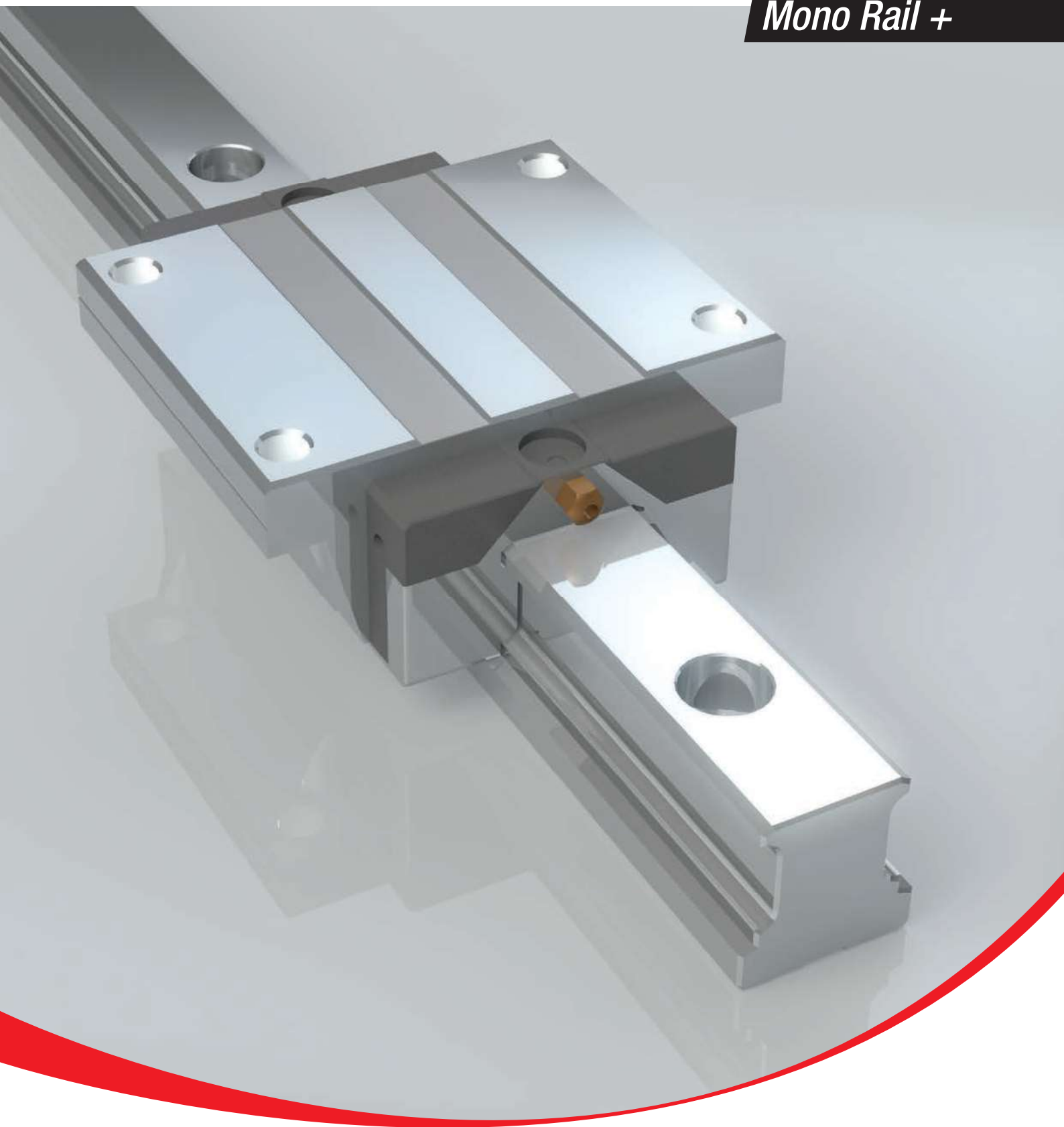


ROLLON®
BY TIMKEN

Mono Rail +



Product explanation



> Mono Rail Plus is the profile rail for the highest degree of precision



Fig. 1

The running grooves are ground in a semicircular profile and have a contact angle of 45° in O arrangement to ensure the same load capacity in all principle directions. The use of large steel balls enables high load and moment capacities.

The most important characteristics:

- O arrangement with 2-point contact of the raceways
- Uniform load capacity in all main directions
- High ability for self-regulating
- Small differential slip in comparison to 4-point contact
- Very quiet running and low operating noise
- Low displacement force in preload compared to 4-point contact
- Mono Rail Plus profile rails conform to the market standard and can replace linear rails of the same design from other manufacturers while maintaining the main dimensions

Preferred areas of application:

- Construction and machine technology (safety doors, feeding)
- Packaging machines
- Special purpose machinery
- Logistics (e.g. handling units)
- Medical technology (e.g. X-ray machines, hospital gurneys)

MRSO / MRTO



Standard carriage with flange in two different heights. MRTO is the lower version.



Fig. 2

MRSO...W / MRZO...W / MRTO...W



Carriage without flange, also called block. Available in three different heights. MRTO is the lower version; MRZO is the intermediate size.

