

LM Guide SR – High-Rigidity Radial Type

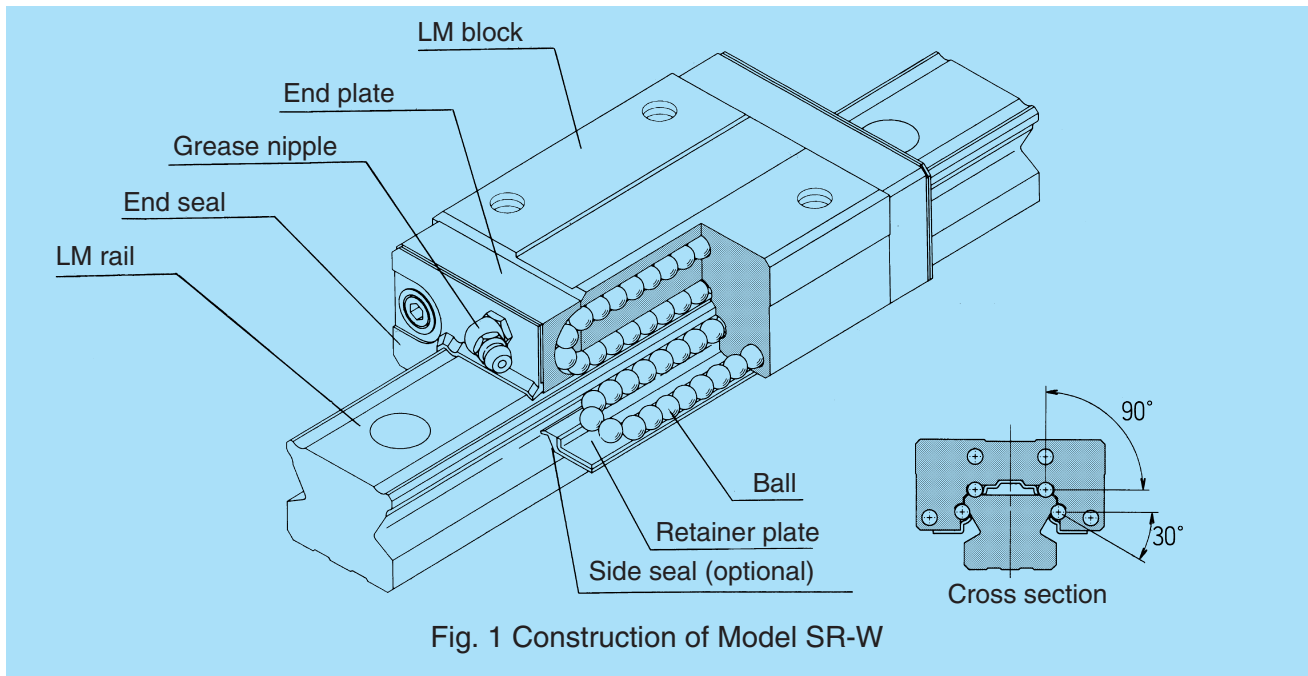


Fig. 1 Construction of Model SR-W

Construction and Features

Balls roll in four rows of a precisely-ground raceway on an LM rail and an LM block. The end plate attached to the LM block causes the trains of balls to circulate. As the balls are held in place by the retainer plate, they do

not fall off if the LM block is removed from the rail. The low profile of the assembly and the high rigidity of the LM block combine to provide stable linear motion with a high degree of accuracy.

Compact and heavy-load-bearing

Due to its low-profile, compact design and the 90° ball contact angle in respect to the radial direction, LM Guide SR is best suited for horizontal guideways.

High durability

Free from differential slip even under preload or uneven load, the balls roll smoothly. This results in high wear resistance and excellent long-term precision.

Simple establishment of mounting accuracy

A self-adjusting type capable of compensating for errors in parallelism between two axes and levelness, SR ensures precision and smooth, lively linear motion.

Stainless steel type available

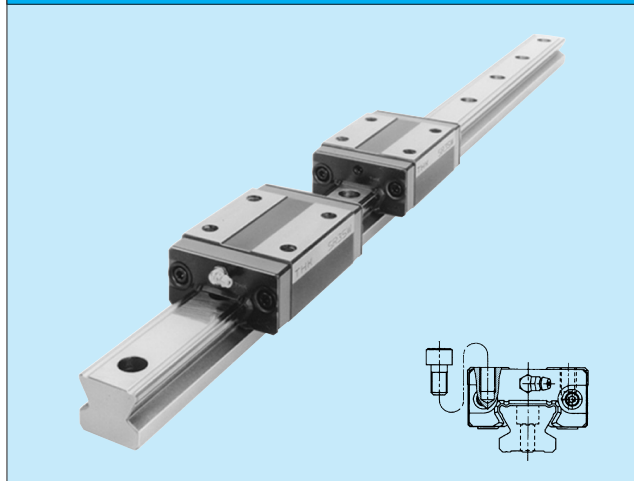
Upon request, we can provide stainless steel LM blocks, rails, and balls.

Low noise

The guideway on the end plate installed at each end of the LM block ensures the smooth circulation of the trains of balls at turning corners. As a result, the rolling balls generate little noise.

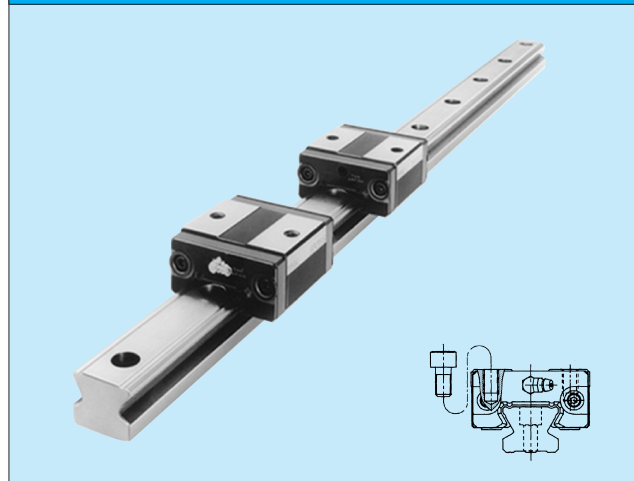
Types and Features

Type SR-W



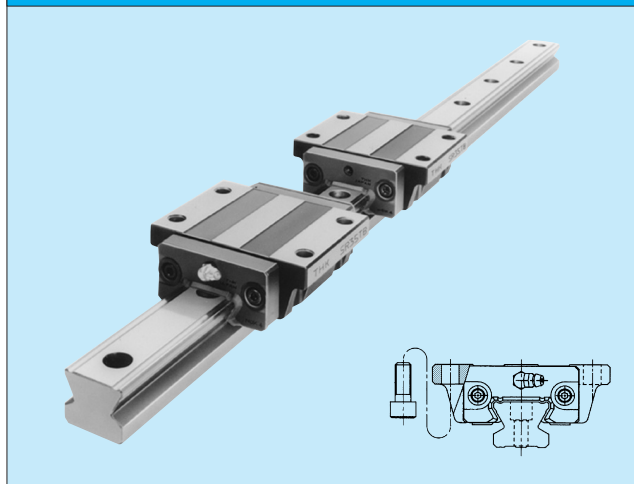
Low-profile, compact, and strong against radial loads. One of the representative models of the LM Guide.

Type SR-V



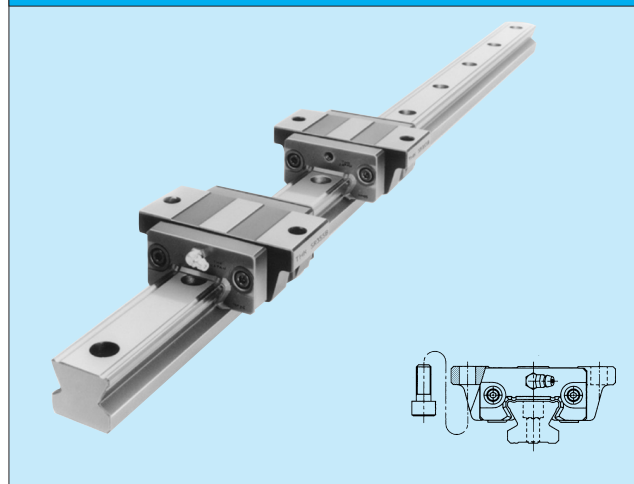
Type SR-W modified by shortening the LM blocks; therefore space-saving

Type SR-TB



Of the same height as type SR-W. The LM blocks can be attached to a table from below.

