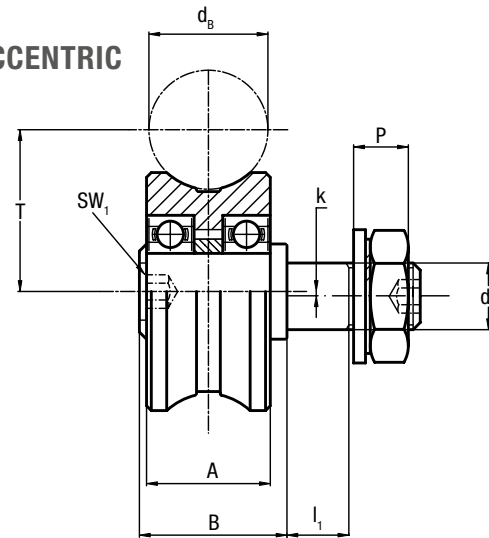
Available in stainless steel version.



CONCENTRIC



ECCENTRIC



Type		Dimensions (mm)																Recommended pairings
concentric	eccentric	De	db	d ₁ ²⁾	d	T	m	S min.	P	L	A	B	l ₁	M	SW ₁	SW ₂	k	
PFV 25.10 ¹⁾	PFVR 25.10 ¹⁾	25	10	8	M8x1.25	15.5	7.5	11	9	34.8	12	14.8	10	12	4	13	0.75	C 10, DC 10.54
PFV 35.16 ¹⁾	PFVR 35.16 ¹⁾	35	16	10	M10x1.25	23	12	12	10.7	45.3	18	22.3	11	15	4	17	0.75	DC 16.80
PFV 35.18 ¹⁾	PFVR 35.18 ¹⁾	35	18	10	M10x1.25	24	12	12	10.7	45.3	18	22.3	11	15	4	17	0.75	C 18, DC 18.65
PFV 43.22 ¹⁾	PFVR 43.22 ¹⁾	43	22	12	M12x1.5	29	14	13	12.5	52	23	27	12	18	5	19	1	C 22
PFV 50.25 ¹⁾	PFVR 50.25 ¹⁾	50	25	14	M14x1.5	34	16.5	14	13.5	59	26	31	13	20	6	22	1	DC 25.95
PFV 60.30	PFVR 60.30	60	30	16	M16x1.5	41	19.5	17	14	69.5	31	36.5	16	30	8	24	1	C 30

1) Available in stainless steel (suffix NX)

2) Housing bore tolerance: H7

Type		Dynamic load (N)	Limit loads (N)		Life coefficients		Torque wrench settings ⁴⁾ (Nm)	Weight (g)
concentric	eccentric	C _w ³⁾	Radial F _r	Axial F _a	X	Y		
PFV 25.10	PFVR 25.10	1850	1080	200	1	4.4	8	42
PFV 35.16	PFVR 35.16	4550	1500	350	1	4.4	20	115
PFV 35.18	PFVR 35.18	4550	1500	350	1	4.4	20	113
PFV 43.22	PFVR 43.22	7600	3150	750	1	4	26	210
PFV 50.25	PFVR 50.25	8800	4240	940	1	4	44	335
PFV 60.30	PFVR 60.30	15700	5360	1350	1	4.3	64	570

3) C_w basic load for 100 km

4) The torque wrench settings are given for non-lubricated threads; for lubricated threads, multiply figure by 0.8

- The guide rollers are complete with self-locking washers and hexagonal nut (DIN 439B) for fitting

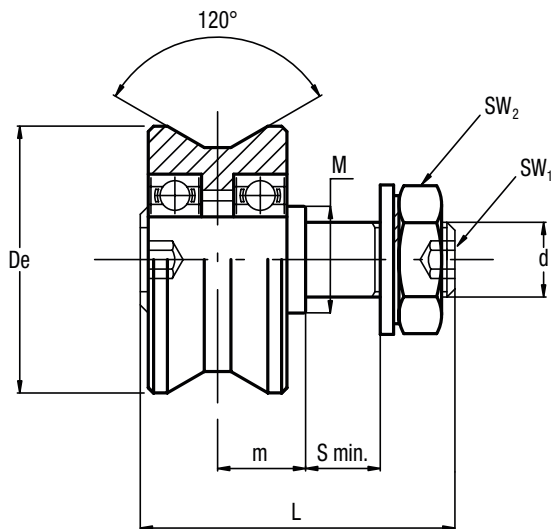
- Pressure angle α for load calculation: 60°
- NBR seals, RS type.

GUIDE ROLLERS PFV

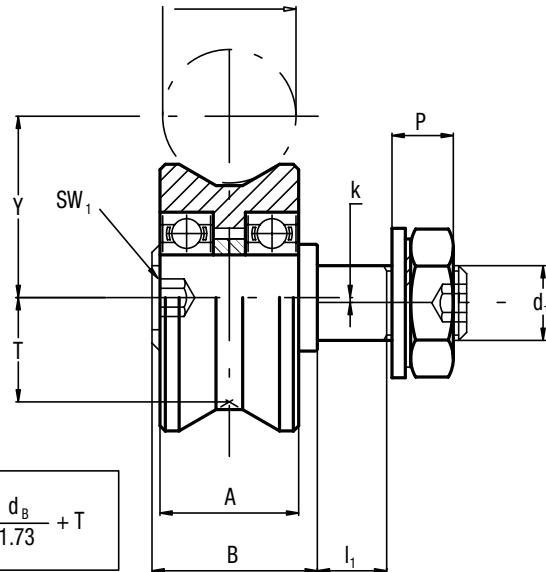
Guide roller based on ball bearings.



