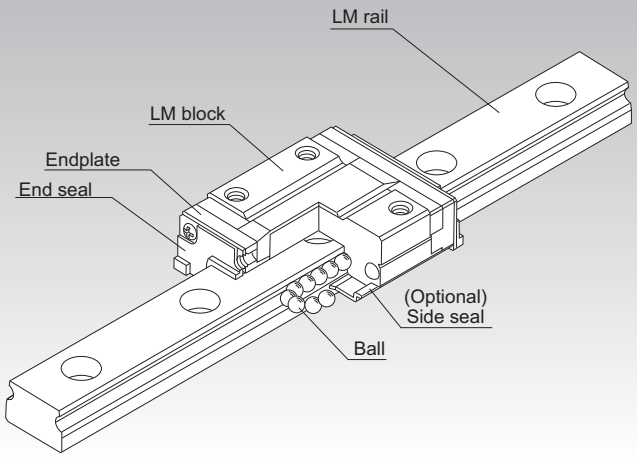
RSR-Z

LM Guide Miniature Type (Low Cost Type) Model RSR-Z



Structure and Features

Balls roll in two rows of raceways precision-ground on an LM rail and an LM block, and endplates incorporated in the LM block allow the balls to circulate.
Balls of model RSR-Z circulate in a compact structure and perform infinite straight motion with no limit in stroke.
Also, it has the same dimensions as models RSR/RSR-W, but achieves a lighter weight and a lower price.

[Lightweight]
Since part of the LM block body uses a resin material, the block mass is reduced by up to 28% from the conventional type model RSR-V. This makes RSR-Z a low-inertia type.

[Smooth Motion]
The unique structure of the endplate allows the balls to circulate smoothly and infinitely.

[Highly Corrosion Resistant]
Since the LM block, LM rail and balls use stainless steel, which is highly corrosion resistant, this model is optimal for clean room applications.

[Low Noise]
Since the unloaded ball path is made of resin, there is no metal to metal contact and low noise is achieved.

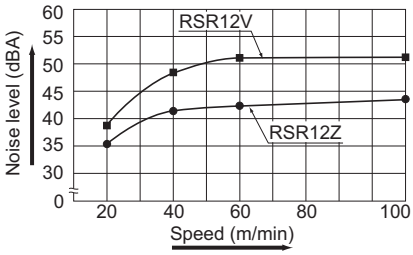


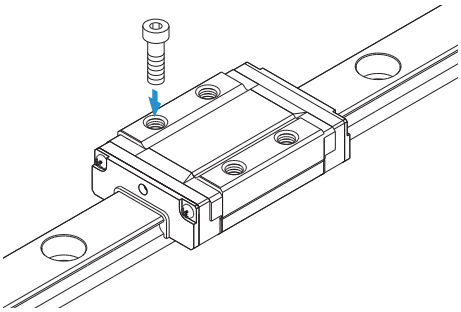
Fig.1 Noise Levels of Models RSR12Z and RSR12V

Types and Features

Model RSR-ZM

Specification Table⇒A1-270

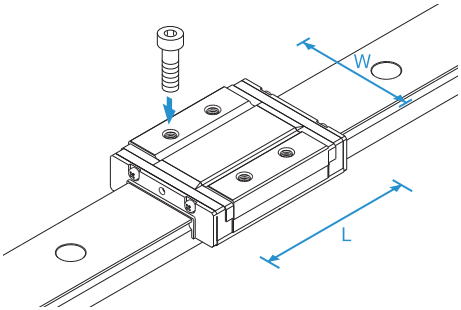
This model is a standard type.



Model RSR-WZM

Specification Table⇒A1-272

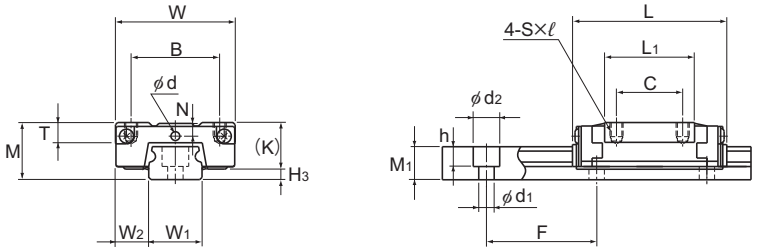
It has a longer overall LM block length (L), a broader width (W) and greater rated load and permissible moment than RSR-Z.



Accuracy of the Mounting Surface

Model RSR-Z uses Gothic arch grooves in the ball raceways. When two rails are used in parallel, any error in accuracy of the mounting surface may increase rolling resistance and negatively affect the smooth motion of the guide. For specific accuracy of the mounting surface, see [Flatness of the Mounting Surface] on A1-468.

