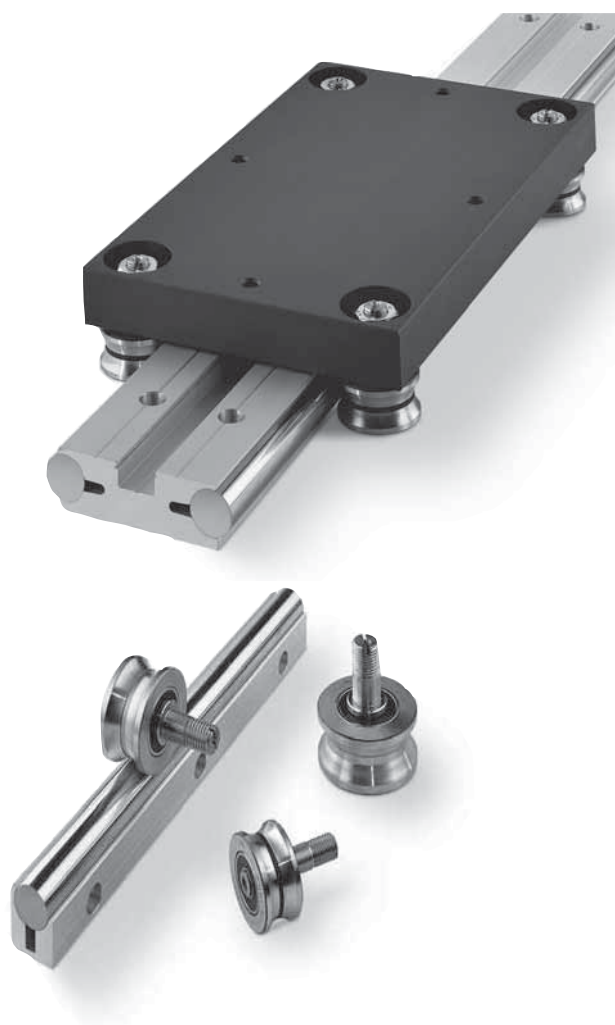


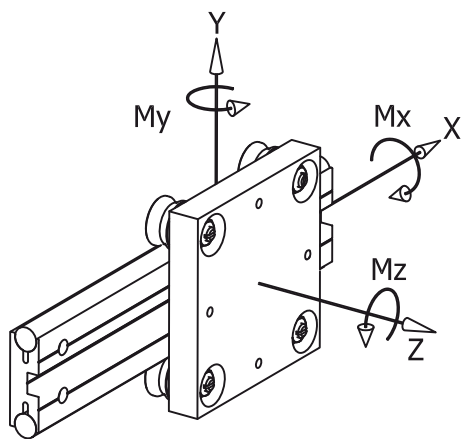
Base-Line

DC, C Systems



DC system

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 showed 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	Carriages	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	3570	1800	70	110	225
	T4 PFV 35 16 250	3570	1800	70	190	370
DC 18.65	T4 PFV 35 18 150	3940	1810	55	100	220
	T4 PFV 35 18 250	3940	1810	55	190	420
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 load 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

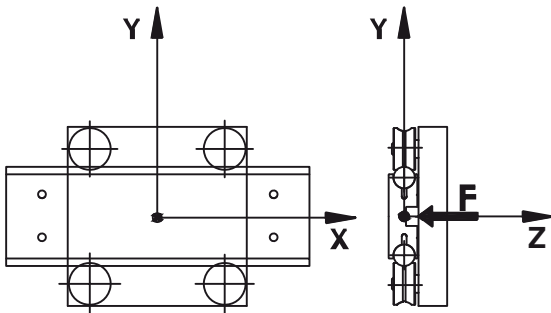
$$L_{10} = (Ci/Pi)^3 \times 100 \text{ km}$$

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

Rails	Carriages	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 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 Fz 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 Cz, for the carriage T4 PFV 50 25 220, is equal to 6100 N.