CONCENTRIC



ECCENTRIC



$$Y = \frac{d_B}{1.73} + T$$

Type		Dimensions (mm)															
concentric	eccentric	De	d _B	d ₁ ¹⁾	d	T	m	S min.	P	L	A	B	I ₁	M	SW ₁	SW ₂	k
PFV 25	PFVR 25	25	da 6 a 18	8	M8x1.25	9.7	7.5	11	9	34.8	12	14.8	10	12	4	13	0.75
PFV 35	PFVR 35	35	da 14 a 25	10	M10x1.25	13.6	12	12	10.7	45.3	18	22.3	11	15	4	17	0.75
PFV 43	PFVR 43	43	da 18 a 30	12	M12x1.5	16.3	14	13	12.5	52	23	27	12	18	5	19	1
PFV 50	PFVR 50	50	da 20 a 35	14	M14x1.5	19.6	16.5	14	13.5	59	26	31	13	20	6	22	1
PFV 60	PFVR 60	60	da 22 a 40	16	M16x1.5	23.7	19.5	17	14	69.5	31	36.5	16	30	8	24	1

Type		Dynamic load ⁴⁾ (N)	Limit loads ³⁾ (N)		Life coefficients		Torque wrench settings ²⁾ (Nm)	Weight (g)
concentric	eccentric	C _w	Radial F _r	Axial F _a	X	Y		
PFV 25	PFVR 25	1850	1080	200	1	4.4	8	42
PFV 35	PFVR 35	4550	1500	350	14	4.4	20	115
PFV 43	PFVR 43	7600	1500	350	1	4	26	210
PFV 50	PFVR 50	8800	4240	940	1	4	44	335
PFV 60	PFVR 60	15700	5360	1350	1	4.3	64	570

1) Housing bore tolerance: H7

2) The torque wrench settings are given for non-lubricated threads; for lubricated threads, multiply figure by 0.8

3) To avoid wear of the guide, do not exceed 25% of the limit load indicated in the table

4) C_w basic load for 100 km

5) The guide rollers are complete with self-locking washers and hexagonal nut (DIN 439B) for fitting

6) Pressure angle α for load calculation: 60°

7) NBR seals, RS type

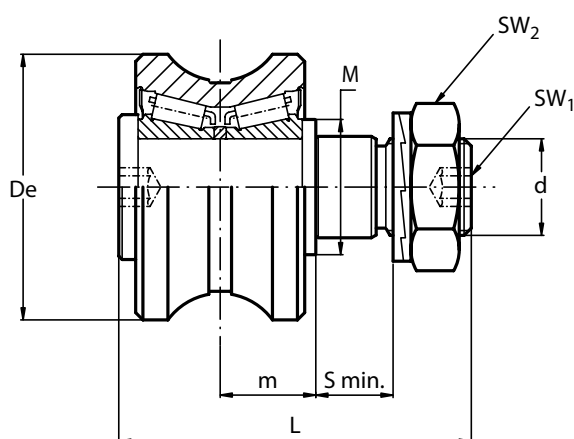
BASE-LINE – DC, C SYSTEMS

GUIDE ROLLERS RKO

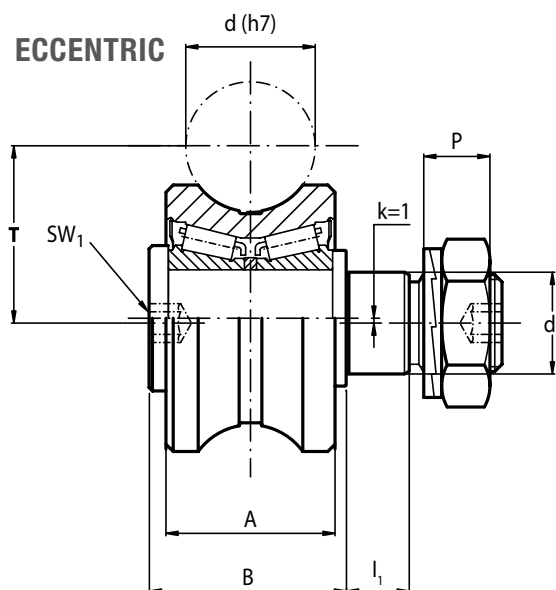
Guide rollers with tapered roller bearings, with “gothic arch” profile.



CONCENTRIC



ECCENTRIC



Type		Dimensions (mm)																
concentric	eccentric	De	d-h7	d ₁ ¹⁾	d	T	m	S min.	P	L	A	B	I ₁	M	SW ₁	SW ₂	k	Recommended pairings
RKO 55.20	RKOR 55.20	55	20	21	M20 x 1.5	32.9	19.8	15	13.4	73	35	41	14	28	8	30	1	Albero Ø20
RKO 55.25	RKOR 55.25	55	25	21	M20 x 1.5	34.3	19.8	15	13.4	73	35	41	14	28	8	30	1	DC 25.95
RKO 62.30	RKOR 62.30	62	30	21	M20 x 1.5	39.6	19.8	15	13.4	73	35	41	14	28	8	30	1	C30
RKO 80.40	RKOR 80.40	79	40	36	M30 x 1.5	50.7	27	19	19.6	100	45	55	18	44	12	46	1	Albero Ø40

1) Housing bore tolerance: H7

Type		Dynamic load (N)	Limit loads (N)		Life coefficients		Torque wrench settings ³⁾ (Nm)	Weight (kg)
concentric	eccentric	C _w ²⁾	Radial F _r	Axial F _a	X	Y		
RKO 55.20	RKOR 55.20	42000	11900	4000	1	3.3	80	0.6
RKO 55.25	RKOR 55.25	42000	11900	4000	1	3.4	80	0.6
RKO 62.30	RKOR 62.30	44000	11900	4000	1	3.7	80	0.7
RKO 80.40	RKOR 80.40	68000	31000	10000	1	3.2	300	1.6