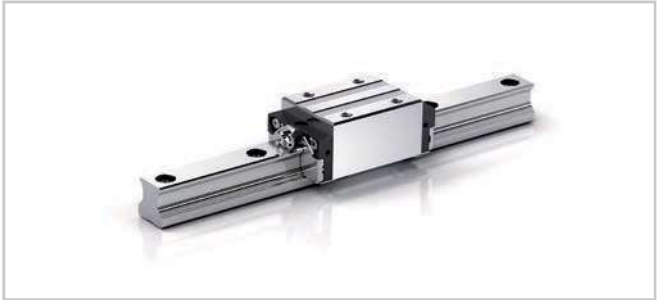


Fig. 3

MRSO...L



Carriage in long version for holding larger loads. MRSO...L is the version with flange; MRSO...LW is the version without flange.



Fig. 4

MRSO...LW / MRTO...LW



Carriage in long version without flange. Available in two different heights. MRTO is the lower version.



Fig. 5

MRT0...S

Carriage in short version with flange for small loads with equally high precision.

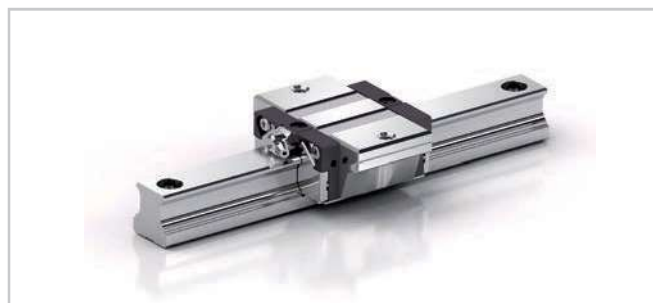


Fig. 6

MRT0...SW

Carriage in short version without flange for small loads with equally high precision.



Fig. 7

MRRO...F

All sizes are also available in a version with rail mounting from below.
The smooth rail surface is an advantage in extremely dirty environments.
Please contact our application engineers for further information.

Technical data



Fig. 8

Performance characteristics:

- Available sizes: 15, 20, 25, 30, 35, 45
- Max. operating speed: 5 m/s (196.9 in/s)
(depending on application)
- Max. operating temperature: +80 °C (+176 °F)
(depending on application)
- Available rail lengths up to about 4,000 mm (157.5 in)
- Four preload classes: VC, V0, V1, V2
- Three precision classes: N, H, P

Remarks:

- Combining of rails is possible (joint processed rails)
- The mounting holes on the carriages with flange can also be used as through holes for mounting from below. In this case, the reduction in the size of the screw diameter must be taken into account
- Various surface coatings available on request
- Manual and pneumatic clamping accessories available on request
- Primary lubricated systems have increased sliding resistance

Stainless steel reinforcement plate

The two reinforcement plates can be mounted at two positions on the carriage. This increases stability between the end cap and the carriage and allows high sliding speeds and acceleration. The plates, with a maximum gap of 0.3 mm to the rail, function as a deflector for larger foreign objects.

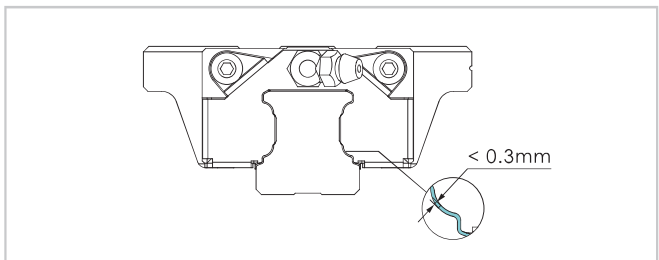


Fig. 9

Inner and side seals

The carriages are equipped with end seals to keep out dust as standard equipment. In addition, most of the carriages feature inner and side seals to prevent foreign objects from entering the row of balls.