Type SR-SB



Type SR-TB modified by shortening the LM blocks; therefore space-saving

Characteristics of Type SR

Compared with a guide with a 45° contact design, type SR features the superior characteristics specified below. By taking advantage of those characteristics,

we can produce machines and equipment of higher precision and rigidity.

Differences in Load Rating and Service Life

Type SR is constructed so as to provide a 90° ball-contact angle. Compared with a 45° contact angle, use of a 90° contact angle results in a different load rating and service life. Compared with products of the same ball diameter, under the same radial load specified below, with type SR the balls are subjected to only 70% of the load they receive with the 45° contact design. As a result of this difference, the service life is nearly doubled.

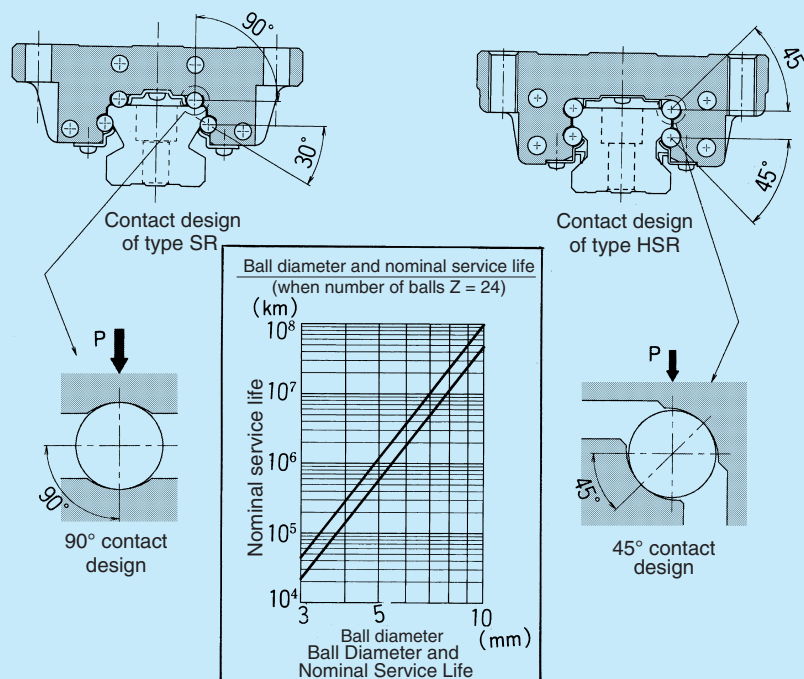


Fig. 2

Difference in Accuracy

Machining (grinding) errors that occur in an LM rail or block affect running accuracy. A grinding error³ on a raceway results in an error in the radial direction 1.4 times greater in the 45° contact design than in type SR, which features a 90° contact design. In the horizontal direction as well, the error with the 45° design is 1.22 times that with the 30° contact design.

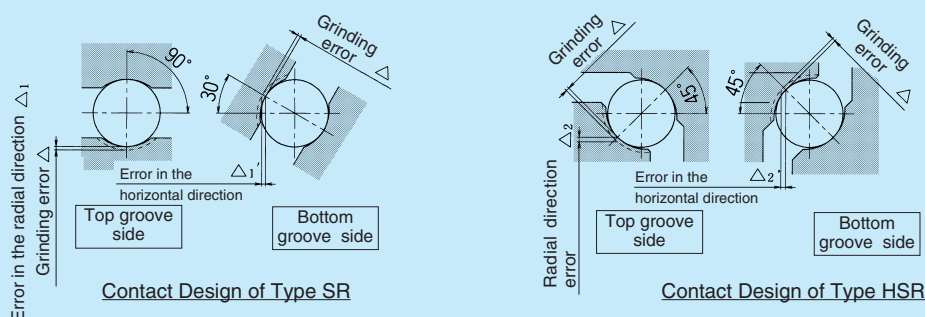


Fig. 3 Machining Error and Precision

Difference in Rigidity

The 90° contact design applied to type SR differs in rigidity from the 45° design. Under the same radial load P , the deflection in the radial direction with type SR is only 56% of that with the 45° design. The diagrams below show the differences in radial load and deflection. Therefore, when it is necessary to ensure rigidity in the radial direction, type SR has an advantage over other types.

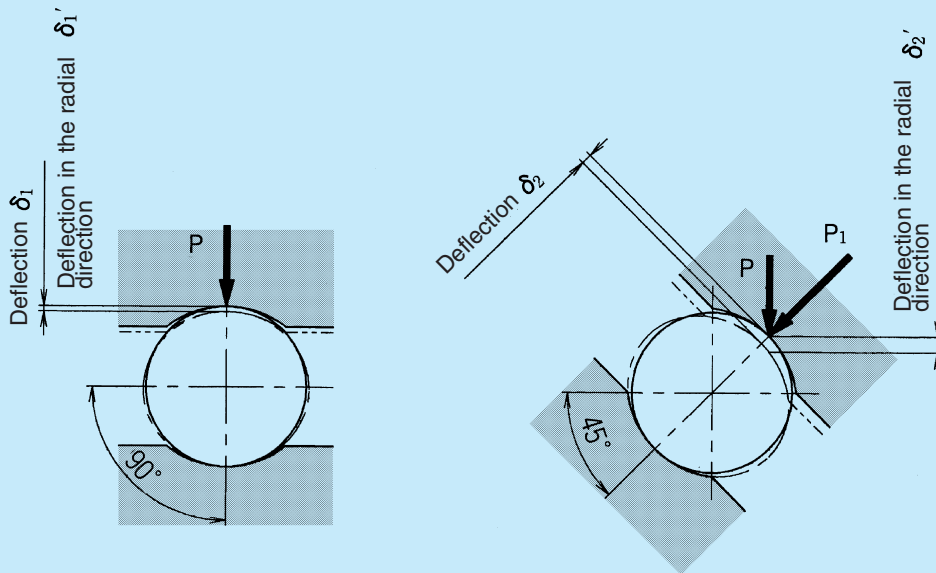


Fig. 4 Deflection under Radial Load

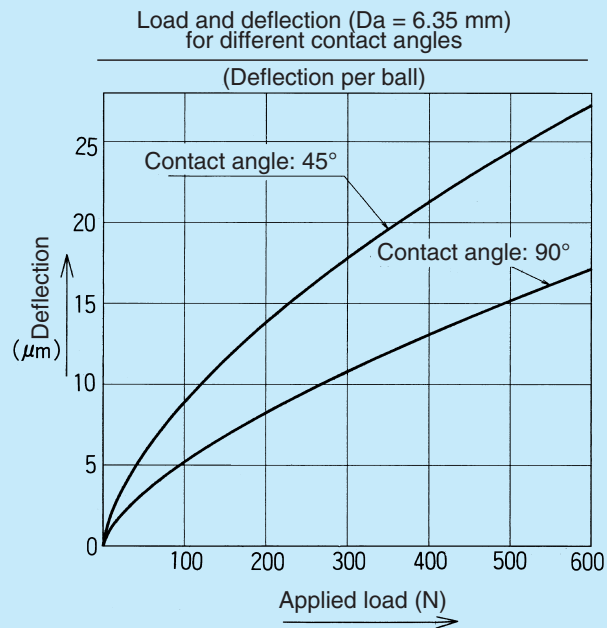


Fig. 5 Radial Load and Deflection

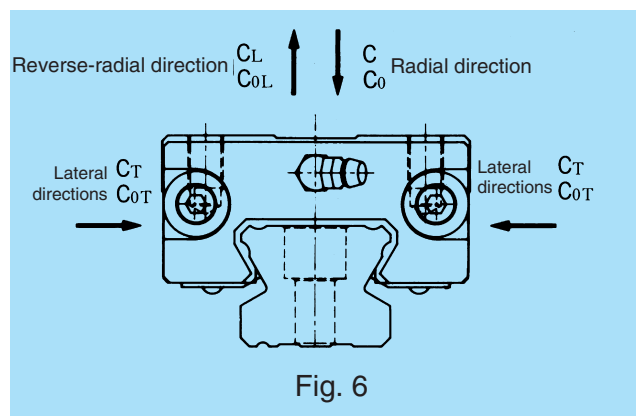
Summary

As illustrated above, type SR is best suited for places where the radial load is the main load, radial rigidity is required, and it is necessary to ensure running accuracy in both the horizontal and vertical directions.

However, where a large reverse-radial or lateral load or a great moment is exerted, we recommend use of a four-way equal-load type such as HSR.

Load Rating and Permissible Moment in Various Directions

Load rating



Type SR can bear loads in all four directions: radial, reverse-radial, and the two lateral directions.

The basic load ratings of type SR is in the radial direction indicated in Fig. 6. The values are presented in the corresponding dimension tables. Values in the reverse-radial and lateral directions can be obtained from Table 1.