2) C_w basic load for 100 km

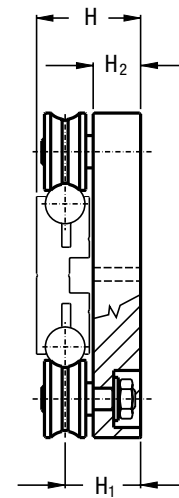
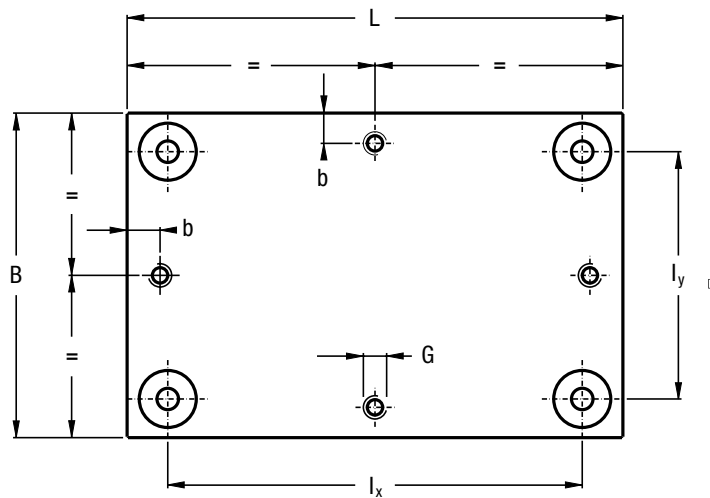
3) Torque wrench settings are given for non-lubricated threads; for lubricated threads, multiply figure by 0.8

- Standard seals: material NBR, type RS
- On request, the guide rollers can be supplied with Viton seals for operating temperatures up to 120°C (suffix V)
- The guide rollers are complete with self-locking washers and hexagonal nut for fitting
- Pressure angle α for load calculation: 65°

CARRIAGES T4 PFV

Carriages with anodised aluminium body
with four guide rollers type PFV with
“gothic arch” profile.

Available in stainless
steel version.



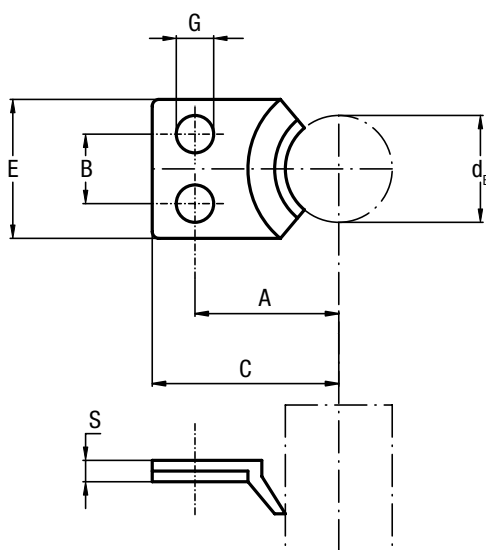
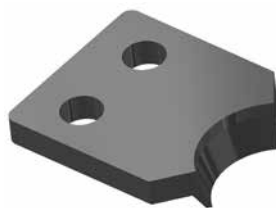
Type	Dimensions (mm)									Weight (kg)	Recommended pairings
	L	B	I _x	I _y	H	H ₁	H ₂	G	b		
T4 PFV 25 10 80 ¹⁾	80	120	45	85	41	28	20.5	M8	15	0.69	DC 10.54
T4 PFV 25 10 120 ¹⁾	120	120	85	85	41	28	20.5	M8	15	0.96	DC 10.54
T4 PFV 35 16 165 ¹⁾	165	165	126	126	50.5	36	24	M8	15	2.1	DC 16.80
T4 PFV 35 16 250 ¹⁾	250	165	211	126	50.5	36	24	M8	15	3.1	DC 16.80
T4 PFV 35 18 150 ¹⁾	150	150	113	113	49	36	24	M8	15	1.8	DC 18.65
T4 PFV 35 18 250 ¹⁾	250	150	213	113	49	36	24	M8	15	2.8	DC 18.65
T4 PFV 50 25 220 ¹⁾	220	220	163	163	63.5	45.5	29	M10	20	5	DC 25.95
T4 PFV 50 25 300 ¹⁾	300	220	243	163	63.5	45.5	29	M10	20	6.4	DC 25.95

¹⁾ Available with stainless steel guide rollers (NX)

- Carriages are complete with guide rollers
- Pressure angle α for load calculation: 60°

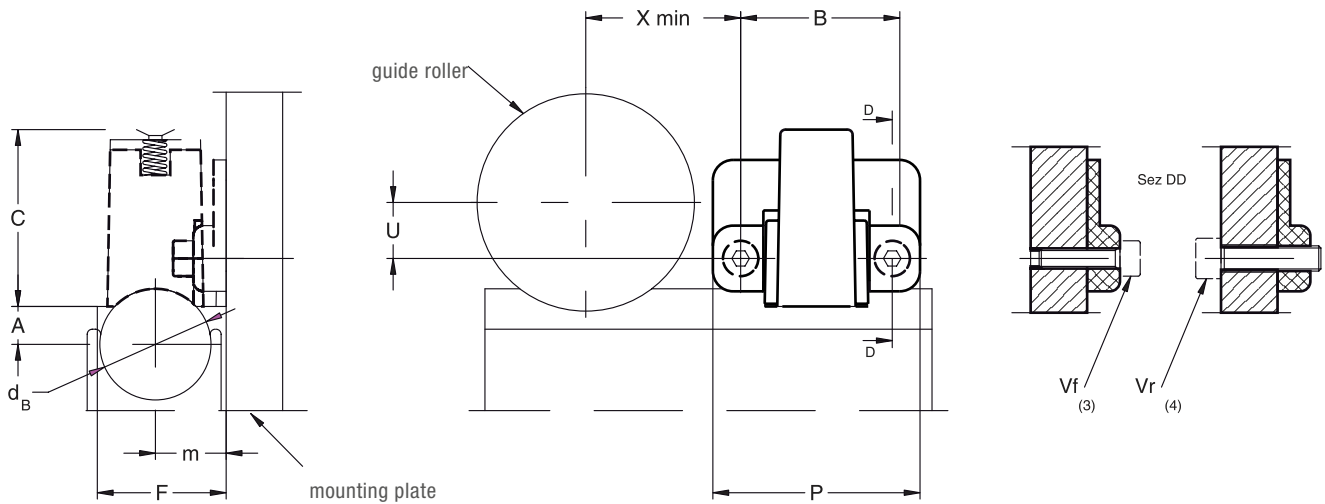
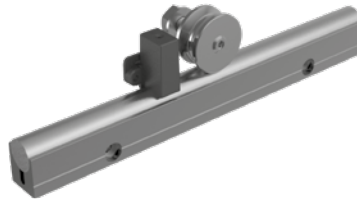
BASE-LINE – DC, C SYSTEM