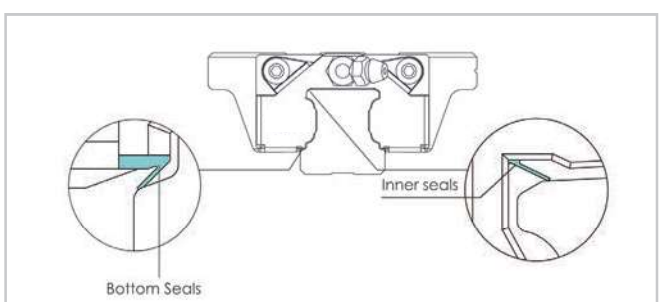


Fig. 10

> Load capacities

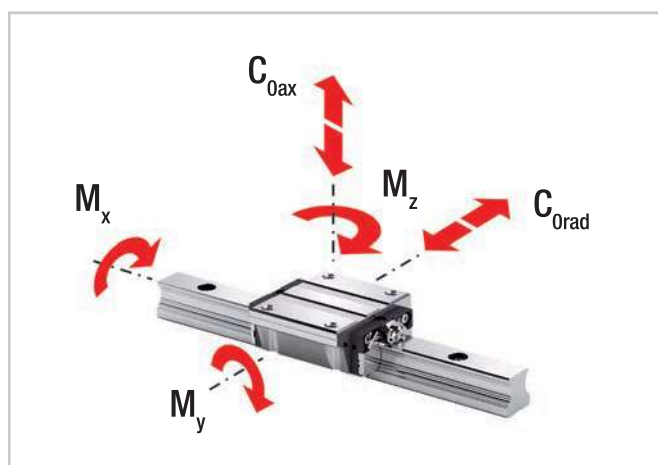


Fig. 11

Type	Load capacities [kN]		Static moments [Nm]		
	dyn. C	stat. C _{0rad} stat. C _{0ax}	M _x	M _y	M _z
MRS015 MRS015W MRT015 MRT015W	9.9	17.5	140	105	105
MRT015S MRT015SW	7.7	12.1	100	50	50
MRS020 MRS020W MRT020 MRT020W	17.1	30	325	230	230
MRT020S MRT020SW	12.5	19.3	205	100	100
MRS020L MRS020LW	20.4	38.5	415	390	390
MRS025 MRT025 MRS025W MRT025W MRZ025W	24.8	42.5	540	385	385
MRT025S MRT025SW	18.2	27.3	350	160	160
MRS025L MRS025LW MRZ025LW	30.7	57.7	735	710	710

Tab. 1

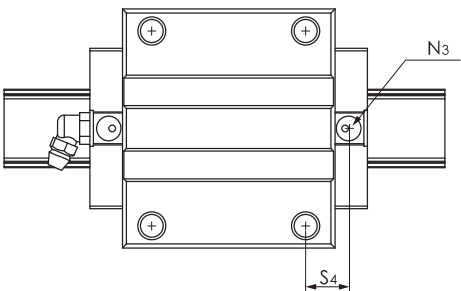
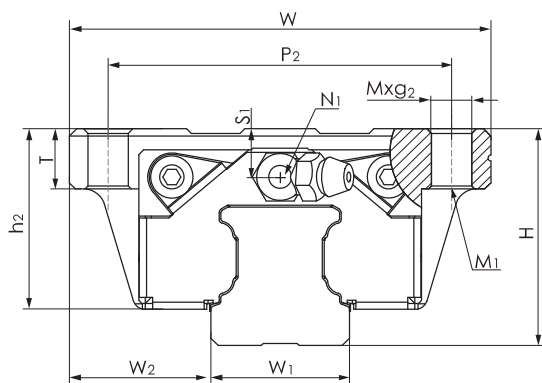
Type	Load capacities [kN]		Static moments [Nm]		
	dyn. C	stat. C _{0rad} stat. C _{0ax}	M _x	M _y	M _z
MRS030 MRS030W MRT030 MRT030W	32.8	53.7	845	565	565
MRT030S MRT030SW	23.3	33.1	520	230	230
MRS030L MRS030LW MRT030LW	39.6	70.2	1105	950	950
MRS035 MRS035W MRT035 MRT035W	45.9	82.9	1700	1080	1080
MRS035L MRS035LW MRT035LW	54.7	106.5	2185	1755	1755
MRS045 MRS045W MRT045W	71.3	122.1	3200	1910	1910
MRS045L MRS045LW MRT045LW	89.5	169.1	4430	3460	3460

Tab. 2

Product dimensions



> Series MRS0 / MRS0...L – carriage with flange



Type	System [mm]		Rail [mm]								
	H	W ₂	W ₁	H ₁	P	D x d x g ₁	W	L	L ₁	h ₂	P ₁
MRS015	24	16	15	15	60	7.5 x 4.5 x 5.3	47	55.5	40.3	20.7	30
MRS020	30	21.5	20	20	60	9.5 x 6 x 8.5	63	69	52	25	40
MRS020L	30	21.5	20	20	60	9.5 x 6 x 8.5	63	87.2	70.2	25	40
MRS025	36	23.5	23	23	60	11 x 7 x 9	70	81.2	62.2	30	45
MRS025L	36	23.5	23	23	60	11 x 7 x 9	70	105	86	30	45
MRS030	42	31	28	27	80	14 x 9 x 12	90	95.5	71.5	35.2	52
MRS030L	42	31	28	27	80	14 x 9 x 12	90	118	94	35.2	52
MRS035	48	33	34	32	80	14 x 9 x 12	100	111.2	86.2	40.4	62
MRS035L	48	33	34	32	80	14 x 9 x 12	100	136.6	111.6	40.4	62
MRS045	60	37.5	45	39	105	20 x 14 x 17	120	135.5	102.5	50.7	80
MRS045L	60	37.5	45	39	105	20 x 14 x 17	120	171.5	138.5	50.7	80

