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Find the *THK RSR-15ZM2* at our website: *Click HERE*

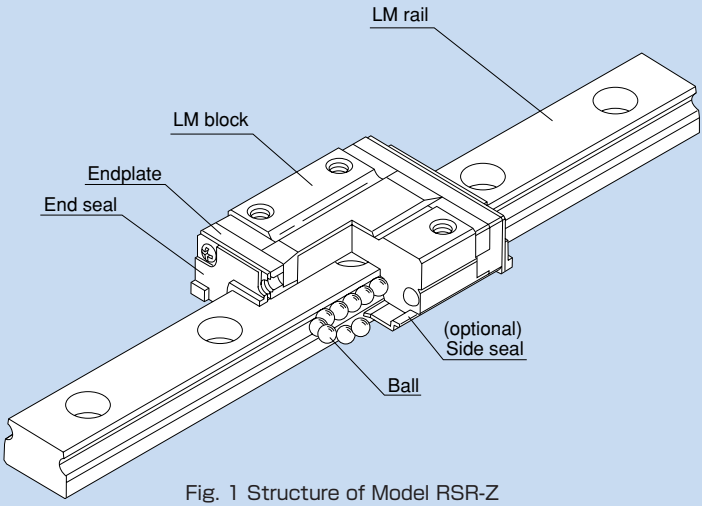


Fig. 1 Structure of Model RSR-Z

Structure and Features

With model RSR-Z, 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 linear 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.

●Weight saving

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 SRS-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, this model is highly resistant to corrosion.

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●Low noise

Since the unloaded ball path is made of resin, there is no metallic contact and low noise is achieved.

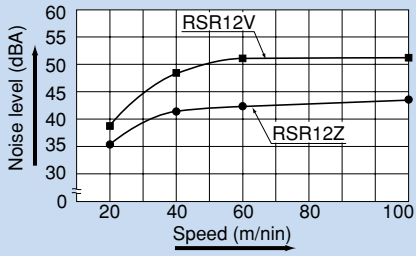
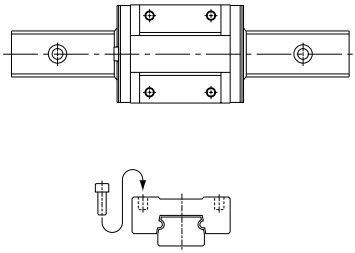


Fig. 2 Noise Levels of Models RSR12Z and RSR12V

Types and Features

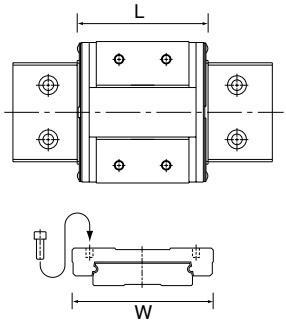
Model RSR-Z

Model RSR-Z is a standard type.



Models RSR-WZ

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



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Rated Loads in All Directions

Model RSR-Z is capable of receiving loads in all four directions: radial, reverse-radial and lateral directions.
The basic load ratings of models RSR7Z/WZ and 9Z/WZ are uniform in the four directions (radial, reverse-radial and lateral directions), and their actual values are provided in the dimensional table for RSR-Z.
The basic load ratings of models RSR12Z/WZ and 15Z/WZ indicate the values in the radial direction in Fig. 3, and their actual values are provided in the dimensional table for RSR-Z. The values in the reverse-radial and lateral directions are obtained from table 1.

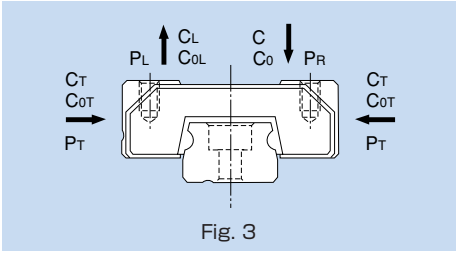


Fig. 3

Table 1 Basic Load Ratings of Models RSR12Z/WZ and 15Z/WZ in All Directions

Direction	Basic dynamic load rating	Basic static load rating
Radial direction	C	C_0
Reverse-radial direction	C_L=0.78C	C_{0L}=0.70C_0
Lateral direction	C_T=0.78C	C_{0T}=0.71C_0

Equivalent Load

When the LM block of models RSR7Z/WZ and 9Z/WZ receives loads in all four directions simultaneously, the equivalent load is obtained from the equation below.

$$P_E = P_R\ (P_L) + P_T$$

where

P_E : Equivalent load (N)
- ·Radial direction
- ·Reverse-radial direction
- ·Lateral direction

P_R : Radial load (N)
P_L : Reverse-radial load (N)
P_T : Lateral load (N)