WIPER NAID



Type	Dimensions (mm)							Suggested combinations
	d _B	E	C	A	B	G	S	
NAID 010	10	13	17.5	13.5	6.5	3.5	3	C 10
NAID 016	16	20	26.5	20.5	10	4.5	3	DC 16.80
NAID 018	18	20	26.5	20.5	10	4.5	3	C 18, DC 18.65
NAID 022	22	24	30.0	24.0	14	4.5	3	C 22
NAID 025	25	28	37.5	30.5	18	4.5	3	DC 25.95
NAID 030	30	32	45.5	37.5	20	5.5	3	C 30

LUBRICATOR LUBC



Type	Dimensions (mm)											Weight (g)	Suggested combinations
	X	U	B	F	m	d _B	A	C	P	Vf ¹⁾	Vr ²⁾		
LUBC 25.10	18	4.5	25	13	7.5	10	3	22	32.5	M3 x 12	M4	10	PFV 25.10
LUBC 35.16	23	9.5	25	22	12	16	5.5	32	32.5	M3 x 12	M4	15	PFV 35.16
LUBC 35.18	23	9.5	25	22	12	18	6.5	32	32.5	M3 x 12	M4	15	PFV 35.18
LUBC 43.22	29	12	30	25.5	14	22	22	35	41	M4 x 12	M5	30	PFV 43.22
LUBC 50.25	32.5	15.5	30	30.5	16.5	25	9	45	41	M4 x 12	M5	35	PFV 50.25
LUBC 60.30	37.5	20.5	30	36.5	19.5	30	11	50	41	M4 x 12	M5	40	PFV 60.30

1) The screws Vf for the frontal mounting are included in the packaging. Arrange two thread holes for dimension Vf in the mounting rollers plate

2) The screw for the mounting on the nut side of the roller are not included in the packaging. Arrange on the mounting rollers plate the holes in order to insert the screws Vr

- The lubricator is supplied with the felt already lubricated. The lubricant has a mineral oil base
- At the mounting, insert the screws inside the rollers plate, without tightening them, adjust the height of the plastic part in order to put it in contact with the raceways and then block it

OPTIONAL FEATURES

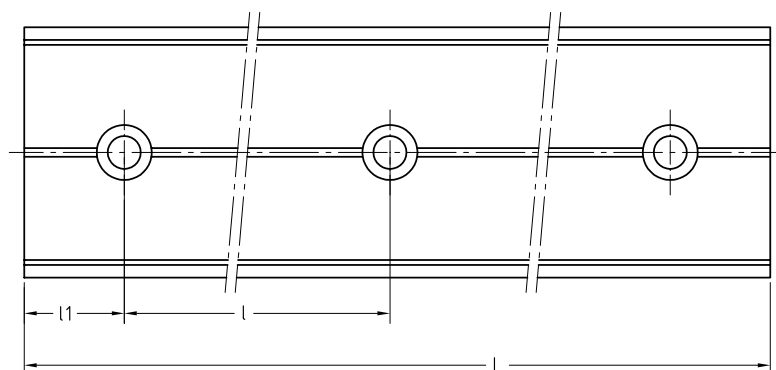
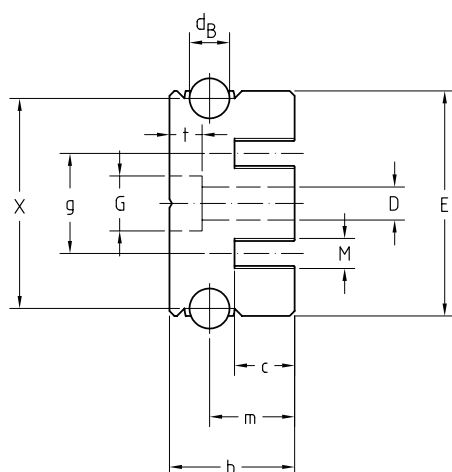
- Felt without lubricant (D)

BASE-LINE – FWS, FWH SYSTEM

GUIDE RAILS FWS

Rail composed by an aluminium body and two shafts in steel, with two raceways.

Available in stainless steel version.



Type	Dimensions (mm)												
	d _B	a	M	g	E	b	m	c	l	l ₁	Reductions		
											G	D	t
FWS 22	6	34	M5	16	36	20	14	10	120	30	10	5.5	5.5
FWS 32	8	42	M6	20	45	25	17	12	120	30	11	6.5	6.5
FWS 40	10	54	M8	24	57	30	19	14	150	30	15	9	9
FWS 52	12	66	M10	32	69	36	24	18	150	30	18	11	11

Max. length in single element L = 4500 mm.

Longer rails are supplied in sections with ground butt joints and, on request, with pin connection

Type	Screw distance max.			Moments of inertia ¹⁾		Weight (kg/m)
	for 2 screw channels		for additional holes (NZ)			
	Distance (mm)	Torque wrench settings (Nm)	Distance (mm)	J _x (cm ⁴)	J _y (cm ⁴)	
FWS 22	190	2	220	2.07	6.01	2.0
FWS 32	210	5	240	5.10	14.56	3.3
FWS 40	250	15	280	11.01	35.26	5
FWS 52	250	23	280	22.85	74.12	7.2

¹⁾ Inertia value based on equivalent aluminium yield 70000 N/mm² including shafts

HOLE LAYOUT

- Holes according to catalogue (SB)
- Finishes to drawing (NZ)
- Without holes (NF)