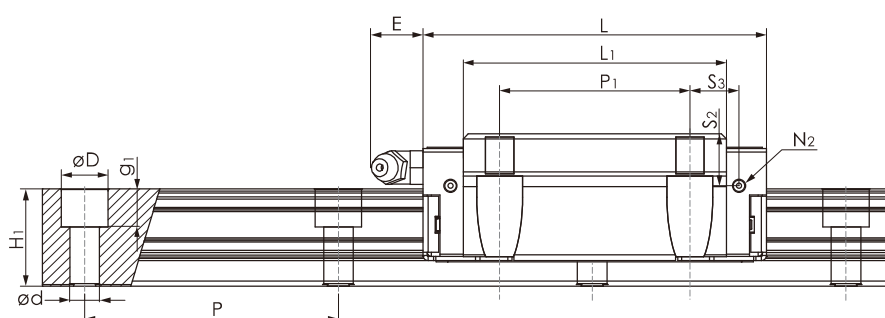
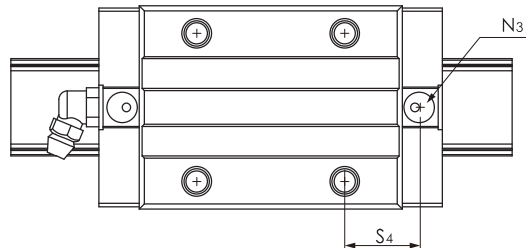
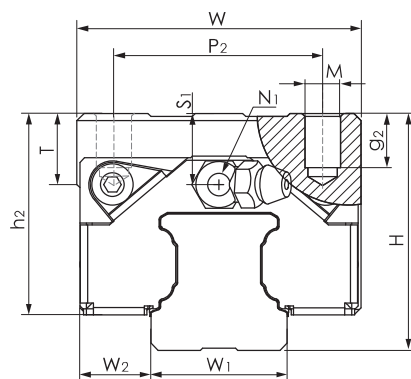


Fig. 12

Slider [mm]												Weight	
P ₂	M x g ₂	M ₁	T	N ₁	N ₂	N ₃	E	S ₁	S ₂	S ₃	S ₄	Slider [kg]	Rail [kg/m]
38	M5 x 7	M4	7	M3 x 6.5	M3 x 6	P3	3.5	4.5	7.5	7.8	8.9	0.17	1.29
53	M6 x 10	M5	10	M3 x 7.5	M3 x 5.5	P4	10	6	9.4	9	9.7	0.40	2.28
53	M6 x 10	M5	9	M3 x 7.5	M3 x 5.5	P4	10	6	9.4	18.1	18.8	0.50	2.28
57	M8 x 12	M6	12	M6 x 7.5	M3 x 6.5	P4	12	8	12.3	11.6	12.6	0.63	3.02
57	M8 x 12	M6	12	M6 x 7.5	M3 x 6.5	P4	12	8	12.3	23.5	24.5	0.61	3.02
72	M10 x 15	M8	16	M6 x 8.5	M6 x 5	P5	12	7.5	12	14.8	14.5	1.11	4.38
72	M10 x 15	M8	16	M6 x 8.5	M6 x 5	P5	12	7.5	12	25.7	25.8	1.39	4.38
82	M10 x 15	M8	16	M6 x 10	M6 x 7	P5	12	8	15	17.4	18.1	1.55	6.79
82	M10 x 15	M8	16	M6 x 10	M6 x 7	P5	12	8	15	30.1	30.8	2	6.79
100	M12 x 18	M10	19	PT1/8 x 12.5	M6 x 10.5	P5	14	11.1	18.1	17.3	17.3	2.75	10.53
100	M12 x 18	M10	19	PT1/8 x 12.5	M6 x 10.5	P5	14	11.1	18.1	35	35	4.28	10.53

Tab. 3

> Series MRSO / MRSO...LW – carriage without flange



Type	System [mm]		Rail [mm]								
	H	W ₂	W ₁	H ₁	P	D x d x g ₁	W	L	L ₁	h ₂	P ₁
MRSO15W	28	9.5	15	15	60	7.5 x 4.5 x 5.3	34	55.5	40.3	24.7	26
MRSO20W	30	12	20	20	60	9.5 x 6 x 8.5	44	69	52	25	36
MRSO20LW	30	12	20	20	60	9.5 x 6 x 8.5	44	87.2	70.2	25	50
MRSO25W	40	12.5	23	23	60	11 x 7 x 9	48	81.2	62.2	34	35
MRSO25LW	40	12.5	23	23	60	11 x 7 x 9	48	105	86	34	50
MRSO30W	45	16	28	27	80	14 x 9 x 12	60	95.5	71.5	38.4	40
MRSO30LW	45	16	28	27	80	14 x 9 x 12	60	118	94	38.4	60
MRSO35W	55	18	34	32	80	14 x 9 x 12	70	111.2	86.2	47.4	50
MRSO35LW	55	18	34	32	80	14 x 9 x 12	70	136.6	111.6	47.4	72
MRSO45W	70	20.5	45	39	105	20 x 14 x 17	86	135.5	102.5	60.7	60
MRSO45LW	70	20.5	45	39	105	20 x 14 x 17	86	171.5	138.5	60.7	80

