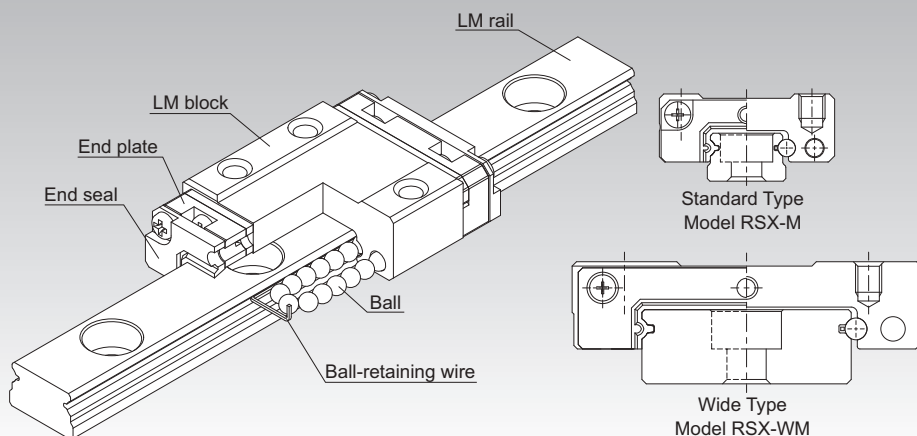


RSX

Miniature LM Guide Model RSX



Selection Criteria **A1-10**

Design Highlights **A1-482**

Options **A1-507**

Model No. **A1-577**

Handling Precautions **A1-583**

Accessories for Lubrication **A24-1**

Mounting Procedure **B1-89**

Equivalent Moment Factor **A1-43**

Rated Loads in All Directions **A1-61**

Equivalent Factor in Each Direction **A1-63**

Radial Clearance **A1-73**

Accuracy Standards **A1-85**

Shoulder Height of the Mounting Base and the Corner Radius **A1-497**

Reference Error Tolerance for the Mounting Surface **A1-499**

Flatness of the Mounting Surface **A1-500**

Dimensions of Each Model with Options Attached **A1-521**

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 recirculate. The Model RSX uses two rows of raceways, and it can help reduce the size of a device because it has more compact outer dimensions than models with four raceways. In addition, despite its compact size, the ball contact structure can take loads in each direction, so it can be used with a single axis in locations where moments are applied.

Super Compact

The LM rail has one raceway on each side, and its compact design with low cross-sectional height allows it to be installed in locations with limited space.

Corrosion Prevention

The LM rail, LM block, and balls are made of stainless steel, which has high corrosion resistance.

Retains Balls

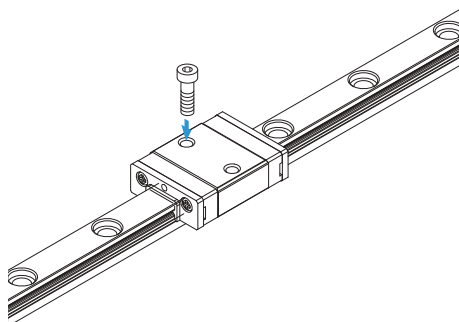
This model incorporates a ball-retaining wire that prevents balls from falling out when the LM block is removed from and inserted onto the LM rail, making mounting easy.

Types and Features

Model RSX5M

Dimensional Table⇒ **A1-264**

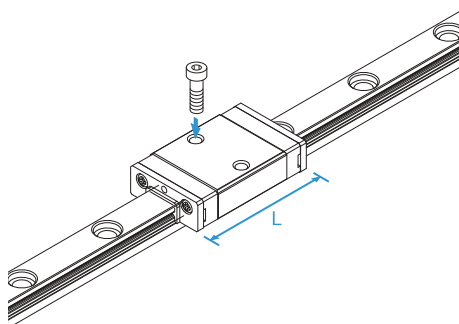
This is the smallest model of RSX.



Model RSX5NM

Dimensional Table⇒ **A1-264**

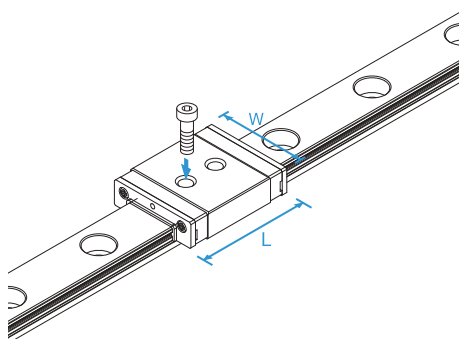
This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX5M.