OPTIONAL FEATURES

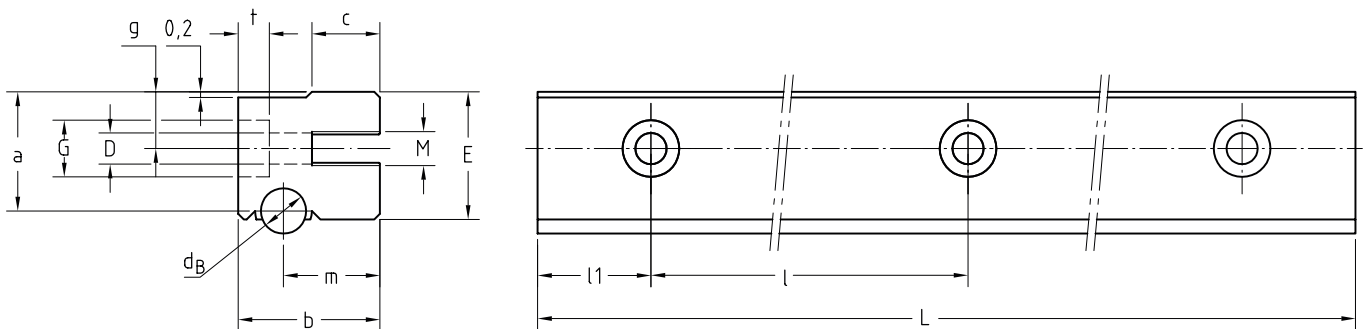
- Ground one end: side of the first hole (1R), side of the last hole (2R)
- Ground both ends (RR)
- Stainless steel shafts (NX)
- Chromium plated shafts (CH)
- Pin based shaft connection (G)

Example of standard designation: FW S32 / 1500 NF

GUIDE FWH

Rail composed by an aluminium body and one shaft in steel, with a single raceway.

Available in stainless steel version.



Type	Dimensions (mm)											Reductions		
	d _B	a	M	g	E	b	m	c	l	l ₁		G	D	t
FWH 22	6	17	M5	8	18	20	14	10	120	30		8	4.5	4.5
FWH 32	8	21	M6	10	22.5	25	17	12	120	30		10	5.5	5.5
FWH 40	10	27	M8	12	28.5	30	19	14	150	30		11	6.5	6.5
FWH 52	12	33	M10	16	34.5	36	24	18	150	30		15	9	9

Max. length in single element L = 4500 mm.

Longer rails are supplied in sections with ground butt joints and, on request, with pin connection

Type	Screw distance max.			Moments of inertia ¹⁾		Weight (kg/m)
	for 1 screw channels		for additional holes			
	Distance (mm)	Torque wrench settings (Nm)	Distance (mm)	J _x (cm ⁴)	J _y (cm ⁴)	
FWH 22	70	2	120	1.02	0.83	1
FWH 32	60	5	130	2.55	2.05	1.6
FWH 40	97	15	150	5.71	4.75	2.5
FWH 52	120	23	150	10.12	11.85	3.6

¹⁾ Inertia value based on equivalent aluminium yield 70000 N/mm² including shafts

HOLE LAYOUT

- Holes according to catalogue (SB)
- Finishes to drawing (NZ)
- Without holes (NF)

OPTIONAL FEATURES

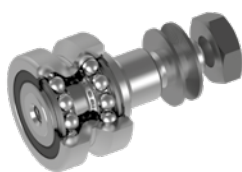
- Ground one end: side of the first hole (1R), side of the last hole (2R)
- Ground both ends (RR)
- Stainless steel shafts (NX)
- Chromium plated shafts (CH)
- Pin based shaft connection (G)

Example of standard designation: FWH 32 / 1500 NF

BASE-LINE – FWS, FWH SYSTEM

GUIDE ROLLERS FR ... EU

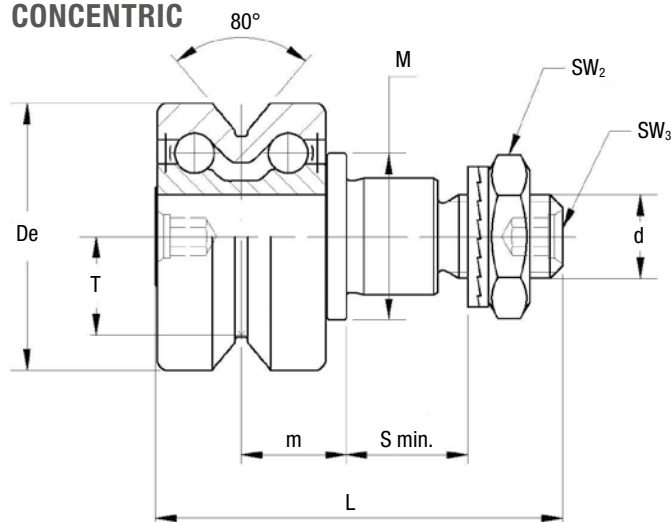
Guide roller with ball bearings.
The sides of the race are slightly convex.



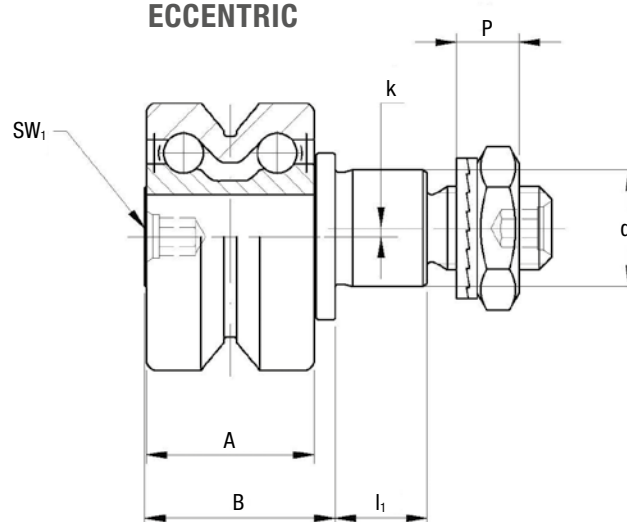
Available in stainless steel version.