Table 1 Type SR Basic Load Ratings in Various Directions

Model No.	Direction	Basic dynamic-load rating	Basic static-load rating
SR 15 ~ 70	Radial direction	C	C ₀
	Reverse-radial direction	C _L =0.62C	C _{0L} =0.50C ₀
	Lateral directions	C _T =0.56C	C _{0T} =0.43C ₀
SR 85 ~ 150	Radial direction	C	C ₀
	Reverse-radial direction	C _L =0.78C	C _{0L} =0.71C ₀
	Lateral directions	C _T =0.48C	C _{0T} =0.35C ₀

Equivalent load

An equivalent load for type SR when reverse-radial and lateral loads are exerted on its LM block simultaneously can be obtained using the following equation:

$$P_E = X \cdot P_L + Y \cdot P_T$$

where

P_E : equivalent load (N)
 - In the reverse-radial direction
 - In the lateral directions

P_L : reverse-radial load (N)

P_T : lateral load (N)

X and Y : equivalent factor (see Table 2)

Table 2 Type-SR Equivalent Factor

Model No.	P_E	X	Y
SR 15 ~ 70	Equivalent load in the reverse-radial direction	1	1.155
	Equivalent load in the lateral directions	0.866	1
SR 85 ~ 150	Equivalent load in the reverse-radial direction	1	2
	Equivalent load in the lateral directions	0.5	1

Permissible moment

In type SR, a single LM block can bear moments in all directions. Table 3 presents the permissible moments in directions M_A , M_B , and M_C for a single LM block and double LM blocks laid over one another (no data for direction M_C).

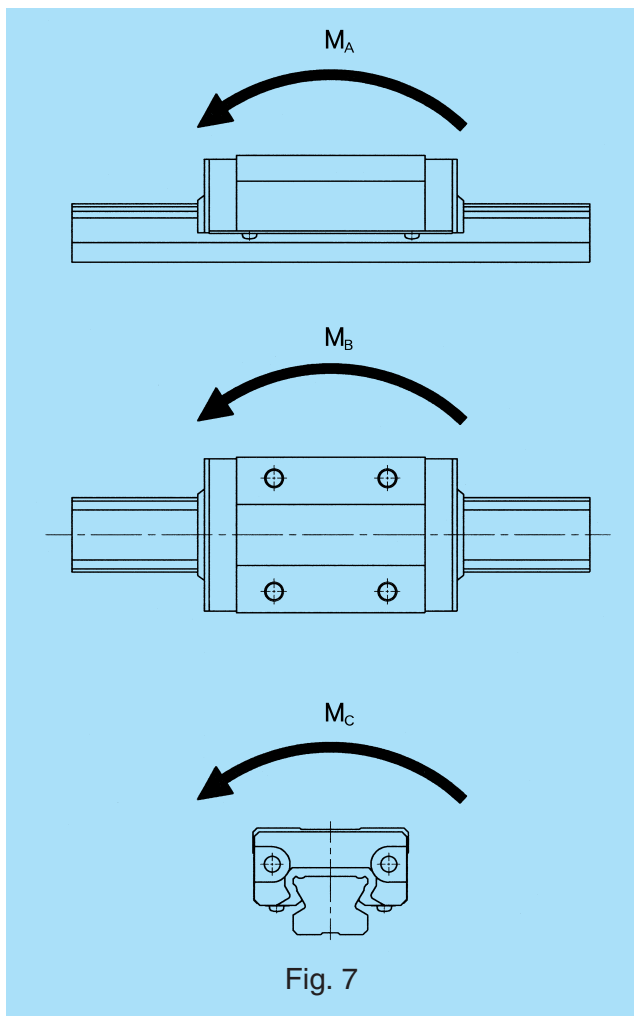
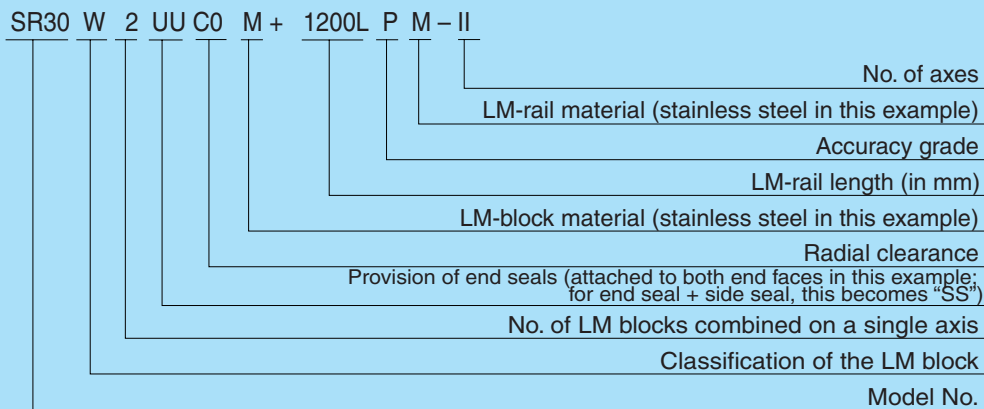


Table 3 Type-SR Static Permissible Moment

Unit: kN·m

Direction Model No.	M_A		M_B		M_C
	Single block	Double block	Single block	Double block	Single block
SR 15V,SB	0.02	0.13	0.02	0.11	0.04
SR 15W,TB	0.05	0.28	0.04	0.24	0.07
SR 20V,SB	0.03	0.19	0.02	0.16	0.07
SR 20W,TB	0.07	0.43	0.06	0.37	0.12
SR 25V,SB	0.05	0.37	0.04	0.32	0.12
SR 25W,TB	0.15	0.84	0.12	0.73	0.21
SR 30V,SB	0.09	0.60	0.08	0.52	0.21
SR 30W,TB	0.25	1.41	0.21	1.22	0.36
SR 35V,SB	0.14	0.94	0.12	0.81	0.34
SR 35W,TB	0.40	2.19	0.34	1.89	0.60
SR 45W,TB	0.65	3.26	0.56	2.80	1.05
SR 55W,TB	1.15	6.28	0.99	5.40	1.71
SR 70T	2.54	13.2	2.18	11.3	4.14
SR 85T	2.54	15.1	1.25	7.47	5.74
SR100T	3.95	20.9	1.95	10.3	8.55
SR120T	5.83	32.9	2.87	16.2	13.7
SR150T	9.98	55.8	4.92	27.5	24.3

Model-number coding



Note: This coding is based on the assumption of one set of code for a one-axis unit.
(A configuration of two axes installed in parallel is given at least two sets of code.)

Radial clearance

Table 4 presents the radial clearances of types SR.

Table 4 Type SR Radial Clearances

Unit : μm

Clearance symbol Model No.	Normal	Under a light preload	Medium preload
	No symbol	C1	C0
SR 15	-4 ~ +2	-10 ~ -4	—
SR 20	-5 ~ +2	-12 ~ -5	-17 ~ -12
SR 25	-6 ~ +3	-15 ~ -6	-21 ~ -15
SR 30	-7 ~ +4	-18 ~ -7	-26 ~ -18
SR 35	-8 ~ +4	-20 ~ -8	-31 ~ -20
SR 45	-10 ~ +5	-24 ~ -10	-36 ~ -24
SR 55	-12 ~ +5	-28 ~ -12	-45 ~ -28
SR 70	-14 ~ +7	-32 ~ -14	-50 ~ -32
SR 85	-20 ~ +9	-46 ~ -20	-70 ~ -46
SR 100	-22 ~ +10	-52 ~ -22	-78 ~ -52
SR 120	-25 ~ +12	-57 ~ -25	-87 ~ -57
SR 150	-29 ~ +14	-69 ~ -29	-104 ~ -69

Accuracy Standards

The accuracy of type SR is divided into five grades, normal, high, precision, super-precision, and ultra-precision, in accordance with the model numbers shown in Table 5.