Model RSX5WM

Dimensional Table⇒ **A1-266**

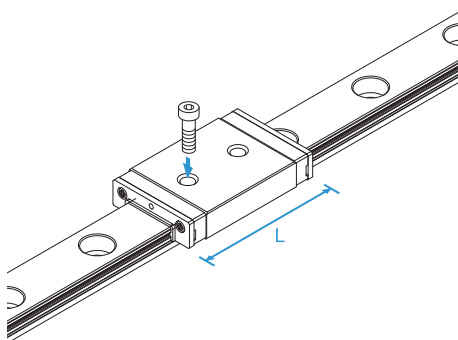
This type has a longer overall LM block length (L), a greater width, and a larger load rating and permissible moment than the Model RSX5M.



Model RSX5WNM

This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX5WM.

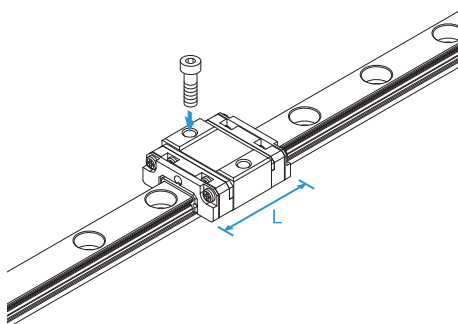
Dimensional Table⇒ **A1-266**



Model RSX-SM

This type has a shorter overall LM block length (L) than the Model RSX-M.

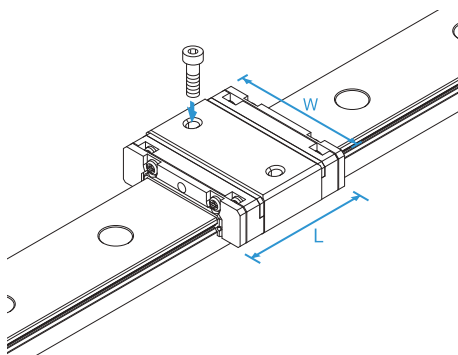
Dimensional Table⇒ **A1-264**



Model RSX-WSM

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-SM.

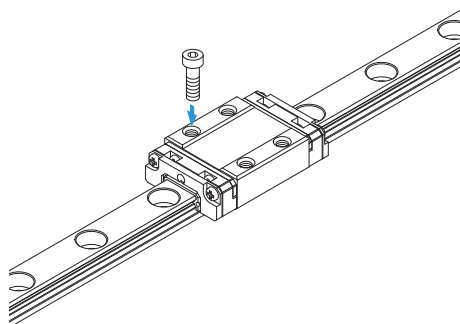
Dimensional Table⇒ **A1-266**



Model RSX-M

Dimensional Table⇒ **A1-264**

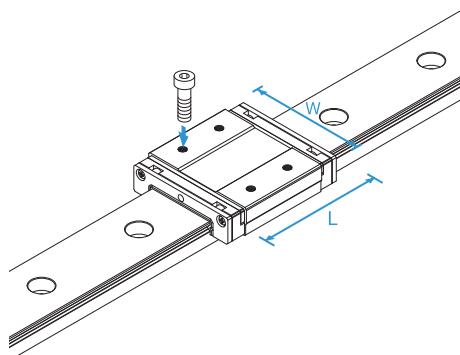
This is the standard type of RSX.



Model RSX-WM

Dimensional Table⇒ **A1-266**

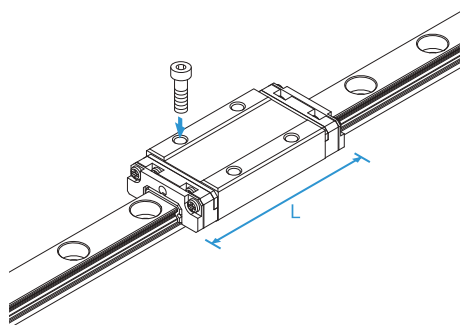
This type has a longer overall LM block length (L), a greater width and a larger load rating and permissible moment than RSX-M.



Model RSX-NM

Dimensional Table⇒ **A1-264**

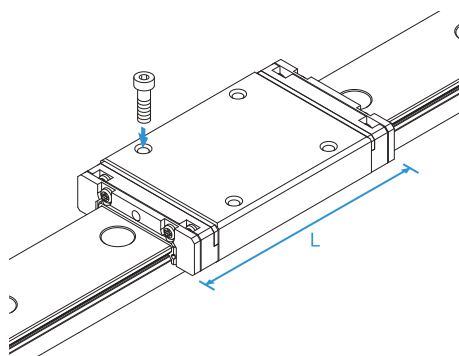
This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX-M.