The nominal lifetime will be:

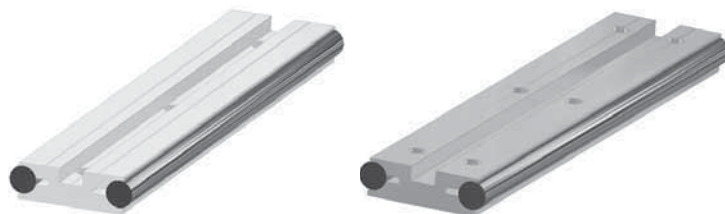
$$L_{10} = (6100/2000)^3 \times 100 = 2837 \text{ km}$$

Important notes:

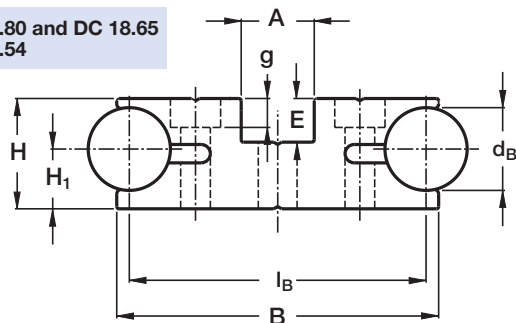
- in order to reach the calculated lifetime it is important to lubricate the rails;
- for load configurations with many loads and moments acting at the same time in different directions, please refer to the calculation examples you can find at the beginning of the catalogue or contact our Technical department.

Base-Line

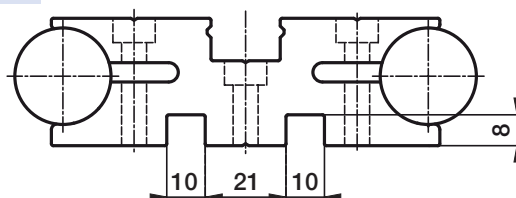
Guide rails DC



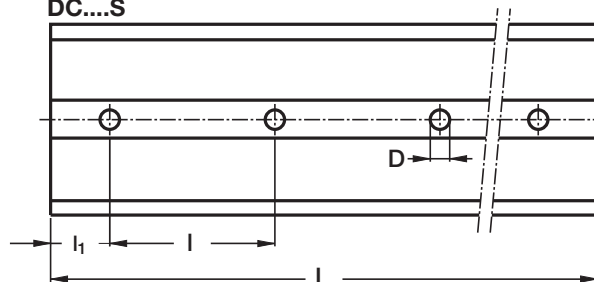
DC 16.80 and DC 18.65
DC 10.54



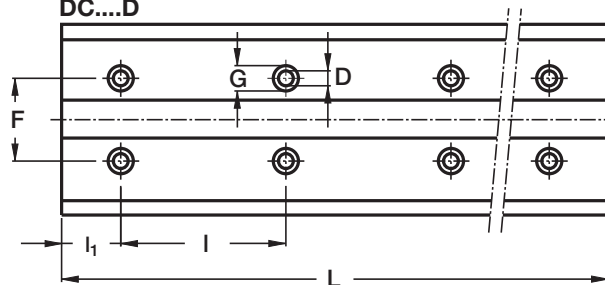
DC 25.95



DC....S



DC....D



Type	Dimensions (mm)													Moments of inertia ⁽²⁾ (cm ⁴)		Weight (kg/m)
	dB	lB	B	H	H ₁	A	E	D	G	g	F	I	l ₁	J _x	J _y	
DC 10.54 S ⁽³⁾	10	54	57	19.5	13	25	10.5	6.5	–	–	–	150	30	2.16	20.5	3.15
DC 10.54 D ⁽³⁾	10	54	57	19.5	13	25	10.5	4.5	8	4.2	36	150	30	2.16	20.5	3.15
DC 16.80 S ⁽³⁾	16	80	86	25.5	14.5	18	9.5	8.5	–	–	–	150	30	9.6	85	7.1
DC 16.80 D ⁽³⁾	16	80	86	25.5	14.5	18	9.5	6.5	11	6.3	54	150	30	9.6	85	7.14
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 14
DC 25.95 S ⁽³⁾	25	95	101	33	18	19	13	10.5	–	–	–	150	30	21.8	142.2	13.5
DC 25.95 D ⁽³⁾	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 ⁽¹⁾																

