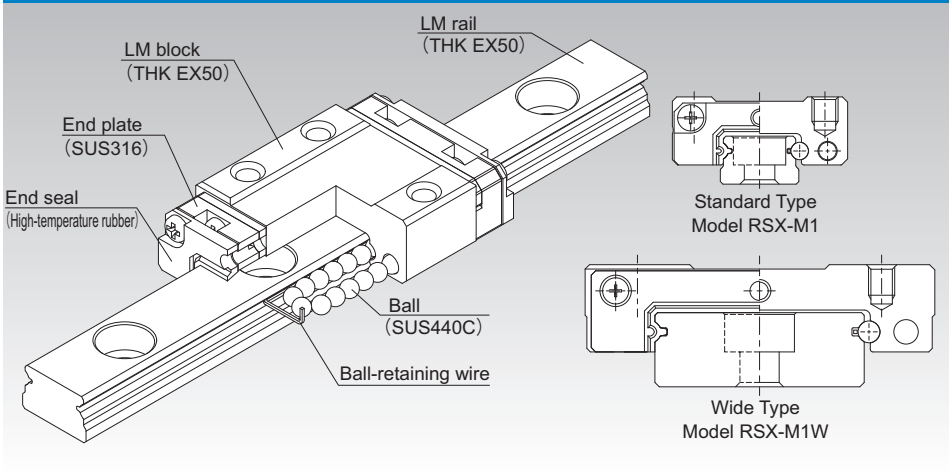
RSX-M1

High-Temperature LM Guide Model RSX-M1



Structure and Features

Balls roll in two rows of raceways precision-ground on an LM rail and an LM block, and end plates incorporated in the LM block allow the balls to circulate.
Despite being compact, the product's ball contact structure is capable of receiving loads in all directions, and it can be used individually in locations with space limitations or where moments are applied.
The Miniature High-Temperature LM Guide Model RSX-M1 is capable of being used at service temperatures up to 150℃ thanks to THK's unique technologies in material, heat treatment, and lubrication.

Maximum Service Temperature: 150℃

Use of stainless steel in the end plates and high-temperature rubber in the end seals achieves the maximum service temperature of 150℃.

Dimensional Stability

The product has undergone processing which grants it superb dimensional stability even when heated or cooled (though it does expand some at high temperatures).

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.

High-Temperature Grease

This model uses high-temperature grease that shows little grease-based fluctuation in rolling resistance even if the temperature changes from normal to high levels.

Thermal Characteristics of LM Rail and LM Block Materials

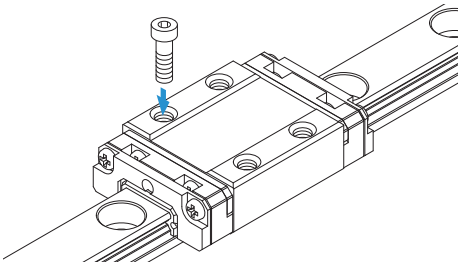
- Specific heat capacity: 0.481 J/(g•K)
- Thermal conductivity: 20.67 W/(m•K)
- Average coefficient of linear expansion: 11.8×10^{-6}/℃

Types and Features

Model RSX-M1

Dimensional Table⇒A1-384

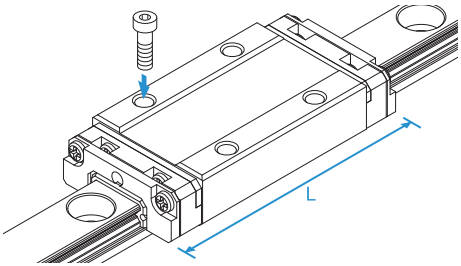
This model is the standard type.



Model RSX-M1N

Dimensional Table⇒A1-384

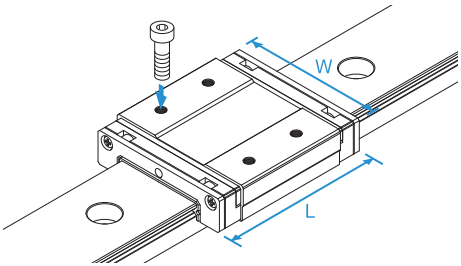
This type has a longer overall LM block length (L) and a higher load rating than the Model RSX-M1.



Model RSX-M1W

Dimensional Table⇒A1-386

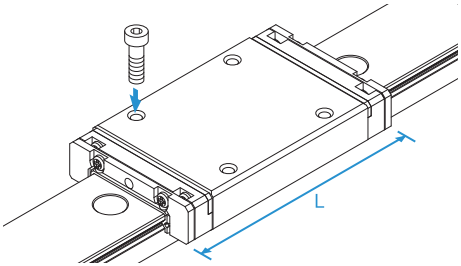
This type has a longer overall LM block length (L), a greater width, and a larger load rating and permissible moment than the Model RSX-M1.