CONCENTRIC



ECCENTRIC



Type		Dimensions (mm)															
concentric	eccentric	De	d ₁ ³⁾	d	T	m	S min.	P	L	A	B	I ₁	M	SW ₁	SW ₂	SW ₃	k
FR 22 EU ^{1) 2)}	FRR 22 EU ^{1) 2)}	22	9	M6 x 1	7.7	9.4	9	6.5	36.8	15	18	8	14	4	10	2,5	0.5
FR 32 EU ¹⁾	FRR 32 EU ¹⁾	32	14	M10 x 1.25	11.8	12.6	12	8.5	48.9	20.2	22.9	11	20	4	17	4	1
FR 40 EU ¹⁾	FRR 40 EU ¹⁾	40	16	M12 x 1.5	14.6	15.5	12	10.4	58.5	25	29.5	11	22	5	19	5	1
FR 52 EU	FRR 52 EU	52	21	M16 x 1.5	19.1	19.8	15	11.4	69.5	32	36.5	14	28	6	24	6	1.5

1) FR/R 22, 32, 40 are available in stainless steel (NX)

2) FR/R 22 EUNX: VAC for high vacuum applications on request

3) Housing bore tolerance: H7

Type		Dynamic load (N)	Limit loads (N)		Life coefficients		Torque wrench settings ⁵⁾ (Nm)	Weight (g)
concentric	eccentric	C _w ⁴⁾	Radial F _r	Axial F _a	X	Y		
FR 22 EU	FRR 22 EU	2900	1400	420	1	2	5	45
FR 32 EU	FRR 32 EU	5800	2000	800	1	1.9	20	125
FR 40 EU	FRR 40 EU	8500	3650	1400	1	1.9	26	230
FR 52 EU	FRR 52 EU	11700	8500	3000	1	1.9	64	510

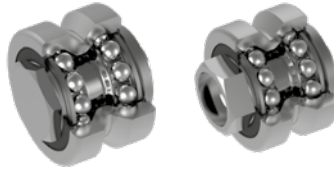
4) C_w basic load for 100 km

5) The torque wrench settings are given for non-lubricated threads; for lubricated threads, multiply figure by 0.8

- The guide rollers are complete with self-locking washers and hexagonal nut (DIN 439B) for fitting
- Pressure angle α for load calculation: 40°
- NBR seals RS type

GUIDE ROLLERS FR ... EU AS, FR ... EU AZ

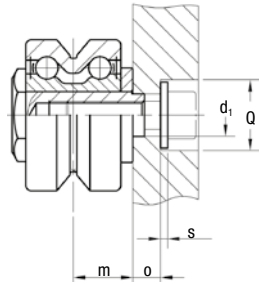
Floating guide rollers with ball bearings.



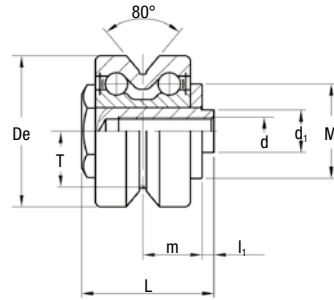
Available in stainless steel version.



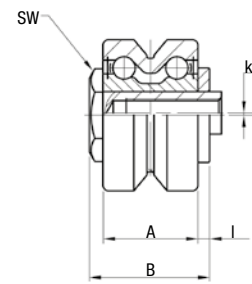
AS



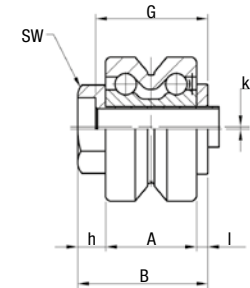
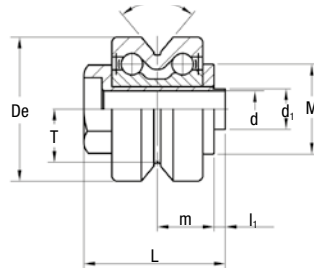
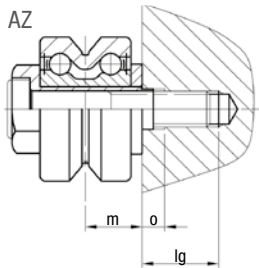
CONCENTRIC



EXCENTRIC



AZ



Type

Dimensions (mm)

concentric	eccentric	De	d ₁ ²⁾	d ³⁾	T	m	L	A	B	I ₁	I	h	M	SW	G	o	Q	Ig ⁴⁾	s	k
FR 22 EU AS ¹⁾	FRR 22 EU AS ¹⁾	22	6	M5	7.7	9.4	21.8	15	19.8	2	1.9	—	14	10	—	4.5	10	—	—	0.5
FR 32 EU AS ¹⁾	FRR 32 EU AS ¹⁾	32	9	M6	11.8	12.6	28.1	20.2	25.6	2.5	2.5	—	20	17	—	6	15	—	1.5 ⁵⁾	0.5
FR 40 EU AS ¹⁾	FRR 40 EU AS ¹⁾	40	11	M8	14.6	15.5	33.5	25	31	2.5	3	—	22	22	—	6.5	20	—	2 ⁵⁾	1
FR 52 EU AS	FRR 52 EU AS	52	16	M10	19.1	19.8	43.2	32	40	3.2	3.8	—	28	27	—	8	24	—	2.5 ⁵⁾	1.5
FR 22 EU AZ ¹⁾	FRR 22 EU AZ ¹⁾	22	6	5.1	7.7	9.4	23.9	15	21.9	2	1.9	5	14	11	18.9	4	—	13	—	0.5
FR 32 EU AZ ¹⁾	FRR 32 EU AZ ¹⁾	32	9	8.1	11.8	12.6	31.4	20.2	28.9	2.5	2.5	6.2	20	17	24.9	5	—	17	—	0.5
FR 40 EU AZ ¹⁾	FRR 40 EU AZ ¹⁾	40	11	10.1	14.6	15.5	38	25	35.5	2.5	3	7.5	22	22	30.5	5	—	26	—	0.8
FR 52 EU AZ	FRR 52 EU AZ	52	16	14.1	19.1	19.8	49.5	32	46.3	3.2	3.8	10.5	28	27	39.3	5.5	—	27	—	1.5