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

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

3) Available with stainless steel shafts

Hole layout

- holes according to catalogue (**SB**)
- finishes to drawing (**NZ**)
- without holes (**NF**)

Optional features

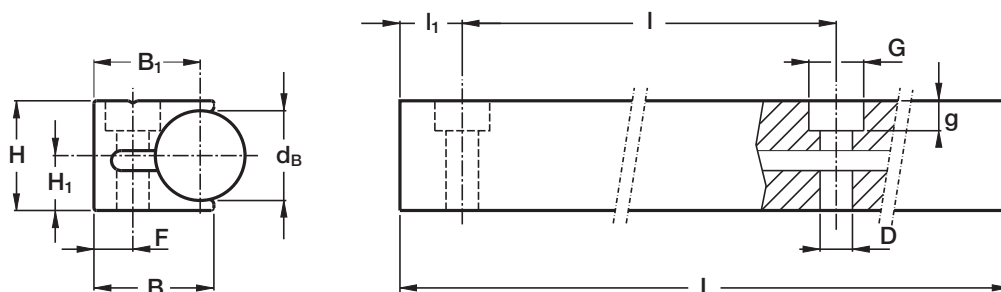
- ground one end (**R**)
- ground both ends (**RR**)
- stainless steel shafts (**NX**)
- chromium plated shafts (**CH**)

Example of standard designation: **DC2595S 2010 SB NX**

See page 17 for standard codification

Base-Line

Guide rails C



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 ⁽³⁾	10	16.9	15.4	14.5	8	4.5	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 ⁽³⁾	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 ⁽¹⁾														

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

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

3) Available with stainless steel shafts

Hole layout

- holes according to catalogue (**SB**)
- finishes to drawing (**NZ**)
- without holes (**NF**)

Optional features

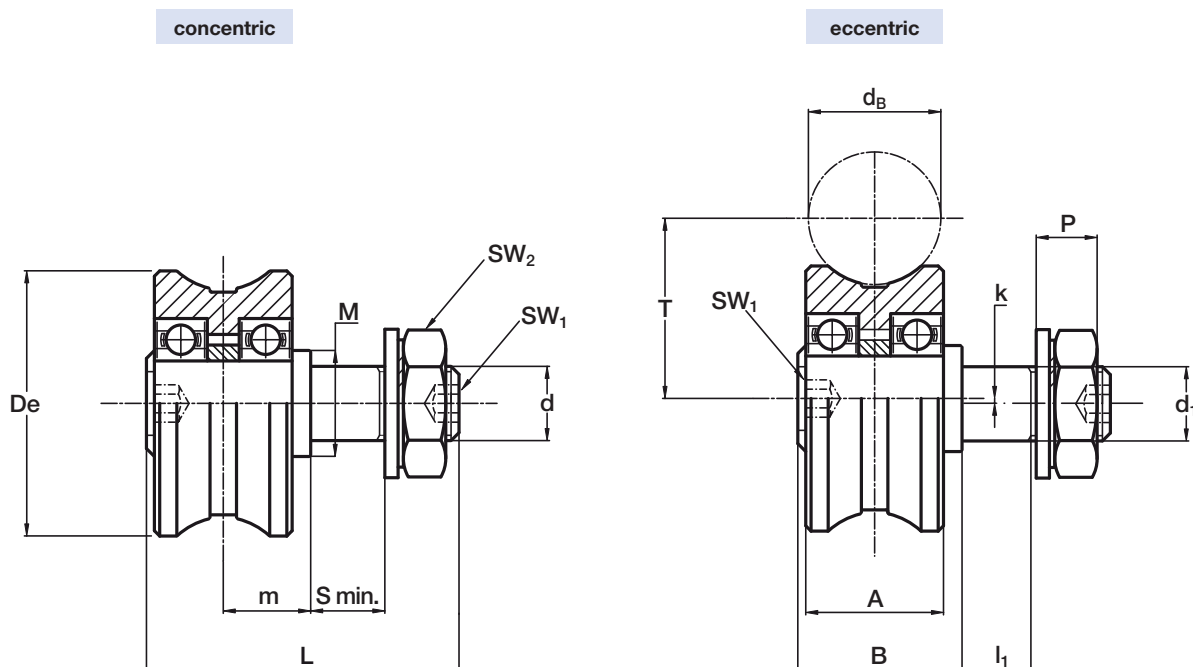
- ground one end (**R**)
- ground both ends (**RR**)
- stainless steel shafts (**NX**)
- chromium plated shafts (**CH**)