When the LM block of model RSR12Z/WZ and 15Z/WZ receives loads in the radial and lateral directions, or the reverse-radial and lateral directions, simultaneously, the equivalent load is obtained from the equation below.

$$P_E = X \cdot P_R\ (P_L) + Y \cdot P_T$$

where

P_E : Equivalent load (N)
- ·Radial direction
- ·Reverse-radial direction
- ·Lateral direction

P_R : Radial load (N)
P_L : Reverse-radial load (N)
P_T : Lateral load (N)
X/Y axes : Equivalent factor (see tables 2 and 3)

Table 2 Equivalent Factor of Models RSR12Z/WZ and 15Z/WZ (When radial and lateral loads are applied)

P_E	X	Y
Equivalent load in radial direction	1	0.83
Equivalent load in lateral direction	1.2	1

Table 3 Equivalent Factor of Models RSR12Z/WZ and 15Z/WZ (When reverse-radial and lateral loads are applied)

P_E	X	Y
Equivalent load in reverse-radial direction	1	0.99
Equivalent load in lateral direction	1.01	1

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Options

Dust Prevention Accessories

THK offers dust prevention accessories for models RSR-Z/WZ.
When a dust prevention accessory is required, specify the desired item with the corresponding symbol provided in table 4 (for details of dust prevention accessories, see page a-24).
For supported model numbers for dust prevention accessories and overall LM block length with dust prevention accessories attached (dimension L), see page a-436.

Table 4 Symbols of Dust Prevention Accessories for Model RSR-Z

Symbol	Dust prevention accessory
UU	With end seal
SS	With end seal + side seal

Seal resistance value

For the maximum seal resistance value per LM block when a lubricant is applied on seals RSR-Z···UU, refer to the corresponding value provided in table 5.

Table 5 Maximum Seal Resistance Value of Seals RSR-Z···UU

Unit: N

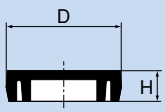
Model No.	Seal resistance value
RSR 7Z	0.08
RSR 9Z	0.1
RSR 12Z	0.4
RSR 15Z	0.8
RSR 7WZ	0.4
RSR 9WZ	0.8
RSR 12WZ	1.1
RSR 15WZ	1.3

●Dedicated Cap C for LM Rail Mounting Holes

If any of the LM rail mounting holes of an LM Guide is filled with cutting chips or foreign matter, they may enter the LM block structure. Entrance of such foreign matter can be prevented by covering each LM rail mounting hole with the dedicated cap so that the top of the mounting holes is on the same level as the LM rail top face.
Since the dedicated cap C for LM rail mounting holes uses a special synthetic resin with high oil resistance and high wear resistance, it is highly durable.
When placing an order, specify the desired cap type with the corresponding cap number indicated in table 6.
For the procedure for mounting the cap, see page a-22.

Table 6 Major Dimensions of Dedicated Cap C

Model No.	Cap C model No.	Bolt used	Major dimensions mm	
			D	H
RSR 9WZ	C3	M3	6.3	1.2
RSR 12Z	C3	M3	6.3	1.2
RSR 15Z	C3	M3	6.3	1.2



Dedicated Cap C

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Stopper

With models RSR-Z/WZ, balls will fall off if the LM block is removed from the LM rail. To prevent the LM block from being pulled out, a stopper is mounted before shipment. If removing the stopper when using the LM Guide, be sure that the LM block will not overrun.

Table 7 Dimensional Table for Stopper (Type C) for Model RSR-Z/WZ

Unit: mm

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

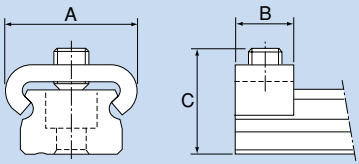


Fig. 4 Stopper (Type C) for Model RSR-Z

Accuracy of the Mounting Surface

Model RSR-Z uses Gothic arch grooves in the ball raceways. When two rails of RSR 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 Section 7.3 "Permissible Error of the Mounting Surface" on page a-62.

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Standard Length and Maximum Length of the LM Rail

Table 8 shows the standard lengths and the maximum lengths of model RSR-Z/WZ variations.