1) FR / R 22, 32, 40 AS and AZ are available in stainless steel (NX)

2) Housing bore tolerance: H7

3) Safety threads SPIRALOCK

4) AZ: minimum length of the thread engaged

steel = 1 x d; cast iron = 1.25 x d; aluminium = 2 x d

5) Guide roller with washers DIN 134 without screw DIN 7984 or DIN 912

6) Guide roller with washers DIN 125 without screw DIN 7984 or DIN 912

Type	Dynamic load (N) C _w ⁷⁾	Limit loads (N) Radial F _r Axial F _a	Life coefficients X Y	Weight AS (g)	Weight AZ (g)	On request for AZ screw DIN 7984
22	2900	470 210	1 2	33	31	M5 x 30
32	5800	1590 710	1 1.9	95	93	M8 x 40
40	8500	2120 940	1 1.9	173	173	M10 x 50
52	11700	5830 2560	1 1.9	374	365	M14 x 60

7) C_w basic load for 100 km

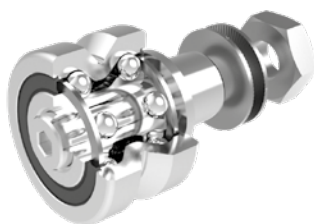
• NBR seals RS type

• Pressure angle α for load calculation: 40°

BASE-LINE – FWS, FWH SYSTEM

FLOATING GUIDE ROLLERS FRL ... EU

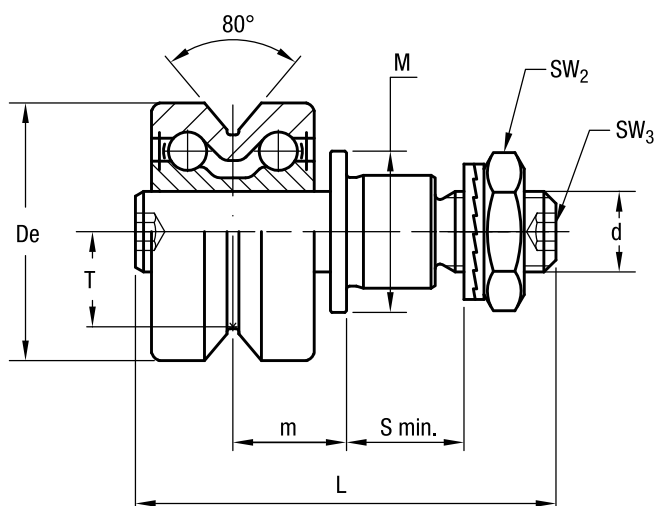
Floating guide rollers with ball bearings.
The race ways are slightly convex.



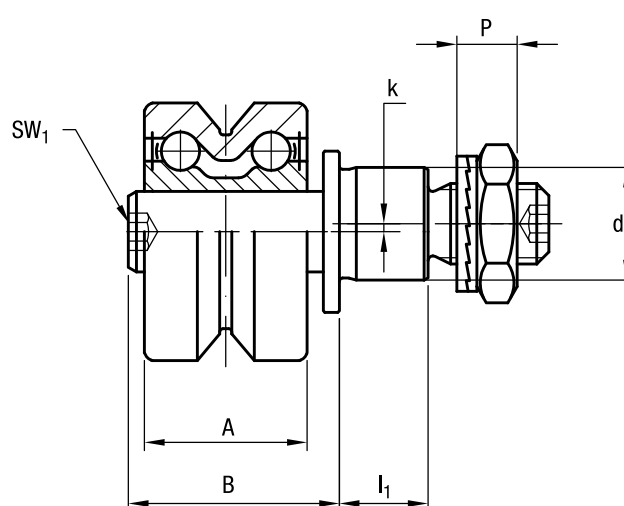
Available in stainless steel version.



CONCENTRIC



ECCENTRIC



Type		Dimensions (mm)																
concentric	eccentric	De	d ₁ ²⁾	d	T	m _{min.} ³⁾	m _{max.} ³⁾	S min.	P	L	A	B	I ₁	M	SW ₁	SW ₂	SW ₃	k
FRL 22 EU ¹⁾	FRLR 22 EU ¹⁾	22	9	M6 x 1	7.7	9	13	9	6.5	39.3	15	20.5	8	14	4	10	3	0.8
FRL 32 EU ¹⁾	FRLR 32 EU ¹⁾	32	14	M10 x 1.25	11.8	12.1	16.1	12	8.5	52.2	20.2	26.2	11	20	4	17	4	1
FRL 40 EU ¹⁾	FRLR 40 EU ¹⁾	40	16	M12 x 1.5	14.6	14.9	19.9	12	10.4	61.4	25	32.4	11	22	5	19	5	1
FRL 52 EU	FRLR 52 EU	52	21	M16 x 1.5	19.1	19	25	15	11.4	74	32	41	14	28	6	24	6	1.5
FRL 62 EU	FRLR 62 EU	62	27	M20 x 1.5	22.1	19.8	25.8	18.5	12.4	83.6	33.6	42.6	17.5	35	8	30	8	2

1) Dimensions for stainless steel (NX) version

2) Housing bore tolerance: H7

3) To ensure a safe and proper functioning the dimension m must not be higher than m_{max.}

Type		Dynamic load (N)	Limit loads (N)	Limit load Inox version (N) NX	Torque wrench settings ⁵⁾ (Nm)	Weight ⁶⁾ (g)
concentric	eccentric	C _w ⁴⁾	Radial F _r	Axial F _a		
FRL 22 EU	FRLR 22 EU	2900	1050	900	3	46
FRL 32 EU	FRLR 32 EU	5800	1700	1500	20	127
FRL 40 EU	FRLR 40 EU	8500	3000	2700	26	233
FRL 52 EU	FRLR 52 EU	11700	7600	—	64	520
FRL 62 EU	FRLR 62 EU	13900	11000	—	120	776