Model RSR-ZM



Models RSR7 to 12ZM

Model No.	Outer dimensions			LM block dimensions										H_3
	Height M	Width W	Length L	B	C	S×ℓ	L_1	T	K	N	E	Greasing hole d	Grease nipple	
RSR 7ZM	8	17	23.4	12	8	M2×2.5	13.2	3.4	6.5	1.6	—	1.5	—	1.5
RSR 9ZM	10	20	30.8	15	10	M3×2.7	19.4	4.6	7.8	2.4	—	1.6	—	2.2
RSR 12ZM	13	27	35	20	15	M3×3.2	20.4	4.5	10.6	3.1	—	2	—	2.4
RSR 15ZM	16	32	43	25	20	M3×3.5	26.5	5.5	12.6	2.9	3.6	—	PB107	3.4

Note) Since stainless steel is used in the LM block, LM rail and balls, these models are highly resistant to corrosion and environment.

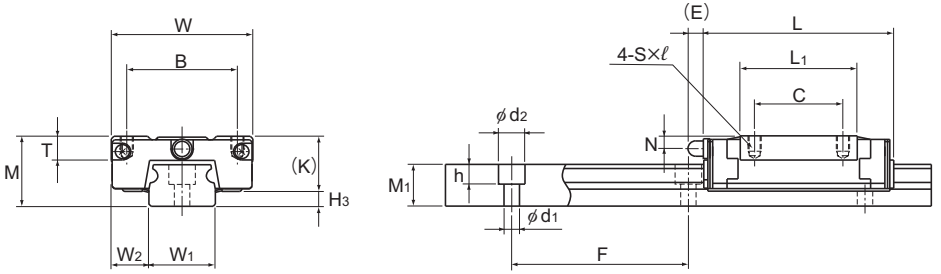
Model number coding

2 RSR15Z M UU C1 +230L P M -II

- 2: No. of LM blocks used on the same rail
- RSR15Z: Model number
- UU: Contamination protection accessory symbol (*1)
- C1: Radial clearance symbol (*2) Normal (No symbol) Light preload (C1)
- +230L: LM rail length (in mm)
- P: Accuracy symbol (*3) Normal grade (No Symbol)/High accuracy grade (H) Precision grade (P)
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane (*4)

(*1) See contamination protection accessory on **A1-510**. (*2) See **A1-71**. (*3) See **A1-83**. (*4) See **A1-13**.

Note) This model number indicates that a single-rail unit constitutes one set. (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum.)



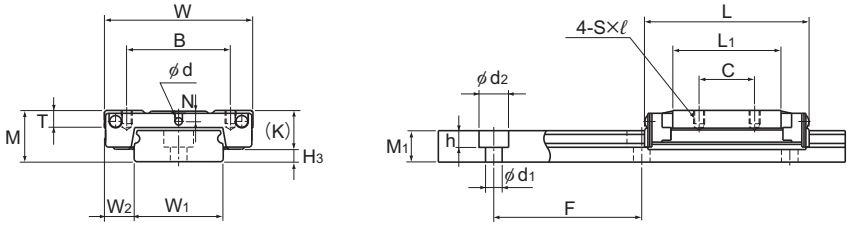
Model RSR15ZM

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment N-m*					Mass	
	Width		Height	Pitch		Length*	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	7 $^{0}_{-0.02}$	5	4.7	15	2.4×4.2×2.3	300	0.88	1.37	2.93	20.7	2.93	20.7	5	0.008	0.23
	9 $^{0}_{-0.02}$	5.5	5.5	20	3.5×6×3.3	1000	1.47	2.25	7.34	43	7.34	43	10.4	0.014	0.32
	12 $^{0}_{-0.025}$	7.5	7.5	25	3.5×6×4.5	1340	2.65	4.02	11.4	74.9	10.1	67.7	19.2	0.028	0.58
	15 $^{0}_{-0.025}$	8.5	9.5	40	3.5×6×4.5	1430	4.41	6.57	23.7	149	21.1	135	38.8	0.05	0.925

Note) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See A1-274.)
Static permissible moment*: 1 block: static permissible moment value with 1 LM block
Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Model RSR-WZM



Models RSR7 to 12WZM

Model No.	Outer dimensions			LM block dimensions										H3
	Height	Width	Length								Greasing hole	Grease nipple		
	M	W	L	B	C	S×ℓ	L1	T	K	N	E	d		
RSR 7WZM	9	25	31.5	19	10	M3×2.5	19.7	3.4	7	1.8	—	1.6	—	2
RSR 9WZM	12	30	39	21	12	M3×2.8	27	3.9	9.1	2.3	—	1.6	—	2.9
RSR 12WZM	14	40	44.5	28	15	M3×3.6	29.3	4.5	10.6	3	—	2	—	3.4
RSR 15WZM	16	60	55.5	45	20	M4×4.5	39.3	5.4	12.6	3	3.6	—	PB107	3.4