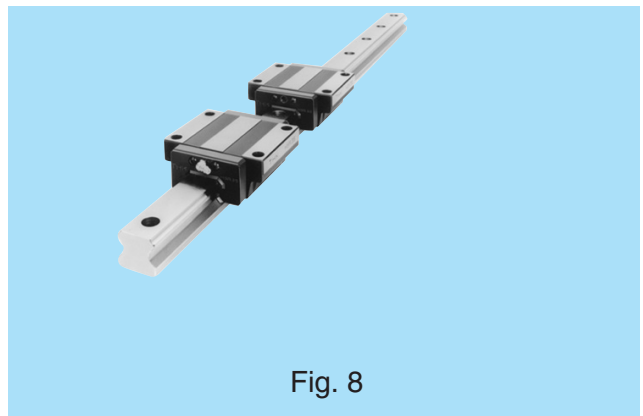


Fig. 8

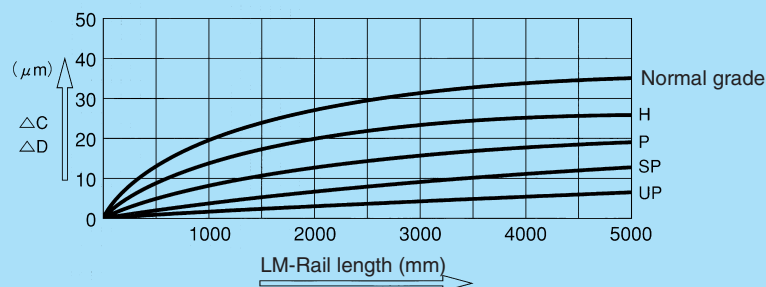


Fig. 9 Relationship Between LM-Rail Length and Running Parallelism

Table 5 Type SR Accuracy Standard

Unit : mm

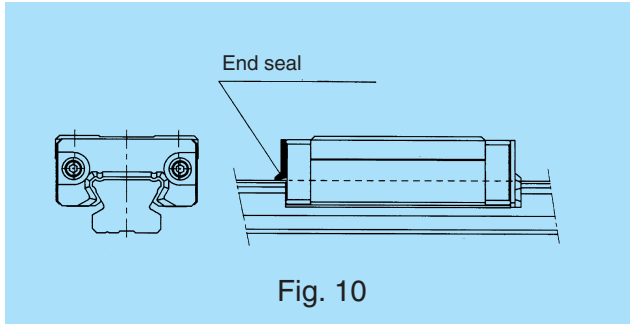
Model No.	Accuracy standard	Normal	High	Precision	Super-precision	Ultra-precision
	Item	No symbol	H	P	SP	UP
SR 15 SR 20	Tolerance for height M	±0.1	±0.03	0 -0.03	0 -0.015	0 -0.008
	Tolerance for the height M difference among LM blocks	0.02	0.01	0.006	0.004	0.003
	Tolerance for rail-to-block lateral distance W_2	±0.1	±0.03	0 -0.03	0 -0.015	0 -0.008
	Tolerance for rail-to-block lateral distance W_2 difference among LM blocks	0.02	0.01	0.006	0.004	0.003
	Running Parallelism of surface C with surface A	C (as per Fig. 9)				
	Running parallelism of surface D with surface B	D (as per Fig. 9)				
SR 25 SR 30 SR 35	Tolerance for height M	±0.1	±0.04	0 -0.04	0 -0.02	0 -0.01
	Tolerance for the height M difference among LM blocks	0.02	0.015	0.007	0.005	0.003
	Tolerance for rail-to-block lateral distance W_2	±0.1	±0.04	0 -0.04	0 -0.02	0 -0.01
	Tolerance for rail-to-block lateral distance W_2 difference among LM blocks	0.03	0.015	0.007	0.005	0.003
	Running Parallelism of surface C with surface A	C (as per Fig. 9)				
	Running parallelism of surface D with surface B	D (as per Fig. 9)				
SR 45 SR 55	Tolerance for height M	±0.1	±0.05	0 -0.05	0 -0.03	0 -0.02
	Tolerance for the height M difference among LM blocks	0.03	0.015	0.007	0.005	0.003
	Tolerance for rail-to-block lateral distance W_2	±0.1	±0.05	0 -0.05	0 -0.03	0 -0.02
	Tolerance for rail-to-block lateral distance W_2 difference among LM blocks	0.03	0.02	0.01	0.007	0.005
	Running Parallelism of surface C with surface A	C (as per Fig. 9)				
	Running parallelism of surface D with surface B	D (as per Fig. 9)				
SR 70 SR 85 SR 100 SR 120 SR 150	Tolerance for height M	±0.1	±0.07	0 -0.07	0 -0.05	0 -0.03
	Tolerance for the height M difference among LM blocks	0.03	0.02	0.01	0.007	0.005
	Tolerance for rail-to-block lateral distance W_2	±0.1	±0.07	0 -0.07	0 -0.05	0 -0.03
	Tolerance for rail-to-block lateral distance W_2 difference among LM blocks	0.03	0.025	0.015	0.010	0.007
	Running Parallelism of surface C with surface A	C (as per Fig. 9)				
	Running parallelism of surface D with surface B	D (as per Fig. 9)				

Contamination Protection

Types SR is provided with end and side seals as standard contamination-protection accessories.

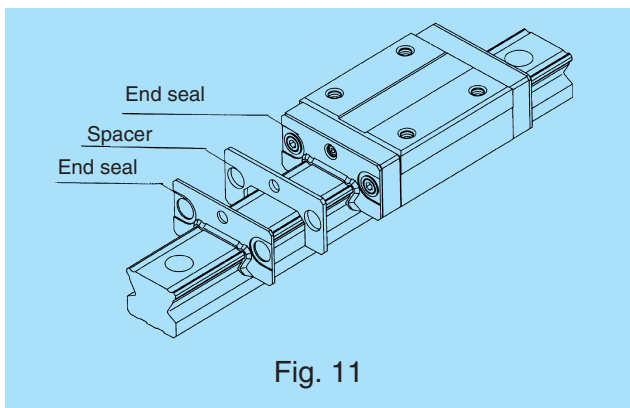
End seal

Standard accessory



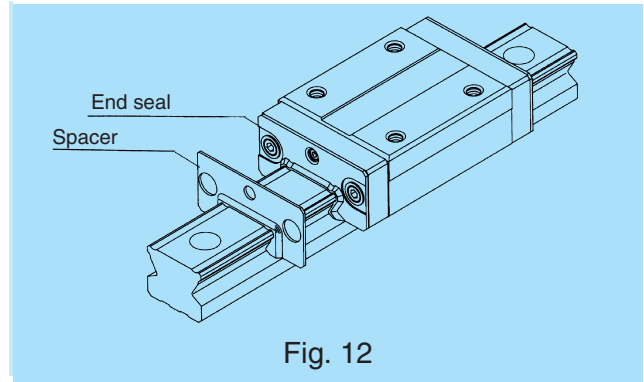
Double seal

Use two end seals to enhance the contamination-protection capacity.



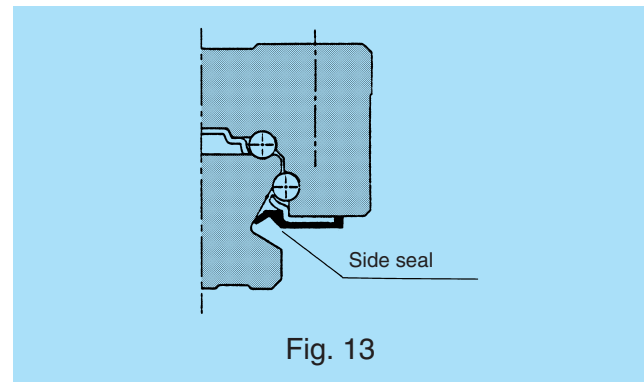
Scraper

Removes spatters and similar large foreign matter.



Side seal

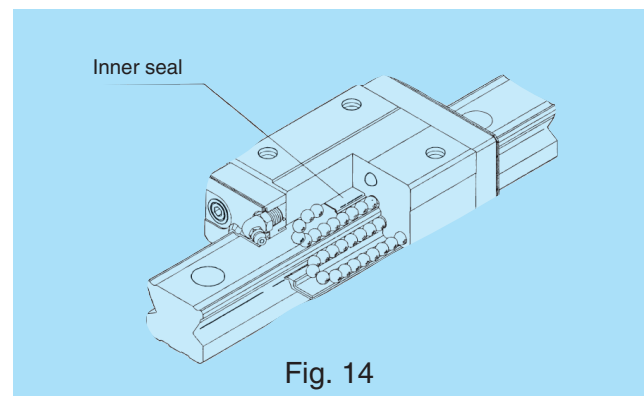
Prevents contaminants from entering an LM block from below.



Inner seal

Installed in a LM block.

Applicable model Nos.: SR45 and 55



Contamination-protection-accessory symbol

Where a contamination accessory is required, specify so using the symbols shown below.

Some models do not accept contamination-protection accessories. Confirm which parts are applicable by referring to Table 8.

Attaching a contamination-protection accessory to an LM block changes the block overall length. Add to dimension L the increment specified in the corresponding dimension table.