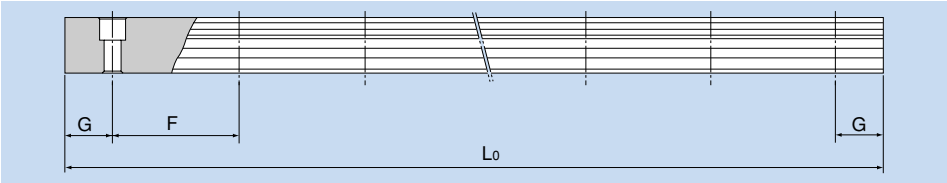


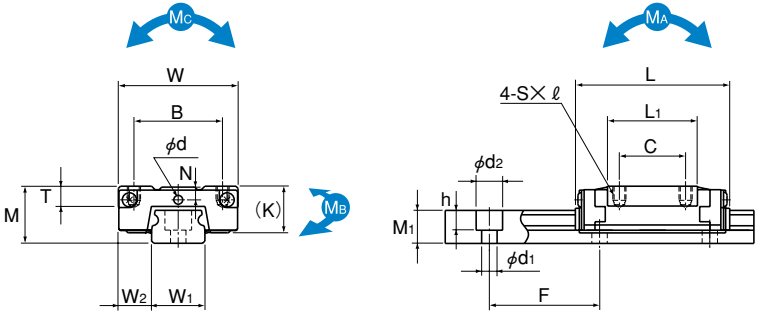
Table 8 Standard Length and Maximum Length of the LM Rail for Model RSR-Z/WZ

Unit: mm

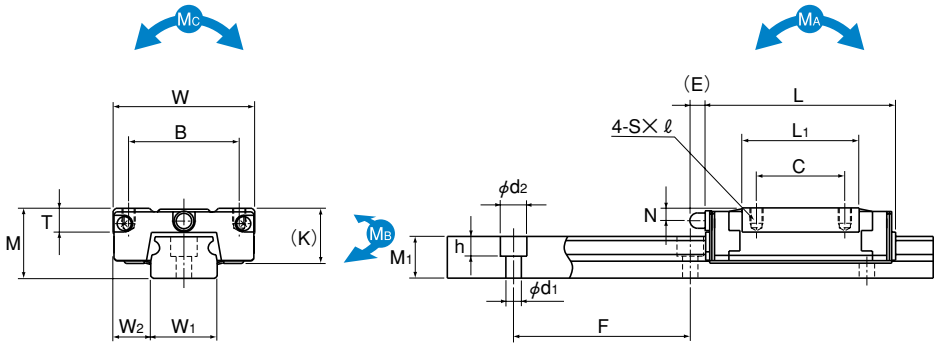
Model No.	RSR 7Z	RSR 9Z	RSR 12Z	RSR 15Z	RSR 7WZ	RSR 9WZ	RSR 12WZ	RSR 15WZ
Standard LM rail length (L_0)	40 55 70 85 100 130	55 75 95 115 135 155 175 195 275 375	70 95 120 145 170 195 220 245 270 320 370 470 570	70 110 150 190 230 270 310 350 390 430 470 550 670 870	50 80 110 140 170 200 260 290	50 80 110 140 170 200 260 290 320	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

Note 1: The maximum length varies with accuracy grades. Contact THK for details.
Note 2: The LM rails of these models are all made of stainless steel.

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Models RSR7 to 12ZM



Model RSR15ZM

Unit: mm

Model No.	External dimensions Height M	Width W	Length L	LM block dimensions B	C	S× ℓ	L1	T	K	N	E	Greasing hole d	Grease nipple	LM rail dimensions Width W1	W2	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	C0 kN	Static permissible moment N-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
RSR 7ZM	8	17	23.4	12	8	M2×2.5	13.2	3.4	6.5	1.6	—	1.5	—	7 $^{0}_{-0.02}$	5	4.7	15	2.4×4.2×2.3	0.88	1.37	2.93	20.7	2.93	20.7	5	0.008	0.23
RSR 9ZM	10	20	30.8	15	10	M3×2.7	19.4	4.6	7.8	2.4	—	1.6	—	9 $^{0}_{-0.02}$	5.5	5.5	20	3.5×6×3.3	1.47	2.25	7.34	43	7.34	43	10.4	0.014	0.32
RSR 12ZM	13	27	35	20	15	M3×3.2	20.4	4.5	10.6	3.1	—	2	—	12 $^{0}_{-0.025}$	7.5	7.5	25	3.5×6×4.5	2.65	4.02	11.4	74.9	10.1	67.7	19.2	0.028	0.58
RSR 15ZM	16	32	43	25	20	M3×3.5	26.5	5.5	12.6	2.9	3.6	—	PB107	15 $^{0}_{-0.025}$	8.5	9.5	40	3.5×6×4.5	4.41	6.57	23.7	149	21.1	135	38.8	0.05	0.925

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

Note Static permissible moment* 1 block: static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

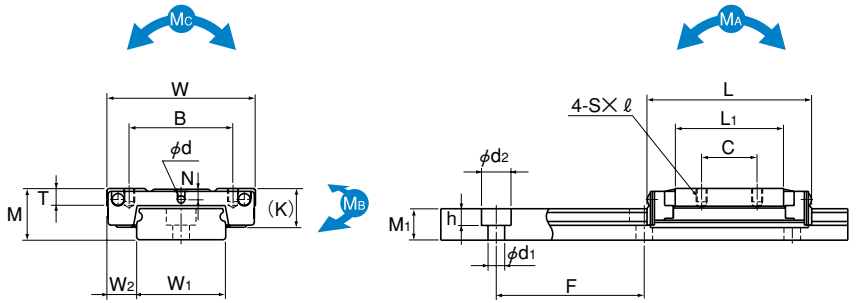
Model number coding 2 RSR15Z M UU C1 +230L P M- Ⅱ
(1) (2) (3) (4) (5) (6) (7) (8)