Model RSX-WNM

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

Dimensional Table⇒ **A1-266**



LM Guide

Flatness of the LM Rail and the LM Block Mounting Surface

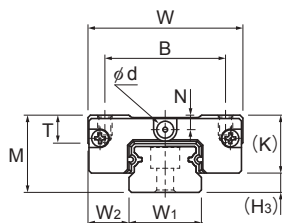
Since the Model RSX has Gothic-arch grooves, any precision errors in the mounting surface may negatively affect its operability. Therefore, we recommend using it on mounting surfaces made with high precision.

Table 1: Flatness of the LM Rail and the LM Block Mounting Surface

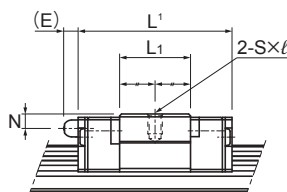
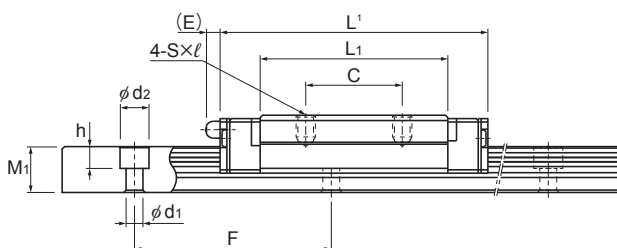
Unit: mm

Model No.	Flatness error
RSX 5	0.015/200
RSX 7	0.025/200
RSX 9	0.035/200
RSX 12	0.050/200
RSX 15	0.060/200

Notes: As there are many cases in which the mounting surface precision is affected by a number of factors, we recommend using 70% or less of the values shown. The above figures apply to normal clearances. When using two or more rails with C1 clearance, we recommend using 50% or less of the values shown.



Models RSX15M/NM



Model RSX15SM

Unit: mm

LM rail dimensions						Basic load rating ³		Static permissible moment N·m ⁴					Mass	
Width	Height	Pitch			Length ²	C	C ₀						LM block	LM rail
W ₁ ⁰ _{-0.02}	W ₂	M ₁	F	d ₁ × d ₂ × h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
5	3.5	4	15	2.4 × 3.5 × 1	220	0.37	0.53	0.789	5.79	0.923	6.79	1.38	0.002	0.136
5	3.5	4	15	2.4 × 3.5 × 1	220	0.45	0.7	1.34	8.78	1.56	10.3	1.82	0.003	0.136
7	5	4.7	15	2.4 × 4.2 × 2.3	480	0.95	1.16	1.96	14.7	2.25	16.9	4.49	0.005	0.227
7	5	4.7	15	2.4 × 4.2 × 2.3	480	1.16	1.54	3.27	23.1	3.77	26.7	5.96	0.008	0.227
7	5	4.7	15	2.4 × 4.2 × 2.3	480	1.63	2.51	8.08	48.4	9.32	56	9.71	0.012	0.227
9	5.5	5.5	20	3.5 × 6 × 3.3	1240	1.37	1.53	2.85	22.6	3.27	26	7.04	0.008	0.32
9	5.5	5.5	20	3.5 × 6 × 3.3	1240	2.22	3.06	9.87	57.9	11.4	66.9	14.1	0.018	0.32
9	5.5	5.5	20	3.5 × 6 × 3.3	1240	2.94	4.59	21.1	111	24.4	128	21.1	0.024	0.32
12	7.5	7.5	25	3.5 × 6 × 4.5	2000	2.07	2.1	4.17	38.1	4.17	38.1	13.8	0.015	0.65
12	7.5	7.5	25	3.5 × 6 × 4.5	2000	3.36	4.21	14.2	92.5	14.2	92.5	27.6	0.037	0.65
12	7.5	7.5	25	3.5 × 6 × 4.5	2000	4.72	6.83	34.8	195	34.8	195	44.7	0.047	0.65
15	8.5	9.5	40	3.5 × 6 × 4.5	2000	4.01	4.24	12.6	92.6	12.6	92.6	30.1	0.03	0.96
15	8.5	9.5	40	3.5 × 6 × 4.5	2000	5.59	6.78	29	186	29	186	48.1	0.069	0.96
15	8.5	9.5	40	3.5 × 6 × 4.5	2000	8.27	11.8	82.1	432	82.1	432	84.3	0.089	0.96