Example of standard designation: **C10 2060 SB**

See page 17 for standard codification



Guide rollers PFV with “gothic arch” profile



Type		Dimensions (mm)																Recommended pairings
concentric	eccentric	De	dB	d ₁ ⁽¹⁾	d	T	m	S min.	P	L	A	B	l ₁	M	SW ₁	SW ₂	k	
PFV 25.10 ⁽³⁾	PFVR 25.10 ⁽³⁾	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 ⁽³⁾	PFVR 35.16 ⁽³⁾	35	16	10	M10x1.25	23.0	12.0	12	10.7	45.3	18	22.3	11	15	4	17	0.75	DC 16.80
PFV 35.18 ⁽³⁾	PFVR 35.18 ⁽³⁾	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 ⁽³⁾	PFVR 43.22 ⁽³⁾	43	22	12	M12x1.50	29.0	14.0	13	12.5	52.0	23	27.0	12	18	5	19	1.75	C 22
PFV 50.25 ⁽³⁾	PFVR 50.25 ⁽³⁾	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	M16x1.50	41.0	19.5	17	14.0	69.5	31	36.5	16	30	8	24	1.75	C 30

Type		Dynamic load (N)	Limit loads (N)		Life coefficients		Torque wrench ⁽²⁾ settings (Nm)	Weight (g)
		C _w ⁽⁴⁾	radial F _r	axial F _a	X	Y		
PFV 25.10	PFVR 25.10	1 850	1 080	200	1	4.4	8	42
PFV 35.16	PFVR 35.16	4 550	2 120	430	1	4.4	20	115
PFV 35.18	PFVR 35.18	4 570	2 120	430	1	4.4	20	113
PFV 43.22	PFVR 43.22	7 600	3 150	780	1	4.3	26	210
PFV 50.25	PFVR 50.25	8 800	4 240	940	1	4	44	335
PFV 60.30	PFVR 60.30	15 700	5 360	1 350	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