1 No. of LM blocks used on the same rail 2 Model number
3 Dust prevention accessory symbol (see page a-429) 4 Radial clearance symbol (see page a-35)
5 LM rail length (in mm) 6 Accuracy symbol (see page a-45) 7 LM rail is made of stainless steel
8 Symbol for No. of rails used on the same plane

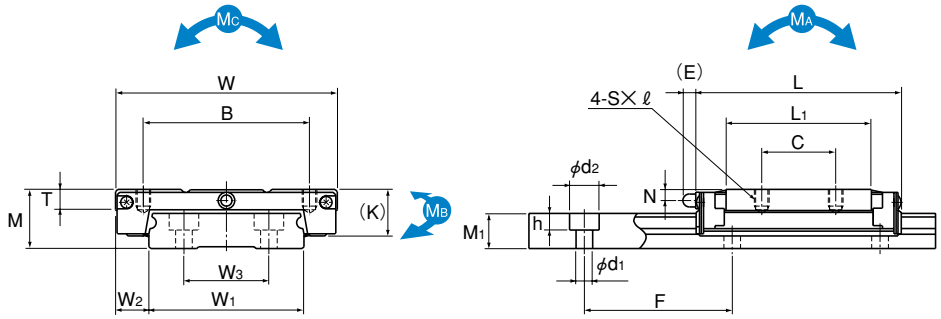
Note This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).

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Model RSR-WZM



Models RSR7 to 12WZM



Model RSR15WZM

Unit: mm

Model No.	External dimensions Height M	Width W	Length L	LM block dimensions B	C	S× ℓ	L1	T	K	N	E	Greasing hole d	Grease nipple	LM rail dimensions Width W1	W2	W3	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	C0 kN	Static permissible moment N-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
RSR 7WZM	9	25	31.5	19	10	M3×2.8	19.7	3.4	7	1.8	—	1.6	—	14 $^{0}_{-0.05}$	5.5	—	5.2	30	3.5×6×3.2	1.37	2.16	6.54	42.1	6.54	42.1	15.4	0.018	0.51
RSR 9WZM	12	30	39	21	12	M3×2.8	27	3.9	9.1	2.3	—	1.6	—	18 $^{0}_{-0.05}$	6	—	7.5	30	3.5×6×4.5	2.45	3.92	16	92.9	16	92.9	36	0.03	1.08
RSR 12WZM	14	40	44.5	28	15	M3×3.6	29.3	4.5	10.6	3	—	2	—	24 $^{0}_{-0.05}$	8	—	8.5	40	4.5×8×4.5	4.02	6.08	24.5	138	21.7	123	59.5	0.06	1.5
RSR 15WZM	16	60	55.5	45	20	M4×4.5	39.3	5.4	12.6	3	3.6	—	PB107	42 $^{0}_{-0.05}$	9	23	9.5	40	4.5×8×4.5	6.66	9.8	50.3	278	44.4	248	168	0.135	3

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

Note Static permissible moment* 1 block: static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

Model number coding 2 RSR12WZ M SS C1 +390L H M
1 2 3 4 5 6 7

1 No. of LM blocks used on the same rail 2 Model number
3 Dust prevention accessory symbol (see page a-429) 4 Radial clearance symbol (see page a-35)
5 LM rail length (in mm) 6 Accuracy symbol (see page a-45) 7 LM rail is made of stainless steel

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Overall LM Block Length with Options

Overall LM Block Length (Dimension L) of Models RSR-Z and RSR-WZ with a Dust Prevention Accessory Attached

Unit: mm

Model No.	UU	SS
RSR 7ZM	23.4	—
RSR 9ZM	30.8	—
RSR 12ZM	35	35
RSR 15ZM	43	43

Model No.	UU	SS
RSR 7WZM	31.5	—
RSR 9WZM	39	39
RSR 12WZM	44.5	44.5
RSR 15WZM	55.5	55.5

Note: "—" indicates not available.

Overall LM Block Length without a Seal

Unit: mm

Model No.	Without seal
RSR 7ZM	20.4
RSR 9ZM	29.1
RSR 12ZM	32.6
RSR 15ZM	40.2

Model No.	Without seal
RSR 7WZM	28
RSR 9WZM	37.6
RSR 12WZM	42.1
RSR 15WZM	53.1

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