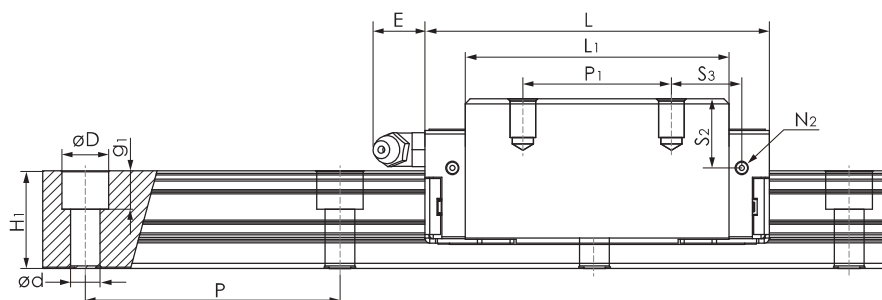
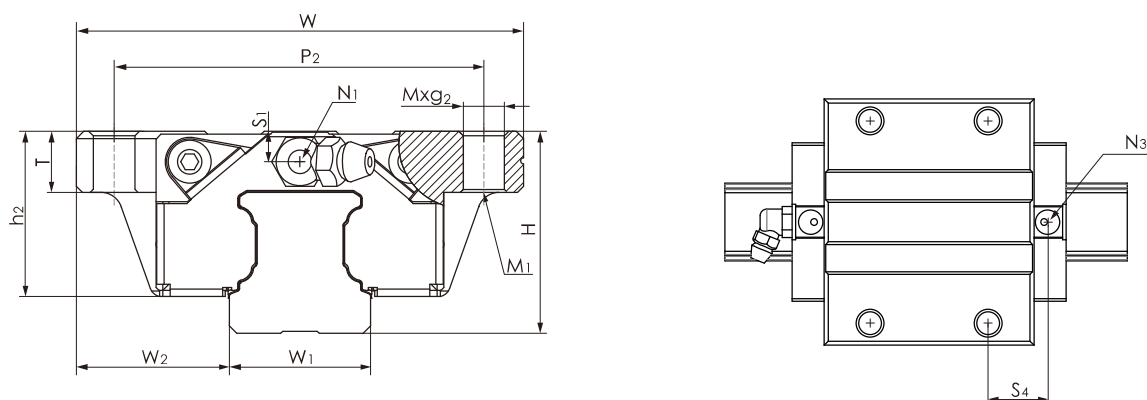


Fig. 13

Slider [mm]												Weight	
P ₂	M x g ₂	M ₁	T	N ₁	N ₂	N ₃	E	S ₁	S ₂	S ₃	S ₄	Slider [kg]	Rail [kg/m]
26	M4 x 7	-	6	M3 x 6.5	M3 x 6	P3	3.5	8.5	11.5	9.8	10.9	0.18	1.29
32	M5 x 8.5	-	8	M3 x 7.5	M3 x 5.5	P4	10	6	9.4	11	11.7	0.32	2.28
32	M5 x 8.5	-	8	M3 x 7.5	M3 x 5.5	P4	10	6	9.4	13.1	13.8	0.40	2.28
35	M6 x 9	-	12	M6 x 7.5	M3 x 6.5	P4	12	12	16.3	16.6	17.6	0.58	3.02
35	M6 x 9	-	12	M6 x 7.5	M3 x 6.5	P4	12	12	16.3	21	22	0.69	3.02
40	M8 x 12	-	12	M6 x 8.5	M6 x 5	P5	12	10.5	15	20.8	20.5	0.90	4.38
40	M8 x 12	-	12	M6 x 8.5	M6 x 5	P5	12	10.5	15	21.7	21.8	1.15	4.38
50	M8 x 13	-	14	M6 x 10	M6 x 7	P5	12	15	22	23.4	24.1	1.43	6.79
50	M8 x 13	-	14	M6 x 10	M6 x 7	P5	12	15	22	25.1	25.8	1.95	6.79
60	M10 x 20	-	14	PT1/8 x 12.5	M6 x 10.5	P5	14	21.1	28.1	27.3	27.3	2.79	10.53
60	M10 x 20	-	14	PT1/8 x 12.5	M6 x 10.5	P5	14	21.1	28.1	35	35	4.06	10.53

Tab. 4

> Series MRT0 / MRT0...S – carriage with flange



Type	System [mm]		Rail [mm]								
	H	W ₂	W ₁	H ₁	P	D x d x g ₁	W	L	L ₁	h ₂	P ₁
MRT015	24	18.5	15	15	60	7.5 x 4.5 x 5.3	52	55.5	40.3	20.7	26
MRT015S	24	18.5	15	15	60	7.5 x 4.5 x 5.3	52	41.2	26	20.7	-
MRT020	28	19.5	20	20	60	9.5 x 6 x 8.5	59	69	52	23	32
MRT020S	28	19.5	20	20	60	9.5 x 6 x 8.5	59	49.2	32.2	23	-
MRT025	33	25	23	23	60	11 x 7 x 9	73	81.2	62.2	27	35
MRT025S	33	25	23	23	60	11 x 7 x 9	73	57.4	38.4	27	-
MRT030	42	31	28	27	80	14 x 9 x 12	90	95.5	71.5	35.2	40
MRT030S	42	31	28	27	80	14 x 9 x 12	90	68	44	35.2	-
MRT035	48	33	34	32	80	14 x 9 x 12	100	111.2	86.2	40.4	50

The short carriages (MRT0...S) are equipped with only two mounting holes.