Model RSX-M1WN

Dimensional Table⇒A1-386

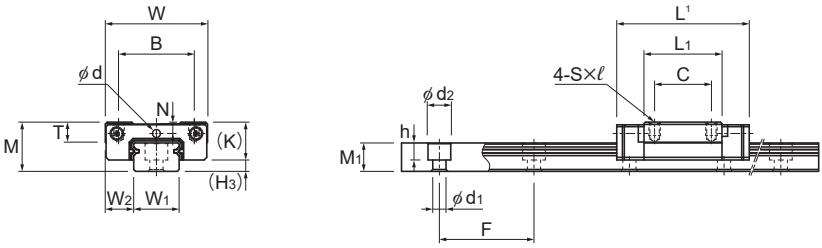
This type has a longer overall LM block length (L) and a higher load rating than the Model RSX-M1W.



Service Life

When using this product in temperatures higher than 100°C, always multiply the basic dynamic load rating by the temperature coefficient when calculating the rated service life. See A1-67 for details.

Models RSX-M1 and RSX-M1N



Models RSX9M1, RSX12M1

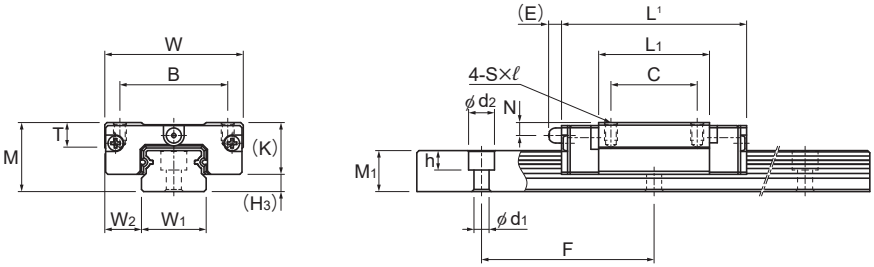
Model No.	Outer dimensions			LM block dimensions										H_3
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E	Lubrication hole d	Grease nipple	
RSX 9M1 RSX 9M1N	10	20	30.8 40.8	15	10 16	M3×2.8	19.8 29.8	—	7.8	2.4	—	1.6	—	2.2
RSX 12M1 RSX 12M1N	13	27	35 47.7	20	15 20	M3×3.5	20.6 33.3	5.3	10	3	—	2	—	3
RSX 15M1 RSX 15M1N	16	32	42.9 60.7	25	20 25	M3×4	25.7 43.5	5.8	12	3	4	—	PB107	4

Model number coding

2 RSX15 M1 N UU C1 +230L P T -II

- 2: No. of LM blocks used on the same rail
- RSX15: Model number
- M1: Type of LM block
- N: Symbol for high temperature type LM Guide
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- +230L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No symbol)/High accuracy grade (H), Precision grade (P)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: 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).
No symbol for single LM block. See A1-547 for contamination protection accessories. See A1-73 for radial clearance symbol. See A1-85 for accuracy symbol. See A1-13 for symbol for number of rails used on the same plane.



Model RSX15M1

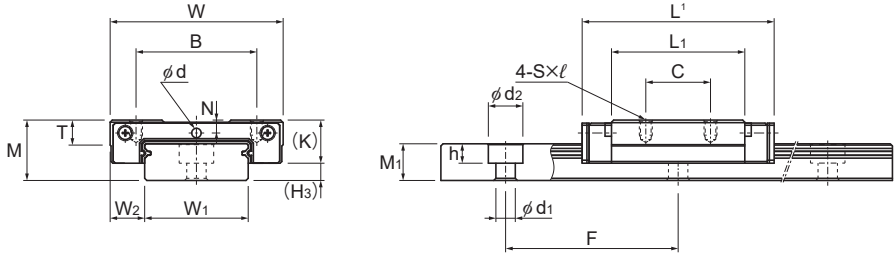
Unit: mm

LM rail dimensions							Basic load rating[3]		Static permissible moment N·m [4]						Mass	
Width		Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C		LM block	LM rail
W_1 $^{0}_{-0.02}$	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
9	5.5	5.5	20	3.5×6×3.3	1240	2.22 2.94	3.06 4.59	9.87 21.1	57.9 111	11.4 24.4	66.9 128	14.1 21.1		0.018 0.024	0.32
12	7.5	7.5	25	3.5×6×4.5	2000	3.36 4.72	4.21 6.83	14.2 34.8	92.5 195	14.2 34.8	92.5 195	27.6 44.7		0.037 0.047	0.65
15	8.5	9.5	40	3.5×6×4.5	2000	5.59 8.27	6.78 11.8	29 82.1	186 432	29 82.1	186 432	48.1 84.3		0.069 0.089	0.96