Table 6

Contamination-protection accessory	Symbol
End seal (on both end faces)	UU
End seal + side seal	SS
End seal + side seal + scraper	ZZ
Double seals + side seal	DD
Double seals + side seal + scraper	KK
End seal (low seal resistance)	LL
LL seal + side seal	RR

Seal resistance value

For the maximum value of seal resistance of seals type SR...UU per LM block, in which grease is applied, see Table 7.

Table 7 Maximum Resistance Value of Seals to Type SR

Unit : N

Model No.	Seal resistance value
SR 15	2.5
SR 20	3.4
SR 25	4.4
SR 30	8.8
SR 35	11.8
SR 45	12.7
SR 55	15.7
SR 70	19.6
SR 85	-
SR 100	-
SR 120	-
SR 150	-

Table 8 Applicability of Seals to Type SR, and the Increment to Be Added to the Block Overall Length

Unit : mm

Model. No.	No symbol	UU	SS	DD	ZZ	KK	LL	RR
SR 15	○ -5.0	○ —	○ —	○ 5.2	△ 1.4	△ 6.6	○ —	○ —
SR 20	○ -6.3	○ —	○ —	○ 6.3	△ 4.1	△ 10.7	○ —	○ —
SR 25	○ -7.0	○ —	○ —	○ 7.6	○ 4.4	○ 12.0	○ —	○ —
SR 30	○ -7.0	○ —	○ —	○ 7.6	○ 2.6	○ 10.2	×	×
SR 35	○ -7.0	○ —	○ —	○ 7.6	○ 2.6	○ 10.2	×	×
SR 45	○ -8.0	○ —	○ —	○ 8.6	○ 3.4	○ 12.0	×	×
SR 55	○ -8.0	○ —	○ —	○ 8.6	○ 3.4	○ 12.0	×	×
SR 70	○ -7.4	○ —	○ —	○ 6.8	○ 3.8	○ 11.0	×	×
SR 85	○ -8.0	○ —	○ —	×	×	×	×	×
SR100	○ -8.0	○ —	○ —	×	×	×	×	×
SR120	○ -9.0	○ —	○ —	×	×	×	×	×
SR150	○ -9.0	○ —	○ —	×	×	×	×	×

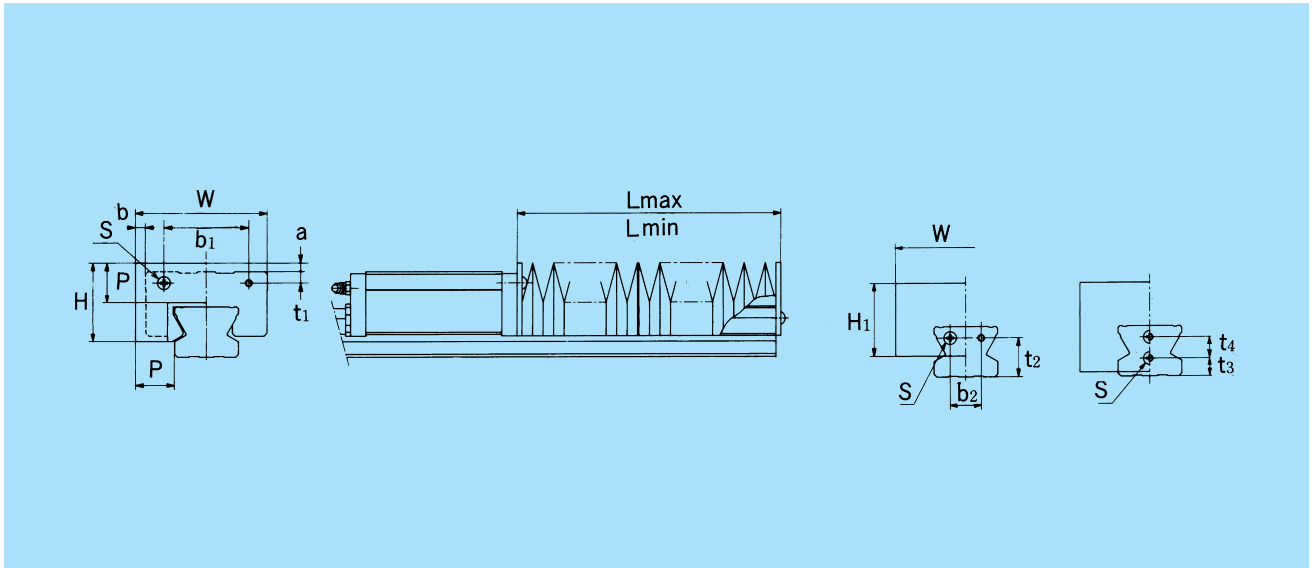
Note: ○ = Applicable

× = Inapplicable

△ = Applicable, but a grease nipple cannot be attached; contact us

Dedicated Bellows JS for LM-Guide Type SR

Shown below are the dimensions of dedicated bellows JS for type SR. When ordering the bellows, specify the relevant model number shown in the table below.



Unit : mm

Model No.	Boundary dimensions										Mounting bolt	a	b		A ($\frac{L_{max}}{L_{min}}$)	Applicable LM-Guide model
	W	H	H ₁	P	b ₁	t ₁	b ₂	t ₂	t ₃	t ₄			W/V type	TB/SB type		
JS15	51	24	26	15	22	3.4	—	—	8	—	M3×0.5×16	5	8.5	—	5	SR15
JS20	58	26	30	15	25	4.2	—	—	6	6	M3×0.5×16	4	8	0.5	5	SR20
JS25	71	33	38	20	29	5	—	—	6	7	M3×0.5×16	7	11.5	1	7	SR25
JS30	76	37.5	37.5	20	42	5	12	17	—	—	M4×0.7×18	3	8	—	7	SR30
JS35	84	39	39	20	44	6.5	14	20	—	—	M5×0.8×10	1.5	7	—	7	SR35
JS45	95	47.5	47.5	20	60	8	22	27	—	—	M5×0.8×10	—	5	—	7	SR45
JS55	108	55.5	55.5	25	70	10	24	28	—	—	M6×12	—	4	—	9	SR55
JS70	144	67	67	30	90	13	34	35	—	—	M6×12	—	9	—	10	SR70

Note 1: The expansion ratios in installation directions other than horizontal, e.g., vertical and wall-hung, differ from those specified in this table (guidelines: A – 1.5). When ordering bellows, please specify your installation direction.

Note 2: If bellows are attached to both ends of an LM block, a grease nipple cannot be installed there. In such a case, contact us.

Model-number coding

JS55 - 60/540

Bellows dimensions $\left(\frac{\text{length when compressed}}{\text{length when expanded}} \right)$

Model No. (bellows for type SR55 in this example)

Note: A bellows length can be calculated as shown below.

$$L_{min} = \frac{S}{(A - 1)} \quad S: \text{stroke length in (mm)}$$

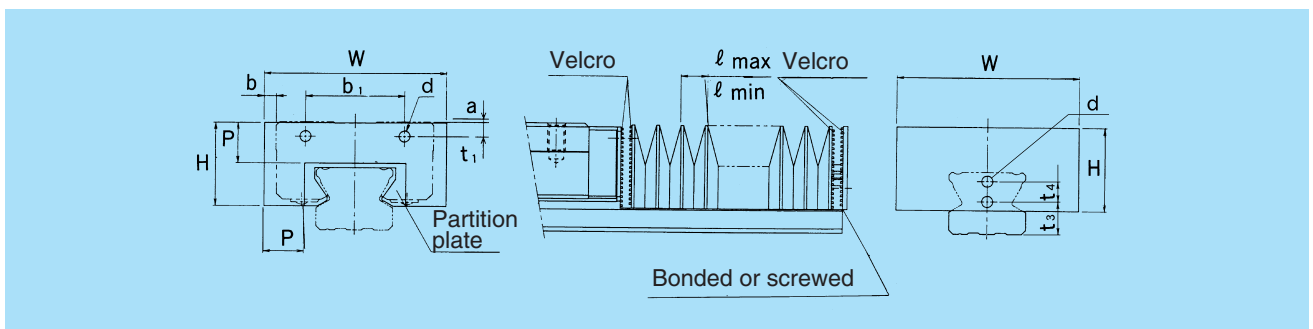
$$L_{max} = L_{min} \cdot A \quad A: \text{expansion ratio}$$

DS Bellows Designed for Type SR

For types SR15, SR20, and SR25, a bellows-type DS with the features specified below is available. When placing an order, specify model numbers, which are shown below.