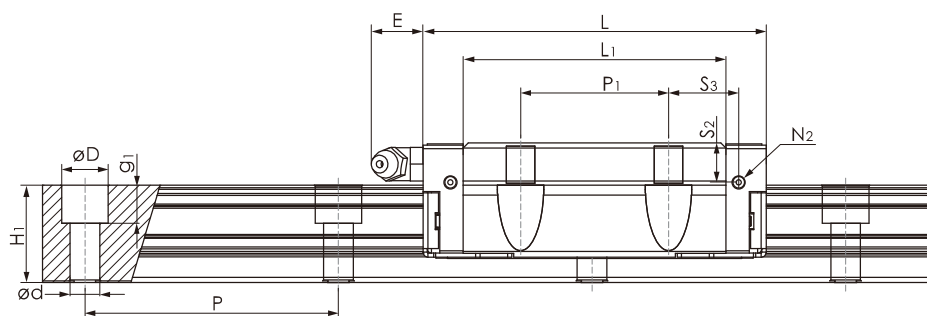
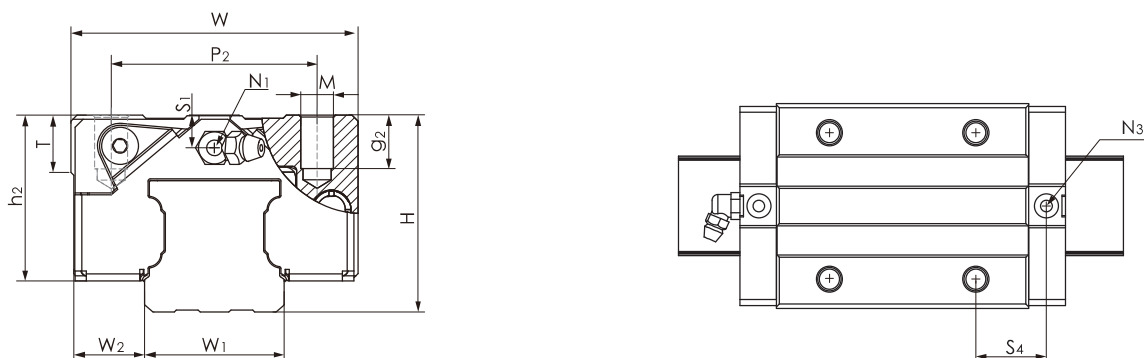


Fig. 14

Slider [mm]												Weight	
P ₂	M x g ₂	M ₁	T	N ₁	N ₂	N ₃	E	S ₁	S ₂	S ₃	S ₄	Slider [kg]	Rail [kg/m]
41	M5 x 7	M4	7	M3 x 6.5	M3 x 6	P3	3.5	4.5	7.5	8.9	10.9	0.18	1.29
41	M5 x 7	M4	7	M3 x 6.5	M3 x 6	P3	3.5	4.5	7.5	15.7	16.8	0.12	1.29
49	M6 x 10	M5	10	M3 x 7.5	M3 x 5.5	P4	10	4	7.4	13	13.7	0.34	2.28
49	M6 x 10	M5	10	M3 x 7.5	M3 x 5.5	P4	10	4	7.4	19.1	19.8	0.21	2.28
60	M8 x 12	M6	12	M6 x 7.5	M3 x 6.5	P4	12	5	9.3	16.6	17.6	0.52	3.02
60	M8 x 12	M6	12	M6 x 7.5	M3 x 6.5	P4	12	5	9.3	22.2	23.2	0.35	3.02
72	M10 x 15	M8	15	M6 x 8.5	M6 x 5	P5	12	7.5	12	20.8	20.5	1.20	4.38
72	M10 x 15	M8	15	M6 x 8.5	M6 x 5	P5	12	7.5	12	27	26.8	0.75	4.38
82	M10 x 15	M8	15	M6 x 10	M6 x 7	P5	12	8	15	23.4	24.1	1.58	6.79

Tab. 5

> Series MRT0...W / MRT0...SW / MRT0...LW – carriage without flange



Type	System [mm]		Rail [mm]								
	H	W ₂	W ₁	H ₁	P	D x d x g ₁	W	L	L ₁	h ₂	P ₁
MRT015W	24	9.5	15	15	60	7.5 x 4.5 x 5.3	34	55.5	40.3	20.7	26
MRT015SW	24	9.5	15	15	60	7.5 x 4.5 x 5.3	34	41.2	26	20.7	-
MRT020W	28	11	20	20	60	9.5 x 6 x 8.5	42	69	52	23	32
MRT020SW	28	11	20	20	60	9.5 x 6 x 8.5	42	49.2	32.2	23	-
MRT025W	33	12.5	23	23	60	11 x 7 x 9	48	81.2	62.2	27	35
MRT025SW	33	12.5	23	23	60	11 x 7 x 9	48	57.4	38.4	27	-
MRT030W	42	16	28	27	80	14 x 9 x 12	60	95.5	71.5	35.2	40
MRT030SW	42	16	28	27	80	14 x 9 x 12	60	68	44	35.2	-
MRT030LW	42	16	28	27	80	14 x 9 x 12	60	118	94	35.2	60
MRT035W	48	18	34	32	80	14 x 9 x 12	70	111.2	86.2	40.4	50
MRT035LW	48	18	34	32	80	14 x 9 x 12	70	136.6	111.6	40.4	72
MRT045W	60	20.5	45	39	105	20 x 14 x 17	86	135.5	102.5	50.7	60
MRT045LW	60	20.5	45	39	105	20 x 14 x 17	86	171.5	138.5	50.7	80

The short carriages (MRT0...SW) are equipped with only two mounting holes.