¹ Length L is for when the contamination protection accessory symbol is UU.² The maximum length indicates the standard maximum length of an LM rail. (See **A1-268**.)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

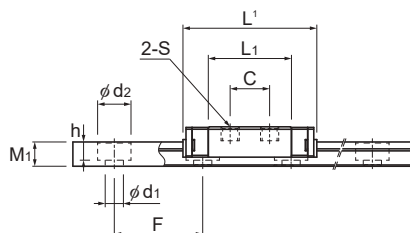
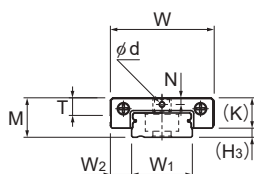
2 blocks: the static permissible moment with two LM blocks in close contact with each other

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

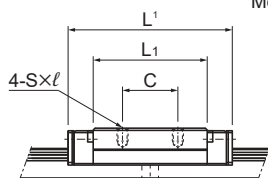
Using a lubrication hole other than for greasing may cause damage.

To secure the LM rail of Model RSX5, use M2 cross-recessed head screws for precision equipment (No. 0 pan head screw, class 1).

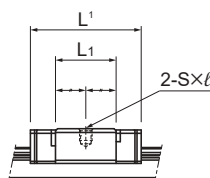
Models RSX-WSM, RSX-WM, and RSX-WNM



Models RSX5WM/WMN



Models RSX7 to 12WM/WMN



Models RSX7 to 12WSM

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 5WM	6.5	17	22.1	—	6.5	M3 through	13.7	—	5	1.1	—	0.8	—	—	1.5
RSX 5WMN	6.5	17	28.1	—	11	M3 through	19.7	—	5	1.1	—	0.8	—	—	1.5
RSX 7WSM	9	25	22.5	19	—	M3×2.8	11.9	—	7	1.8	—	1.2	—	—	2
RSX 7WM	9	25	31	19	10	M3×2.8	20.4	—	7	1.8	—	1.2	—	—	2
RSX 7WMN	9	25	40.9	19	17	M3×2.8	30.3	—	7	1.8	—	1.2	—	—	2
RSX 9WSM	12	30	26.5	21	—	M3×2.8	14.5	—	8.3	2.3	—	1.6	—	—	3.7
RSX 9WM	12	30	39	21	12	M3×2.8	27	—	8.3	2.3	—	1.6	—	—	3.7
RSX 9WMN	12	30	50.7	23	24	M3×2.8	38.7	—	8.3	2.3	—	1.6	—	—	3.7
RSX 12WSM	14	40	30.5	28	—	M3×3.5	16.9	4.5	10	3	—	2	—	—	4
RSX 12WM	14	40	44.5	28	15	M3×3.5	30.9	4.5	10	3	—	2	—	—	4
RSX 12WMN	14	40	59.5	28	28	M3×3.5	45.9	4.5	10	3	—	2	—	—	4
RSX 15WSM	16	60	41.5	45	—	M4×4.5	24.9	5.6	12	3	4	—	PB107	—	4
RSX 15WM	16	60	55.5	45	20	M4×4.5	38.9	5.6	12	3	4	—	PB107	—	4
RSX 15WMN	16	60	74.5	45	35	M4×4.5	57.9	5.6	12	3	4	—	PB107	—	4

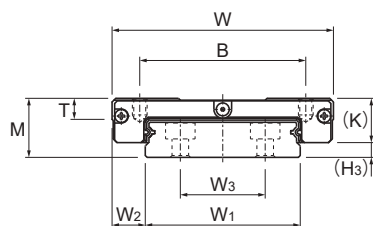
Model number coding

2 RSX12WM UU C1 +230L P M - II

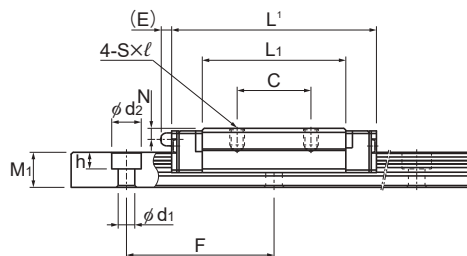
Model number	Contamination protection accessory symbol	LM rail length (in mm)	Stainless steel LM rail	Symbol for No. of rails used on the same plane
No. of LM blocks used on the same rail	Radial clearance symbol Normal (No symbol) Light preload (C1)		Accuracy symbol Normal grade (No Symbol)/High accuracy grade (H) Precision grade (P)	

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.