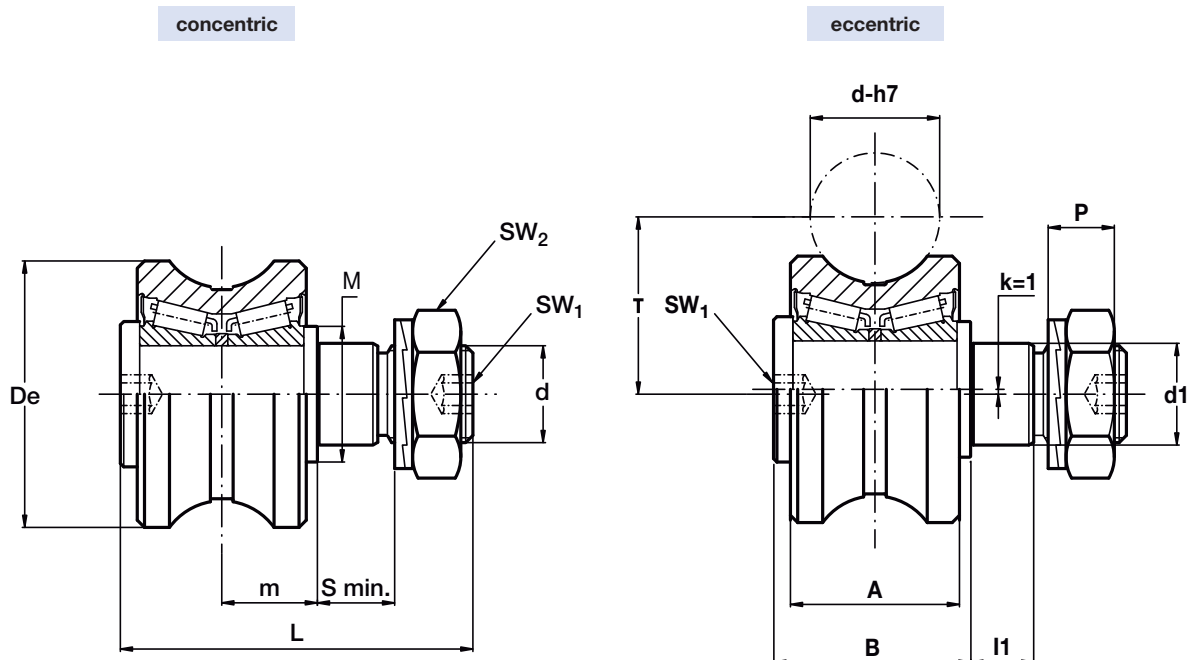
3) Available in stainless steel (suffix **NX**)

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



Type		Dimensions (mm)															
concentric	eccentric	De	d-h7	d ₁ ⁽¹⁾	d	T	m	S min.	P	L	A	B	l ₁	M	SW ₁	SW ₂	k
RKO 55.20	RKOR 55.20	55	20	21	M 20 x 1.5	32.9	19.8	15	13.4	73	35	41	14	28	8	30	1
RKO 55.25	RKOR 55.25	55	25	21	M 20 x 1.5	34.3	19.8	15	13.4	73	35	41	14	28	8	30	1
RKO 62.30	RKOR 62.30	62	30	21	M 20 x 1.5	39.6	19.8	15	13.4	73	35	41	14	28	8	30	1
RKO 80.40	RKOR80.40	79	40	36	M 30 x 1.5	50.7	27.8	19	19.6	100	45	55	18	44	12	46	1

Type		Dynamic load (N)	Limit loads (N)		Life coefficients		Torque wrench (Nm) ⁽²⁾ settings	Weight (kg)
		C _w ⁽⁴⁾	radial F _r	axial F _a	X	Y		
RKO 55.20	RKOR 55.20	40 750	11 900	3 550	1	2.88	80	0.6
RKO 55.25	RKOR 55.25	40 750	11 900	3 450	1	2.90	80	0.6
RKO 62.30	RKOR 62.30	46 000	11 900	3 150	1	2.65	80	0.7
RKO 80.40	RKOR 80.40	64 850	31 300	10 100	1	2.59	300	1.6