Features

1. The width and height are smaller than those of conventional bellows. As a result, type DS does not protrude over the top surface of an LM block. The expansion ratio is equal to or greater than that of a conventional bellows.
2. Each ridge of the bellows has a partition plate to prevent the bellows from lifting. As a result, type DS can be used in the vertical, wall-hung, and tilted positions.
3. Excellent high-speed operation, up to as high as 120 m/min.
4. Can be equipped with Velcro, enabling use at any desired length, either by cutting a regular-length product into short sections or by joining more multiple pieces using an adhesive.
5. As with conventional types, type DS can also be fastened using screws. When doing so, hold the plate (1.6 mm in thickness) between the LM block and the bellows.



Unit : mm

Model No.	Boundary dimensions															Applicable LM-Guide model	
	W	H	P	b ₁	t ₁	t ₃	t ₄	d	a	W/V type	b TB/SB type	l _{max}	l _{min}	Expansion ratio A	E		Factor k
DS 15	38	19	10	22	3.4	8	—	3.5	0	7	2	13	2.5	5	2	1.3	SR15
DS 20	49	22	10	25	4.2	6	6	4	0	5	3.5	13	2.5	5	2	1.3	SR20
DS 25	56	26	12	29	5	6	7	4	0	8.5	4	15	3	5	2	1.3	SR25

Note : If bellows are attached to both ends of an LM block, a grease nipple cannot be installed there. In such a case, contact us.

Model-number coding

DS20 - 50/250

Length when compressed / length when expanded

Model No. (bellows for type SR20 in this example)

- Maximum length (regular length) as a separate part
 $L_{max} (L_{min}) = l_{max} \times (l_{min}) \times 200$
- Calculation example of bellows dimensions
 When SR15 stroke $l_s = 530$ mm:

$$L_{min} = \frac{l_s}{(A - 1)} = \frac{530}{4} = 132.5 \approx 135$$

$$L_{max} = A \cdot L_{min} = 5 \times 135 = 675$$

Hence, the number of crests required is as follows:

$$n = \frac{L_{max}}{P \cdot k} = \frac{675}{10 \times 1.3} = 51.9 \approx 52$$

$$L_{min} = n \cdot l_{min} + E = 52 \times 2.5 + 2 = 132$$

(E = plate thickness; 2 in the present example)

Thus, the bellows to be used are DS15-132/675.

LM Cover TPS Designed for Type SR

The dimensions of type-SR-dedicated LM cover type TPS are as shown below. When placing an order,

specify by the following model numbers.

Table 11 Tapped-Hole Rail Dimensions

Unit : mm

Model No.	S ₁	Effective tapped thread length ℓ_1
SR15	M5 × 0.8	7
SR20	M6	9
SR25	M6	10
SR30	M8	14
SR35	M8	16

Unit : mm

Model No.	Boundary dimensions										Applicable LM-Guide model
	W	D (max)	H	b ₁	t ₁	b ₂	t ₂	t ₃	t ₄	Mounting bolt S	
TPS25	42	30	26.5	29	5	-	-	6	7	M3×0.5×16	SR25
TPS30	54	37	34.5	42	5	12	17	-	-	M4×0.7×18	SR30
TPS35	64	42	38	44	6.5	14	20	-	-	M5×0.8×10	SR35
TPS45	76	55	48	60	8	22	27	-	-	M5×0.8×10	SR45
TPS55	90	61	54.5	70	10	24	28	-	-	M6×12	SR55

Unit : mm

Model No.	No. of sectors	L		Stroke
		min	max	
TPS25	3	200	530	330
	3	150	380	230
	3	100	230	130
TPS30	3	250	680	430
	3	200	530	330
TPS35	3	300	830	530
	3	250	680	430
	3	200	530	330
	3	150	380	230

Unit : mm

Model No.	No. of sectors	L		Stroke
		min	max	
TPS45	3	350	980	630
	3	300	830	530
	3	250	680	430
	3	200	530	330
TPS55	4	400	1460	1060
	4	350	1330	980
	4	300	1060	760
	4	250	860	610

Note : If bellows are attached to both ends of an LM block, a grease nipple cannot be installed there. In such a case, contact us.

Model-number coding

TPS55 - 400/1460

L_{max} (cover length when expanded)

L_{min} (cover length when compressed)

Model number (for SR55)

Precautions on Use

Mounting-Surface Height and Corner Profile

Normally, mounting surfaces for LM blocks and rails have lateral reference surfaces to aid in positioning rails and blocks with a high degree of accuracy.

For the reference-surface shoulder height, see Table 9.

Furthermore, provide enough space to the corner profile of a mounting surface so that the corner does not interfere with chamfers made on the LM blocks or rails, or provide the corner with a radius smaller than corner radius r specified in Table 9.

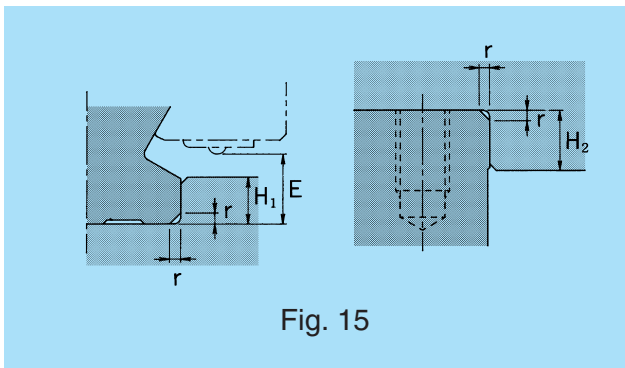


Fig. 15

Table 9 Mounting-Surface Shoulder Height and Corner Radius

Unit : mm

Model No.	Corner radius r (max.)	LM-rail shoulder height H_1	LM-block shoulder max. height H_2	E
SR 15	0.5	3.8	4	4.5
SR 20	0.5	5	5	6
SR 25	1.0	5.5	5	7
SR 30	1.0	8	6	9.5
SR 35	1.0	9	6	11.5
SR 45	1.0	10	8	12.5
SR 55	1.5	11	8	13.5
SR 70	1.5	12	10	15
SR 85	1.2	8	12	18.5
SR 100	1.2	10	15	19
SR 120	1.2	12	20	15
SR 150	1.2	12	20	22

LM-Rail Standard and Maximum Lengths

Table 10 presents the standard and maximum lengths of LM rails for type SR. If your maximum length is not within the range of this table, we offer special LM rails intended for connected use.

For dimension G when a special length is specified, we recommend those listed in Table 10. A large

dimension G tends to reduce stability at the shaft ends, which may degrade accuracy.

For connected use, we offer LM rails that ensure the elimination of level differences at joints. Therefore, when placing an order, please specify the overall length of the LM rails you require.

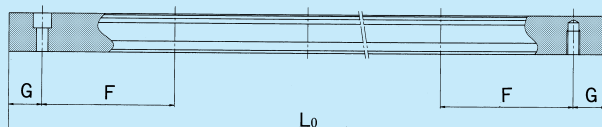


Table 10 Type-SR LM-Rail Standard and Maximum Lengths

Unit : mm

Model No.	SR15	SR20	SR25	SR30	SR35	SR45	SR55	SR70	
LM-rail standard length (L ₀)	160	220	220	280	280	570	780	1270	
	220	280	280	360	360	675	900	1570	
	280	340	340	440	440	780	1020	2020	
	340	400	400	520	520	885	1140		
	400	460	460	600	600	990	1260		
	460	520	520	680	680	1095	1380		
	520	580	580	760	760	1200	1500		
	580	640	640	840	840	1305	1740		
	640	700	700	920	920	1410	1860		
	700	760	760	1000	1000	1515	1980		
	760	820	820	1080	1080	1725	2100		
	820	940	940	1160	1160	1830	2220		
	940	1000	1000	1240	1240	1935	2340		
	1000	1060	1060	1320	1320	2040	2460		
	1060	1120	1120	1400	1400	2145	2580		
	1120	1180	1240	1480	1480	2250	2700		
	1180	1240	1300	1640	1640	2355	2820		
	1240	1300	1360	1720	1720	2460	2940		
	1300	1360	1420	1800	1800	2565			
	1360	1420	1480	1880	1880	2670			
	1420	1480	1540	1960	1960	2775			
	1480	1540	1600	2040	2040	2880			
	1540	1600	1660	2120	2120	2985			
			1660	1720	2200	2200			
			1720	1780	2280	2280			
		1780	1840	2360	2360				
		1840	1900	2440	2440				
		1900	1960	2520	2520				
		1960	2020	2600	2600				
		2020	2080	2680	2680				
		2080	2140	2760	2760				
		2140	2200	2840	2840				
			2260	2920	2920				
			2320						
			2380						
			2440						
Standard pitch F	60	60	60	80	80	105	120	150	
G	20	20	20	20	20	22.5	30	35	
Max. length	2500 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000 (2520)	3000	3000	3000	

- Notes:
- In special cases in which connected use is impossible but one of the maximum lengths specified here is required, contact us.
 - Model numbers SR85T and above are semi-standard. If any of these products are required, contact us.
 - The maximum length differs by accuracy grade. Contact us for details
 - Numbers in parentheses indicate the maximum lengths of stainless steel types.