Models RSX15WM/WNM



Model RSX15WSM

Unit: mm

	LM rail dimensions							Basic load rating ¹⁾		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
	$W_1 \begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	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
	10	3.5	—	4	20	3×5.5×3	220	0.5	0.82	1.79	11.1	2.1	13	4.18	0.006	0.276
	10	3.5	—	4	20	3×5.5×3	220	0.64	1.17	3.54	19.6	4.15	23	5.97	0.008	0.276
	14	5.5	—	5.2	30	3.5×6×3.2	480	1.06	1.35	2.58	20	2.96	23.1	9.95	0.011	0.54
	14	5.5	—	5.2	30	3.5×6×3.2	480	1.63	2.51	8.08	46.9	9.32	54.2	18.5	0.018	0.54
	14	5.5	—	5.2	30	3.5×6×3.2	480	2.12	3.66	16.6	87.7	19.2	101	27	0.027	0.54
	18	6	—	7.5	30	3.5×6×4.5	1430	1.73	2.14	5.15	36.9	5.92	42.6	20.2	0.018	1.01
	18	6	—	7.5	30	3.5×6×4.5	1430	2.8	4.28	18.5	99.3	21.4	115	40.5	0.035	1.01
	18	6	—	7.5	30	3.5×6×4.5	1430	3.48	5.81	33.2	172	38.3	199	54.9	0.048	1.01
	24	8	—	8.5	40	4.5×8×4.5	2000	3.05	3.68	11.1	72.6	11.1	72.6	46.2	0.033	1.52
	24	8	—	8.5	40	4.5×8×4.5	2000	4.46	6.31	30	171	30	171	79.2	0.075	1.52
	24	8	—	8.5	40	4.5×8×4.5	2000	5.93	9.46	64.7	332	64.7	332	119	0.091	1.52
	42	9	23	9.5	40	4.5×8×4.5	2000	5.59	6.78	29	178	29	178	140	0.083	2.87
	42	9	23	9.5	40	4.5×8×4.5	2000	7.43	10.1	61.4	343	61.4	343	211	0.17	2.87
	42	9	23	9.5	40	4.5×8×4.5	2000	9.87	15.2	133	670	133	670	316	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 **A1-268**.)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 otherNotes: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment.
Using a lubrication hole other than for greasing may cause damage.

Standard Lengths and Maximum Lengths of LM Rails

Table 2 shows the standard lengths and the maximum lengths of model RSX variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.

For special rail lengths, it is recommended to use a value corresponding to the G and g dimension from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

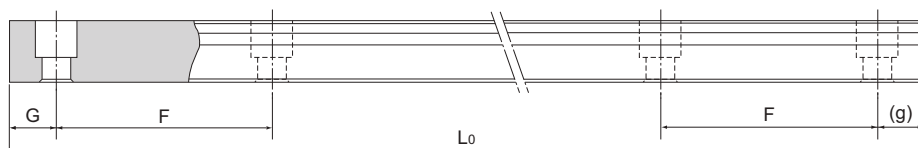


Table 2: Standard Lengths and Maximum Lengths of LM Rails for Model RSX

Unit: mm

Model No.	RSX 5	RSX 5W	RSX 7	RSX 7W	RSX 9	RSX 9W	RSX 12	RSX 12W	RSX 15	RSX 15W
LM rail standard lengths (L_0)	40	50	40	50	55	50	70	70	70	110
	55	70	55	80	75	80	95	110	110	150
	70	90	70	110	95	110	120	150	150	190
	100	110	85	140	115	140	145	190	190	230
	130	130	100	170	135	170	170	230	230	270
	160	150	115	200	155	200	195	270	270	310
		170	130	260	175	260	220	310	310	430
				290	195	290	245	390	350	550
					275	320	270	470	390	670
					375		320	550	430	790
							370		470	
							470		550	
							570		670	
									870	
Standard pitch F	15	20	15	30	20	30	25	40	40	40
G, g	5	5	5	10	7.5	10	10	15	15	15
Max length	220	220	480	480	1240	1430	2000	2000	2000	2000

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

If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Reference bolt tightening torques when mounting an LM block

Reference bolt-tightening torques when mounting an LM block for Model RSX are shown in Table 3. Tightening above the tightening torque affects accuracy. Be sure to tighten at or below the defined tightening torque.

Table 3: Reference tightening torque

Model No.	Model No. of screw	Screw depth (mm)	Reference tightening torque (N·m)
RSX 5	M2	1.5	0.4
RSX 5W	M2	1.5	0.4
RSX 7	M2	2.3	0.4
RSX 7W	M2	2.8	0.4