1) Housing bore tolerance: H7

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

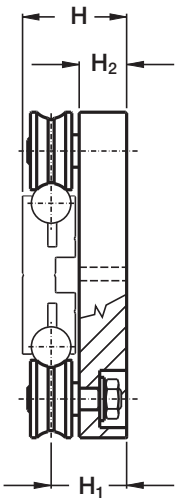
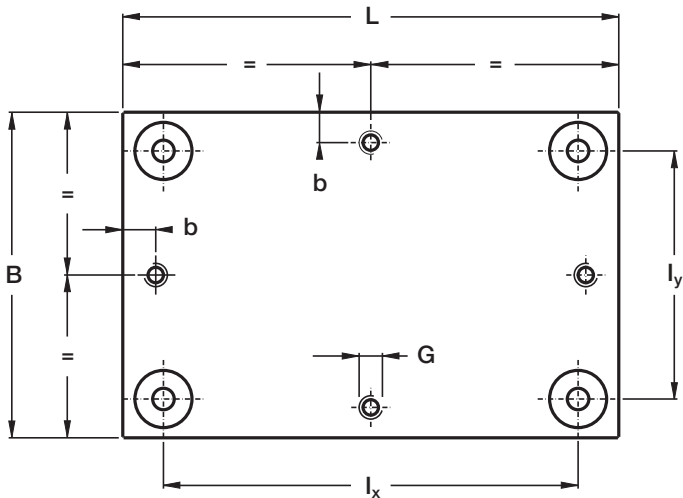
3) Standard seals: material NBR, type RS

4) On request, the guide rollers can be supplied with Viton seals for operating temperatures up to 120°C (suffix **V**)

5) C_w basic load for 100 km

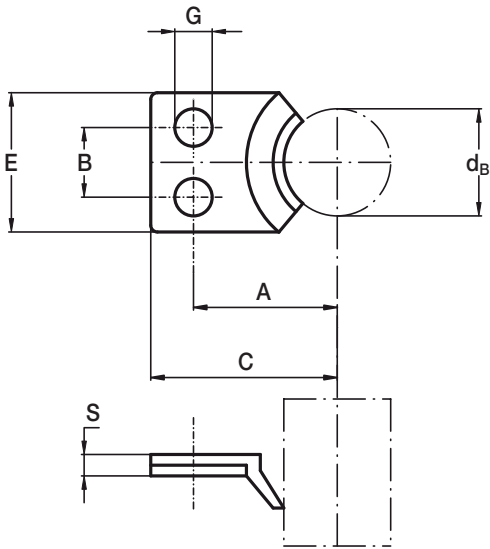
6) The guide rollers is complete with self-locking washers and hexagonal nut for fitting

7) Pressure angle α for load calculation: 70°C

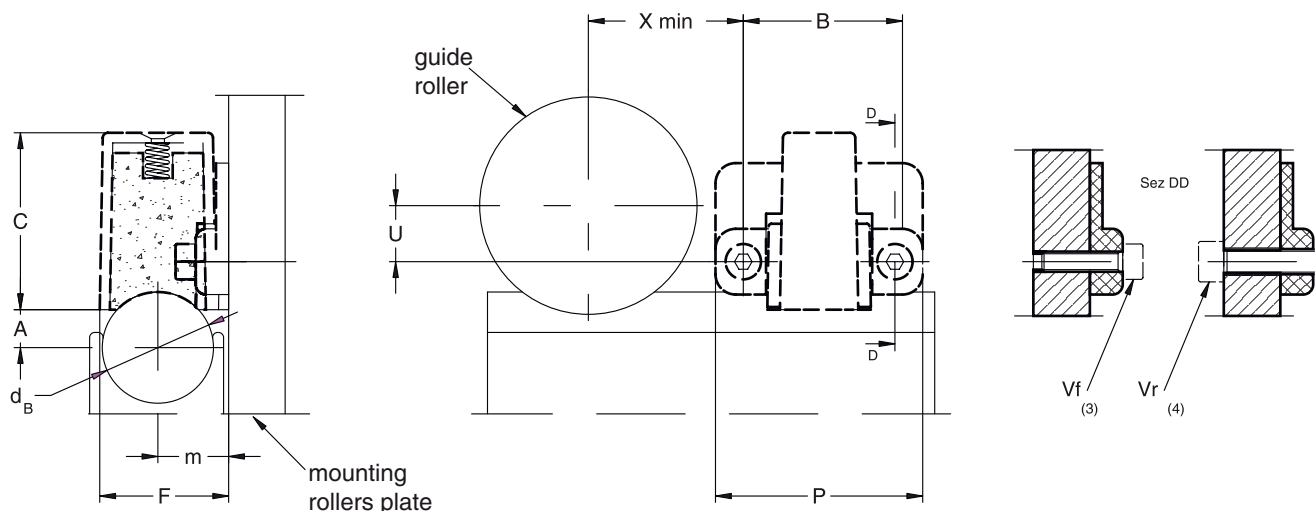
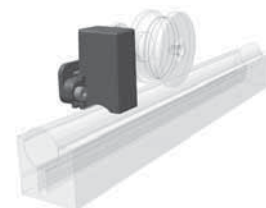