Tapped-Hole Rail Models of Type SR

Type SR includes models with rails that do not have mounting bolt holes, and are instead provided with tapped holes drilled into the rail bodies from below.

These models are useful where rails are to be bolted from below the base, and enhance the effect of contamination protection.

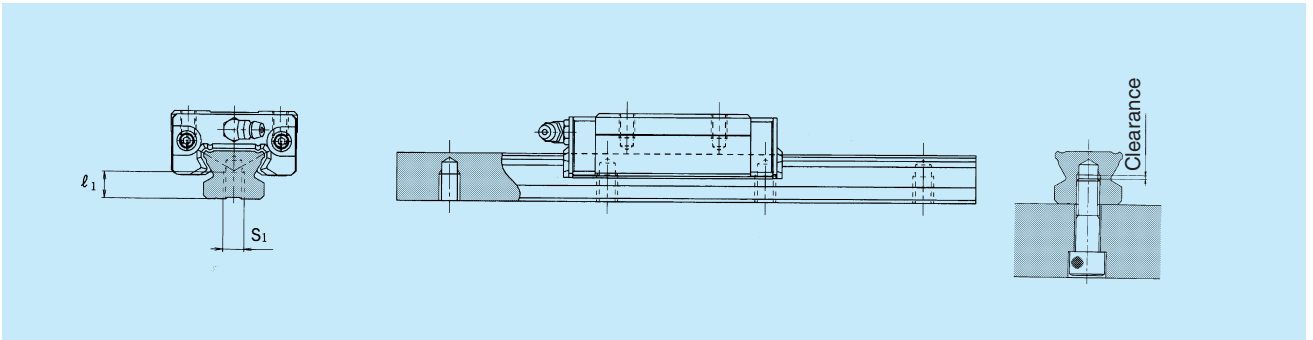
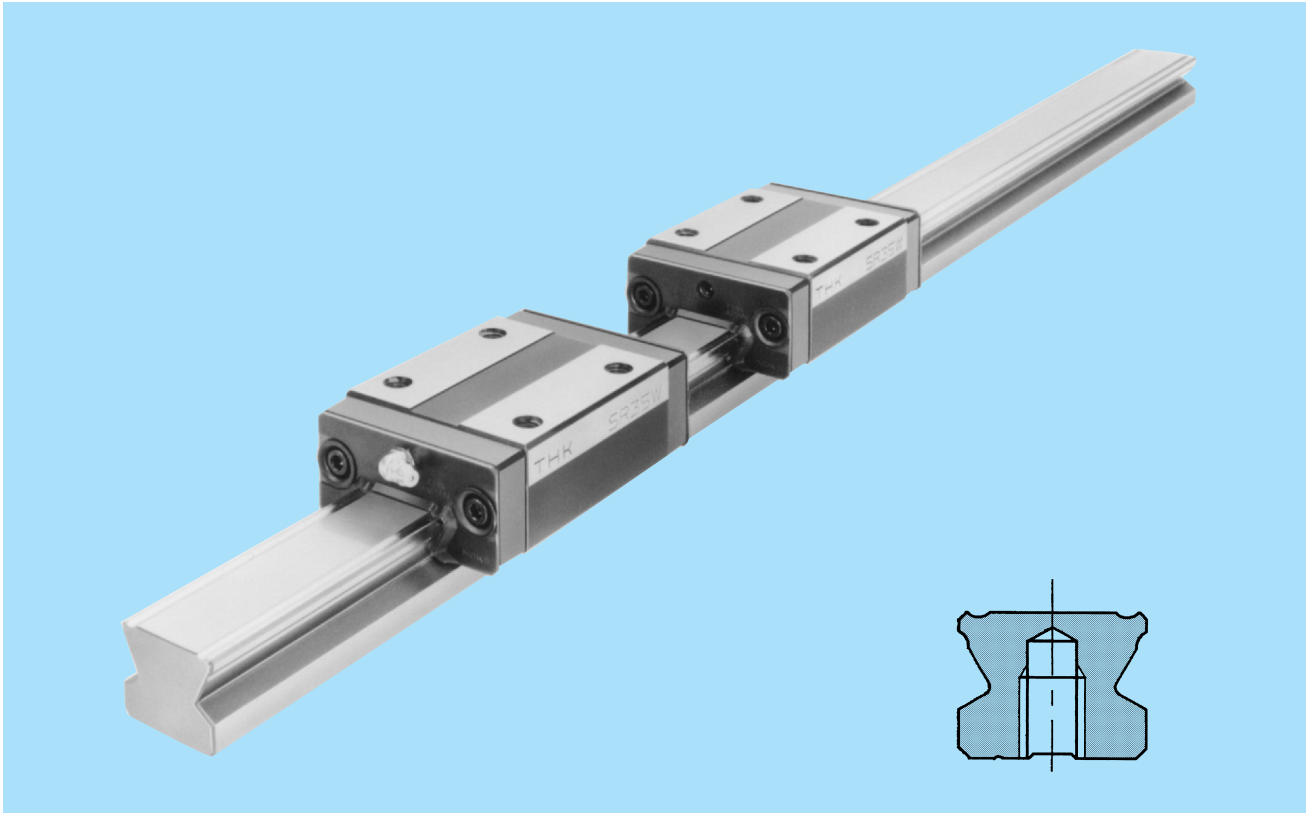


Table 11 Tapped-Hole Rail Dimensions

Unit : mm

Model No.	S ₁	Effective tapped thread length ℓ ₁
SR15	M5 × 0.8	7
SR20	M6	9
SR25	M6	10
SR30	M8	14
SR35	M8	16
SR45	M12	20
SR55	M14	22

1. Tapped-hole rail models of type SR are produced only at the high-accuracy grade or below.
2. Set a bolt length that leaves a clearance of 2 to 5 mm at the tip of each bolt when the bolt is tightened over the full length of the effective tapped thread (diagram shown above).
3. Model-number coding
 SR30 W2UU + 100LH K
└ Tap type symbol
4. For the standard tapping pitch (F), see Table 10 on page A-188.

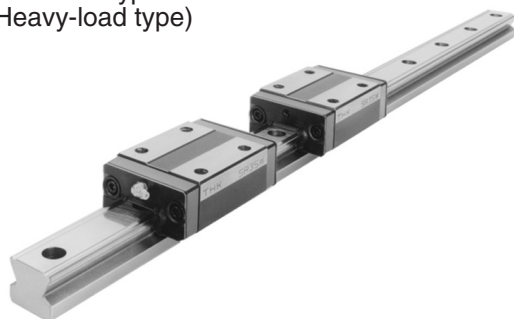
SR-W and SR-WM Type

Standard type

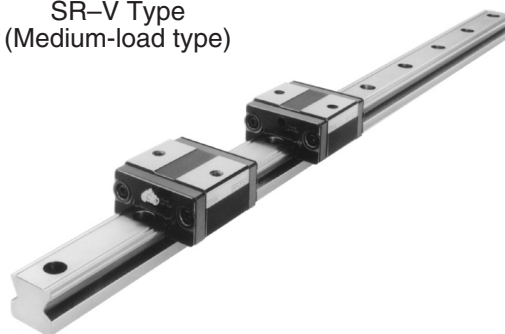
SR-V and SR-VM Type

Stainless-steel type

SR-W Type
(Heavy-load type)



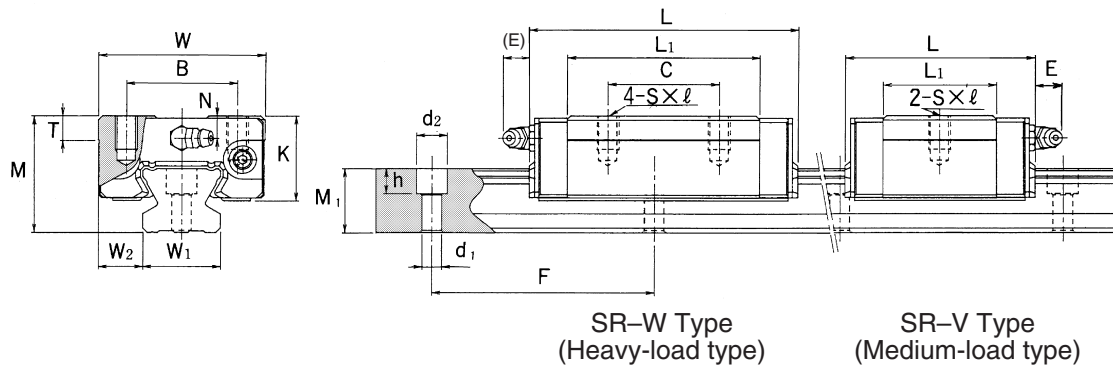
SR-V Type
(Medium-load type)