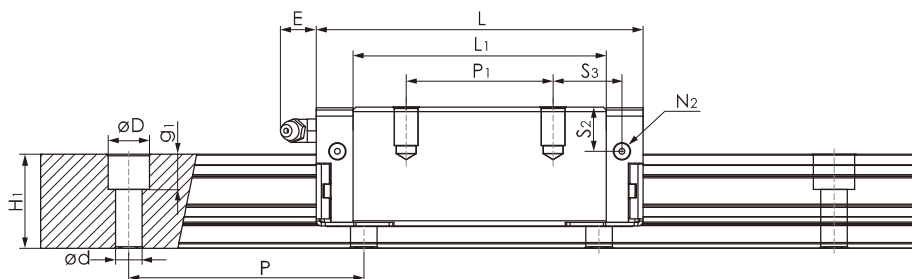
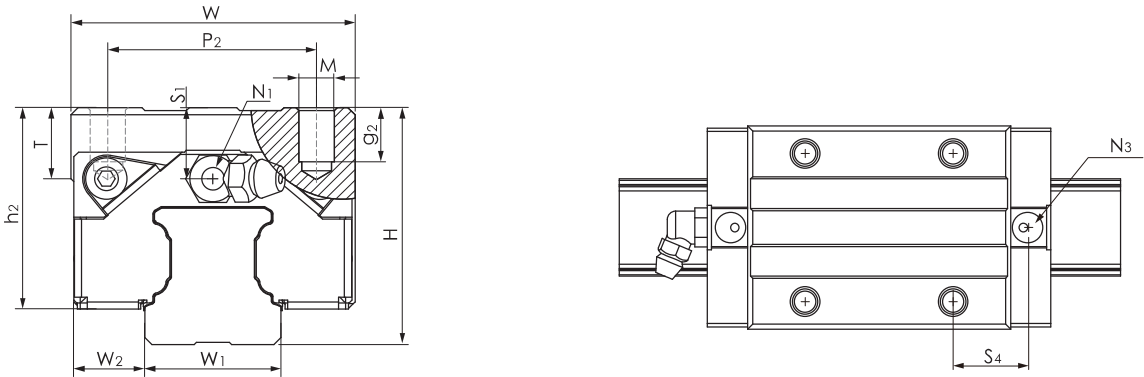


Fig. 15

Slider [mm]												Weight	
P ₂	M x g ₂	M ₁	T	N ₁	N ₂	N ₃	E	S ₁	S ₂	S ₃	S ₄	Slider [kg]	Rail [kg/m]
26	M4 x 7	-	6	M3 x 6.5	M3 x 6	P3	3,5	4.5	7.5	9.8	10.9	0.14	1.29
26	M4 x 7	-	6	M3 x 6.5	M3 x 6	P3	3,5	4.5	7.5	15.7	16.8	0.10	1.29
32	M5 x 7	-	8	M3 x 7.5	M3 x 5.5	P4	10	4	7.4	13	13.7	0.27	2.28
32	M5 x 7	-	8	M3 x 7.5	M3 x 5.5	P4	10	4	7.4	19.1	19.8	0.17	2.28
35	M6 x 9	-	8	M6 x 7.5	M3 x 6.5	P4	12	5	9.3	16.6	17.6	0.42	3.02
35	M6 x 9	-	8	M6 x 7.5	M3 x 6.5	P4	12	5	9.3	22.2	23.2	0.30	3.02
40	M8 x 10	-	12	M6 x 8.5	M6 x 5	P5	12	7.5	12	20.8	20.5	0.80	4.38
40	M8 x 10	-	12	M6 x 8.5	M6 x 5	P5	12	7.5	12	27	26.7	0.56	4.38
40	M8 x 10	-	12	M6 x 8.5	M6 x 5	P5	12	8.7	12	21.7	21.7	1.14	4.38
50	M8 x 13	-	14	M6 x 10	M6 x 7	P5	12	8	15	23.4	24.1	1.12	6.79
50	M8 x 13	-	14	M6 x 10	M6 x 7	P5	12	8	15	25.1	25.8	1.54	6.79
60	M10 x 20	-	14	PT1/8 x 12.5	M6 x 10.5	P5	14	11.1	18.1	27.3	27.2	2.12	10.53
60	M10 x 20	-	14	PT1/8 x 12.5	M6 x 10.5	P5	14	11.1	18.1	35	35	3.16	10.53

Tab. 6

> Series MRZO...W / MRZO...LW – carriage without flange



Type	System [mm]		Rail [mm]								
	H	W ₂	W ₁	H ₁	P	D x d x g ₁	W	L	L ₁	h ₂	P ₁
MRZ025W	36	12.5	23	23	60	11 x 7 x 9	48	81.2	62.2	30	35
MRZ025LW	36	12.5	23	23	60	11 x 7 x 9	48	105	86	30	50