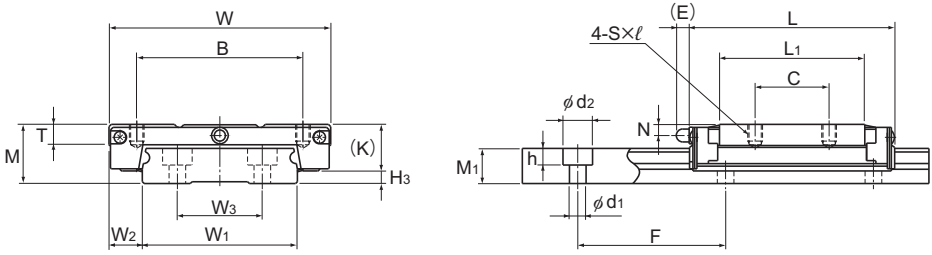
Note) Since stainless steel is used in the LM block, LM rail and balls, these models are highly resistant to corrosion and environment.

Model number coding

2 RSR12WZ M SS C1 +390L H M

- 2: No. of LM blocks used on the same rail
- RSR12WZ: Model number
- M: Contamination protection accessory symbol (*1)
- SS: Radial clearance symbol (*2) — Normal (No symbol), Light preload (C1)
- C1: Radial clearance symbol (*2) — Normal (No symbol), Light preload (C1)
- +390L: LM rail length (in mm)
- H: Accuracy symbol (*3) — Normal grade (No Symbol), High accuracy grade (H), Precision grade (P)
- M: Stainless steel LM rail

(*1) See contamination protection accessory on A1-510. (*2) See A1-71. (*3) See A1-83.



Model RSR15WZM

Unit: mm

	LM rail dimensions							Basic load rating		Static permissible moment N-m*					Mass	
	Width			Height	Pitch		Length*	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1	W_2	W_3	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	14 $^{0}_{-0.05}$	5.5	—	5.2	30	3.5×6×3.2	400	1.37	2.16	6.54	42.1	6.54	42.1	15.4	0.018	0.51
	18 $^{0}_{-0.05}$	6	—	7.5	30	3.5×6×4.5	1000	2.45	3.92	16	92.9	16	92.9	36	0.03	1.08
	24 $^{0}_{-0.05}$	8	—	8.5	40	4.5×8×4.5	1430	4.02	6.08	24.5	138	21.7	123	59.5	0.06	1.5
	42 $^{0}_{-0.05}$	9	23	9.5	40	4.5×8×4.5	1800	6.66	9.8	50.3	278	44.4	248	168	0.135	3

Note) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-274**.)
Static permissible moment*: 1 block: static permissible moment value with 1 LM block
Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Standard Length and Maximum Length of the LM Rail

Table1 shows the standard and maximum lengths of the RSR Z/WZ model rail.

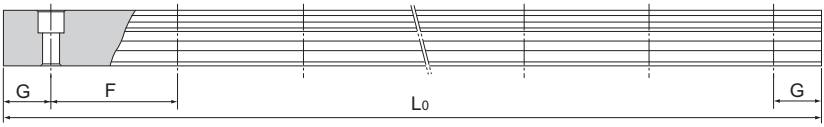


Table1 Standard Length and Maximum Length of the LM Rail for Model RSR-Z/WZ

Unit: mm

Model No.	RSR 7Z	RSR 9Z	RSR 12Z	RSR 15Z	RSR 7WZ	RSR 9WZ	RSR 12WZ	RSR 15WZ
LM rail standard length (L_0)	40 55 70 85 100 130	55 75 95 115 135 155 175 195 275 375	70 95 120 145 170 195 220 245 270 320 370 470 570	70 110 150 190 230 270 310 350 390 430 470 550 670 870	50 80 110 140 170 200 260 290	50 80 110 140 170 200 260 290 320	70 110 150 190 230 270 310 390 470 550	110 150 190 230 270 310 430 550 670 790
Standard pitch F	15	20	25	40	30	30	40	40
G	5	7.5	10	15	10	10	15	15
Max length	300	1000	1340	1430	400	1000	1430	1800

Note1) The maximum length varies with accuracy grades. Contact THK for details.
Note2) The LM rails of these models are all made of stainless steel.

Stopper

In models RSR-Z/RSR-WZ, the balls fall out if the LM block comes off the LM rail.
For this reason, they are delivered with a stopper fitted to prevent the LM block coming off the rail. If you remove the stopper when using the product, take care to ensure that overrun does not occur.

Table2 Model RSR-Z/RSR-WZ stopper (C type) specification table

Unit: mm

Model No.	A	B	C
7	11	5	7.7
9	13	6	9.5
12	16	7	12.5
15	19	7	14.5
7W	18	6	8.2
9W	23	7	11.5
12W	29	7	13.5
15W	46	7	14.5

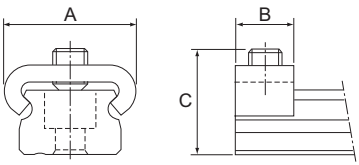


Fig.1 Model RSR-Z/RSR-WZ stopper (C type)