4) C_w = Basic load for 100 Km

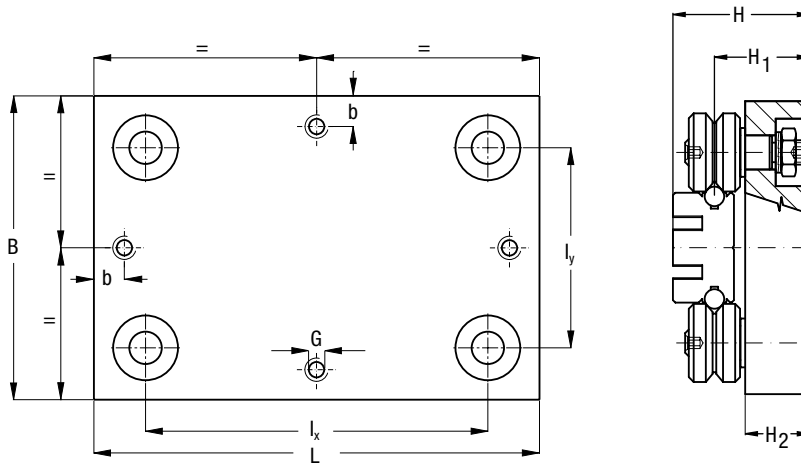
5) The torque wrench settings are given for non-lubricated threads; for lubricated threads multiply figure by 0.8

6) Weight without fittings

- Standard seals: material NBR, RS type
- Guide rollers include self-locking washers and hexagonal nut (DIN 439B)
- Pressure angle α for load calculation: 40°

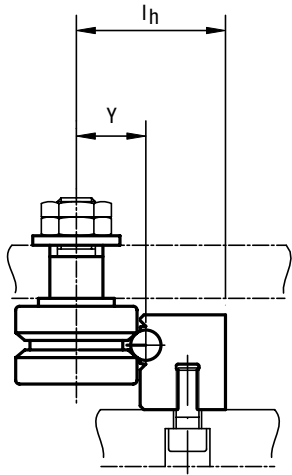
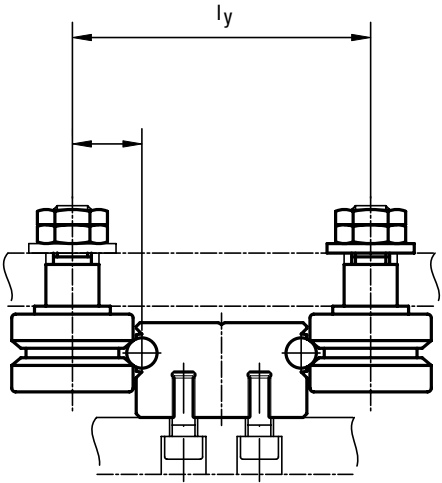
CARRIAGE T4 FR

Carriages with anodised aluminium body with four guide rollers type FR ... for FWS rails.



Type	Dimensions (mm)									Weight (kg)	Suggested combinations
	L	B	I _x	I _y	H	H ₁	H ₂	G	b		
T4 FR 22 90	90	90	59	58.7	42.4	28.4	19	M6	15	0.6	FWS 22
T4 FR 22 150	150	90	119	58.7	42.4	28.4	19	M6	15	0.9	FWS 22
T4 FR 32 120	120	120	78	78	58.6	41.6	29	M8	15	1.5	FWS 32
T4 FR 32 180	180	120	138	78	58.6	41.6	29	M8	15	2.1	FWS 32
T4 FR 40 150	150	150	99	98.8	63.5	44.5	29	M8	15	2.6	FWS 40
T4 FR 40 220	220	150	169	98.8	63.5	44.5	29	M8	15	3.4	FWS 40
T4 FR 52 190	190	190	123	123	82.8	58.8	39	M10	20	5.4	FWS 52
T4 FR 52 260	260	190	203	123	82.8	58.8	39	M10	20	6.8	FWS 52

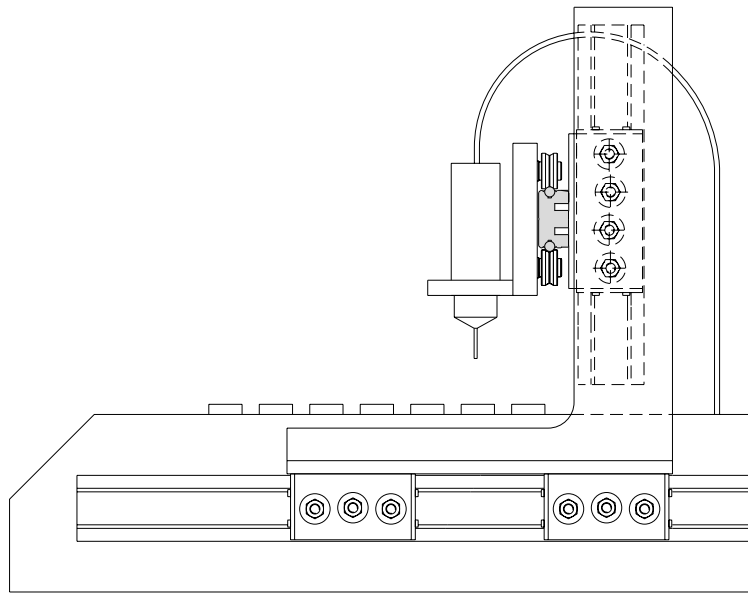
BASE-LINE – FWS, FWH SYSTEM
GUIDE ROLLERS COMBINATION



Type		Roller type FR / FRR ... EU, FR / FRR ... EU AS, FR / FRR ... EU AZ, FRL / FRLR ... EU		
Guide	Rollers	Y	l_y	l_h
FWS 22	FWH 22	12.4	58.8	29.4
FWS 32	FWH 32	18	78	39
FWS 40	FWH 40	22.4	98.8	49.4
FWS 52	FWH 52	28.4	122.8	61.4

MOUNTING EXAMPLES

Glue dispensing machine



Oxy cutting machine
Base-Line C and DC