Type	Dimensions (mm)									Weight (kg)	Recom- mended pairings
	L	B	I _x	I _y	H	H ₁	H ₂	G	b		
T4PFV 25 10 80 ⁽¹⁾	80	120	45	85	41	28	20.5	M8	15	0.69	DC 10.54
T4PFV 25 10 120 ⁽¹⁾	120	120	85	85	41	28	20.5	M8	15	0.96	DC 10.54
T4PFV 35 16 165 ⁽¹⁾	165	165	126	126	50.5	36	24	M8	15	2.1	DC 16.80
T4PFV 35 16 250 ⁽¹⁾	250	165	211	126	50.5	36	24	M8	15	3.1	DC 16.80
T4PFV 35 18 150 ⁽¹⁾	150	150	113	113	49	36	24	M8	15	1.8	DC 18.65
T4PFV 35 18 250 ⁽¹⁾	250	150	213	113	49	36	24	M8	15	2.8	DC 18.65
T4PFV 50 25 220 ⁽¹⁾	220	220	163	163	63.5	45.5	29	M10	20	5	DC 25.95
T4PFV 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)
2) Carriages are complete with guide rollers
3) Pressure angle α for load calculation: 60°



Type	Dimensions (mm)								Recommended pairings
	d _B	E	C	A	B	G	A	S	
NAID 010	10	13	17.5	13.5	6.5	3.5	12	3	C 10
NAID 016	16	20	26.5	20.5	10	4.5	18	3	DC 16.80
NAID 018	18	20	26.5	20.5	10	4.5	18	3	C 18/DC 18.65
NAID 022	22	24	30.0	24.0	14	4.5	23	3	C 22
NAID 025	25	28	37.5	30.5	18	4.5	26	3	DC 25.95
NAID 030	30	32	45.5	37.5	20	5.5	31	3	C 30



Type	Dimensions (mm)											Weight (g)	Suggested combinations
	X	U	B	F	m	dB	A	C	P	Vf	Vr		
LUBC 25.10	18	4.5	25	13	7.5	10	3	22	32.5	M3x12	M4	10	PFV 25.10
LUBC 35.16	23	9.5	25	22	12	16	5.5	32	32.5	M3x12	M4	15	PFV 35.16
LUBC 35.18	23	9.5	25	22	12	18	6.5	32	32.5	M3x12	M4	15	PFV 35.18
LUBC 43.22	29	12	30	25.5	14	22	22	35	41	M4x12	M5	30	PFV 43.22
LUBC 50.25	32.5	15.5	30	30.5	16.5	25	9	45	41	M4x12	M5	35	PFV 50.25
LUBC 60.30	37.5	20.5	30	36.5	19.5	30	11	50	41	M4x12	M5	40	PFV 60.30

- 1) The lubricator is supplied with the felt already lubricated. The lubricant has a mineral oil base
- 2) At the mounting, insert the screws inside the rollers plate, without tighten them, adjust the height of the plastic part in order to put it in contact with the raceways and then block it
- 3) The screws Vf for the frontal mounting are included in the packaging. Arrange two thread holes for dimension Vf in the mounting rollers plate
- 4) 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

Optional features

- felt without lubricant (**D**)

Base-Line

Mounting examples

Oxy fuel cutting machine
Base-Line C and DC