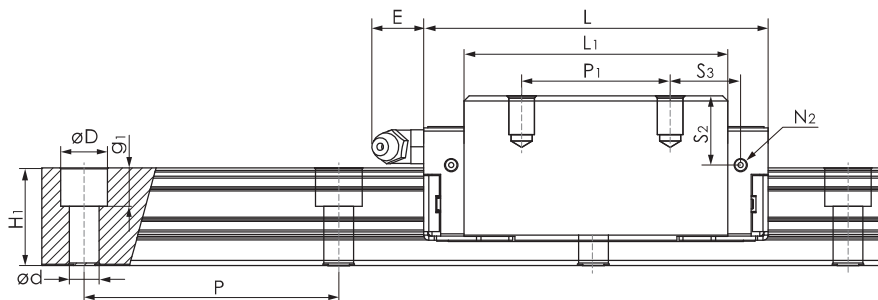


Fig. 16

Slider [mm]												Weight	
P_2	$M \times g_2$	M_1	T	N_1	N_2	N_3	E	S_1	S_2	S_3	S_4	Slider [kg]	Rail [kg/m]
35	M6 x 9	-	8	M6 x 7.5	M3 x 6.5	P4	12	8	12.3	16.6	17.6	0.47	3.02
35	M6 x 9	-	8	M6 x 7.5	M3 x 6.5	P4	12	8	12.3	21	22	0.61	3.02

Tab. 7

> Series MRR0...F – rail mounted from below

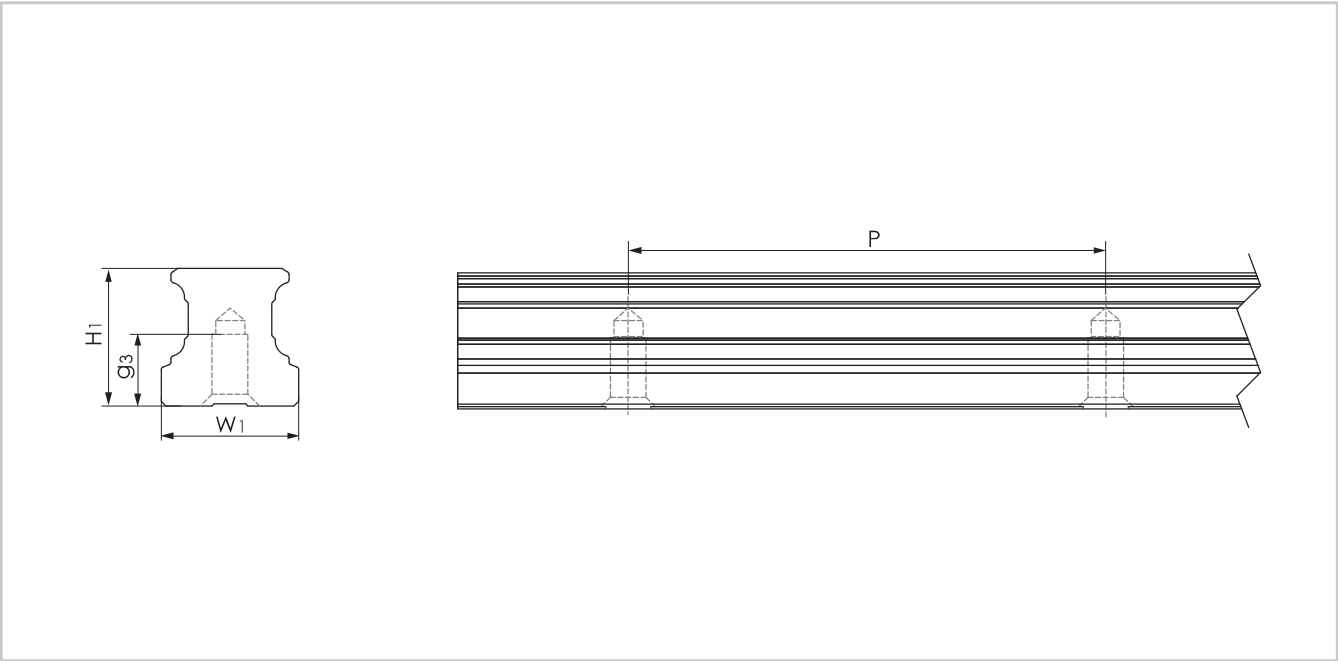


Fig. 17

Rail type	W_1 [mm]	H_1 [mm]	P [mm]	$M \times g_3$ [mm]	L_{max} [mm]	Rail [kg/m]
MRR015...F	15	15	60	M5 x 7.5	4000	1.29
MRR020...F	20	20	60	M6 x 9	4000	2.28
MRR025...F	23	23	60	M6 x 12	4000	3.02
MRR030...F	28	27	80	M8 x 15	4000	4.38
MRR035...F	34	32	80	M8 x 20	4000	6.79
MRR045...F	45	39	105	M12 x 20	4000	10.53

Tab. 8

Ordering Key

✓

> Rail

MRRO	20	6860	N	F	T	XXX	
						Surface coating on request	
						Joint processed rails, optional	
						Rail mounted from below, optional	
						Precision class	
						Total rail length	
						Size	
						SRail type	

Ordering example: MRRO20-06850-NF-T

Rail composition: 1x2920+1x3940 (only for joint processed rails)

Hole pattern: 10-48x60-30//30-65x60-10 (always specify hole pattern separately)

Notes on ordering: The rail lengths are always indicated as 5 digits with 0 prefixes

> Carriage

MRS035	N	V1	A	XXX	
				Surface coating on request	
				Sealing variants	
				Preload class	
				Precision class	
				Type	

Ordering example: MRS035-N-V1-A