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-388**.)
[3] The basic load rating is for a load in the radial direction.
Use **A1-61** on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

Options⇒A1-507

Models RSX-M1W and RSX-M1WN



Models RSX9M1W, RSX12M1W

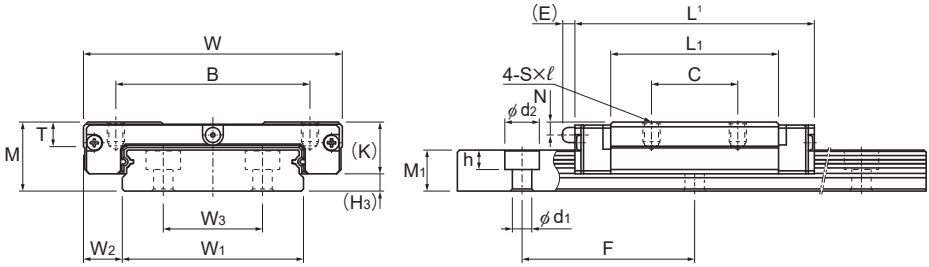
Model No.	Outer dimensions			LM block dimensions										H_3
	Height	Width	Length[1]								Lubrication hole	Grease nipple		
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E	d		
RSX 9M1W RSX 9M1WN	12	30	39 50.7	21 23	12 24	M3×2.8	27 38.7	—	8.3	2.3	—	1.6	—	3.7
RSX 12M1W RSX 12M1WN	14	40	44.5 59.5	28	15 28	M3×3.5	30.9 45.9	4.5	10	3	—	2	—	4
RSX 15M1W RSX 15M1WN	16	60	55.5 74.5	45	20 35	M4×4.5	38.9 57.9	5.6	12	3	4	—	PB107	4

Model number coding

2 RSX12 M1 WN UU C1 +310L P T

- **2**: No. of LM blocks used on the same rail
- **RSX12**: Model number
- **M1**: Symbol for high temperature type LM Guide
- **WN**: Type of LM block
- **UU**: Contamination protection accessory symbol
- **C1**: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- **+310L**: LM rail length (in mm)
- **P**: Accuracy symbol — Normal grade (No symbol)/High accuracy grade (H), Precision grade (P)
- **T**: Symbol for LM rail jointed use

Notes: No symbol for 1 LM block. See contamination protection accessories on **A1-547**. See **A1-73** for radial clearance symbol. See **A1-85** for accuracy symbol.



Model RSX15M1W

Unit: mm

	LM rail dimensions							Basic load rating[3]		Static permissible moment N·m [4]						Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 $^{0}_{-0.02}$	W_2	W_3	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	18	6	—	7.5	30	3.5×6×4.5	1430	2.8 3.48	4.28 5.81	18.5 33.2	99.3 172	21.4 38.3	115 199	40.5 54.9		0.035 0.048	1.01
	24	8	—	8.5	40	4.5×8×4.5	2000	4.46 5.93	6.31 9.46	30 64.7	171 332	30 64.7	171 332	79.2 119		0.075 0.091	1.52
	42	9	23	9.5	40	4.5×8×4.5	2000	7.43 9.87	10.1 15.2	61.4 133	343 670	61.4 133	343 670	211 316		0.17 0.195	2.87

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See A1-388.)
[3] The basic load rating is for a load in the radial direction.
Use A1-61 on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

Options⇒A1-507

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard and maximum lengths of RSX-M1 model rails.

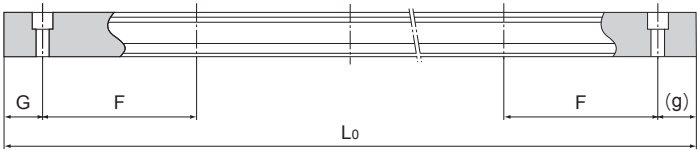


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model RSX-M1

Unit: mm

Model No.	RSX 9M1	RSX 9M1W	RSX 12M1	RSX 12M1W	RSX 15M1	RSX 15M1W
LM rail standard lengths (L_o)	55 75 95 115 135 155 175 195 275 375	50 80 110 140 170 200 260 290 320	70 95 120 145 170 195 220 245 270 320 370 470 570	70 110 150 190 230 270 310 390 470 550	70 110 150 190 230 270 310 350 390 430 470 550 670 870	110 150 190 230 270 310 430 550 670 790
Standard pitch F	20	30	25	40	40	40
G, g	7.5	10	10	15	15	15
Max length	1240	1430	2000	2000	2000	2000

Note: The maximum length varies with accuracy grades. Contact THK for details.