Model No.	External dimensions			LM-block dimensions							
	Height M	Width W	Length L	B	C	S × ℓ	L ₁	T	K	N	E
*SR 15 W/WM	24	34	57	26	26	M4 × 7	39.5	6	19.5	6	5.5
*SR 15 V/VM			41		-		22.9				
*SR 20 W/WM	28	42	66.5	32	32	M5 × 8	46.7	7.5	22	6	12
*SR 20 V/VM			48		-		27.8				
*SR 25 WY/WMY	33	48	83	35	35	M6 × 9	59	8	26	7	12
*SR 25 VY/VMY			60		-		35.2				
*SR 30 W/WM	42	60	97	40	40	M8 × 12	69.3	9	32.5	8	12
*SR 30 V/VM			68		-		40.4				
*SR 35 W/WM	48	70	111	50	50	M8 × 12	79	13	36.5	8.5	12
*SR 35 V/VM			78		-		45.7				
SR 45 W	60	86	126	60	60	M10 × 15	90.5	15	47.5	11.5	16
SR 55 W	68	100	156	75	75	M12 × 20	117	17	54.5	12	16
SR 70 T	85	126	195	90	90	M16 × 25	147.6	25	70	12	16
SR 85 T	110	156	180	100	80		130	25	91.5	27	12
SR 100 T	120	178	200	120	100	M18 × 30	150	30	101	32	12
SR 120 T	110	205	235	160	120	M20 × 35	180	24	95	14	13.5
SR 150 T	135	250	280	200	160	M20 × 35	215	24	113	17	13.5

Notes:

- An “M” in a model number indicates that the corresponding LM blocks, rails, and balls are made of stainless steel and are therefore corrosion- and environment-resistant.
- For products marked with a “*”, stainless-steel end plates are available in cases in which they are to be used at 80°C or higher.
- Model numbers SR85T and above are semi-standard. If any of these products are required, contact us.
- For permissible static moments M_A , M_B , and M_C , see page A-179.



Unit : mm

Grease nipple	LM-rail dimensions					Basic load rating		Mass	
	Width W_1 ± 0.05	W_2	Height M_1	Pitch F	$d_1 \times d_2 \times h$	C kN	C_0 kN	LM block kg	LM rail kg/m
PB1021B	15	9.5	12.5	60	$3.5 \times 6 \times 4.5$	9.51 5.39	19.3 11.1	0.2 0.12	1.2
B-M6F	20	11	15.5	60	$6 \times 9.5 \times 8.5$	12.5 7.16	25.2 14.4	0.3 0.2	2.1
B-M6F	23	12.5	18	60	$7 \times 11 \times 9$	20.3 11.7	39.5 22.5	0.4 0.3	2.7
B-M6F	28	16	23	80	$7 \times 11 \times 9$	30 17.2	56.8 32.5	0.8 0.5	4.3
B-M6F	34	18	27.5	80	$9 \times 14 \times 12$	41.7 23.8	77.2 44.1	1.2 0.8	6.4
B-PT1/8	45	20.5	35.5	105	$11 \times 17.5 \times 14$	55.3	101	2.2	11.3
B-PT1/8	48	26	38	120	$14 \times 20 \times 17$	89.1	157	3.6	12.8
B-PT1/8	70	28	47	150	$18 \times 26 \times 22$	156	266	7.0	22.8
A-PT1/8	85	35.5	65.5	180	$18 \times 26 \times 22$	120	224	10.1	34.9
A-PT1/8	100	39	70.3	210	$22 \times 32 \times 25$	148	283	14.1	46.4
B-PT1/4	114	45.5	65	230	$26 \times 39 \times 30$	279	377	-	-
B-PT1/4	144	53	77	250	$33 \times 48 \times 36$	411	537	-	-

- For standard LM-rail lengths, see page A-188.
- For model-number coding, see page A-180.
- SR85T and SR100T are provided with a grease nipple on the sides of their LM blocks.

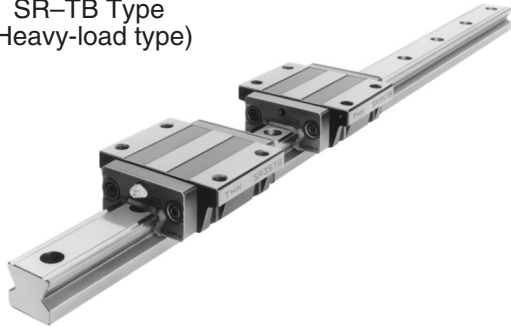
SR-TB and SR-TBM Type

Standard type

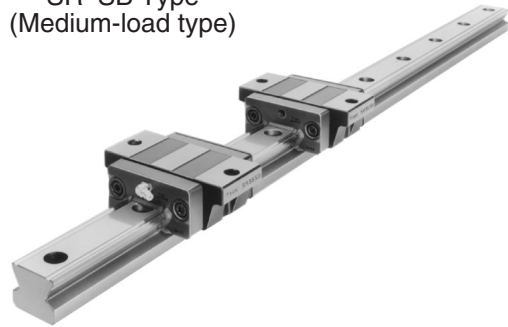
SR-SB and SR-SBM Type

Stainless-steel type

SR-TB Type
(Heavy-load type)



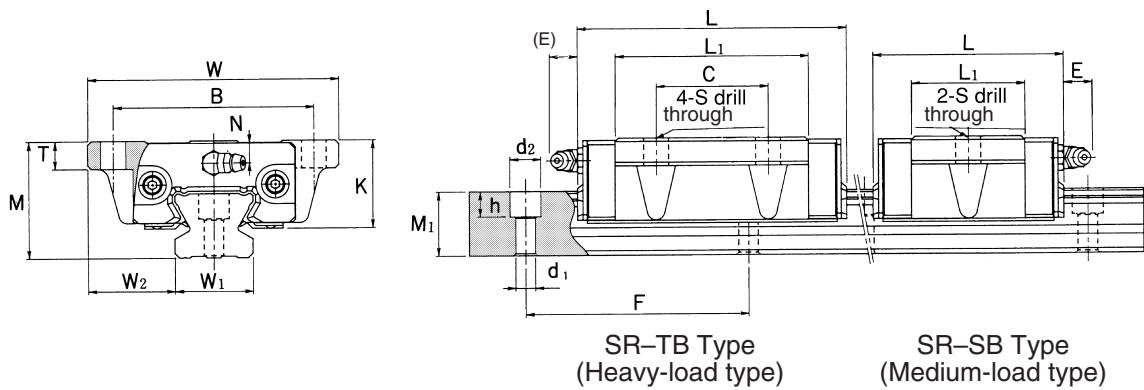
SR-SB Type
(Medium-load type)



Model No.	External dimensions			LM-block dimensions							
	Height M	Width W	Length L	B	C	S	L ₁	T	K	N	E
*SR 15 TB/TBM *SR 15 SB/SBM	24	52	57 41	41	26 -	4.5	39.5 22.9	7	19.5	6	5.5
*SR 20 TB/TBM *SR 20 SB/SBM	28	59	66.5 48	49	32 -	5.5	46.7 27.8	9	22	6	12
*SR 25 TBY/TBMY *SR 25 SBY/SBMY	33	73	83 60	60	35 -	7	59 35.2	10	26	7	12
*SR 30 TB/TBM *SR 30 SB/SBM	42	90	97 68	72	40 -	9	69.3 40.4	10	32.5	8	12
*SR 35 TB/TBM *SR 35 SB/SBM	48	100	111 78	82	50 -	9	79 45.7	13	36.5	8.5	12
SR 45 TB	60	120	126	100	60	11	90.5	15	47.5	11.5	16
SR 55 TB	68	140	156	116	75	14	117	17	54.5	12	16

Notes:

- An “M” in a model number indicates that the corresponding LM blocks, rails, and balls are made of stainless steel and are therefore corrosion- and environment-resistant.
- For products marked with a “*”, stainless-steel end plates are available in cases in which they are to be used at 80°C or higher.
- For permissible static moments M_A , M_B , and M_C , see page A-179.



Unit : mm

Grease nipple	LM-rail dimensions					Basic load rating		Mass	
	Width W_1 ± 0.05	W_2	Height M_1	Pitch F	$d_1 \times d_2 \times h$	C kN	C_0 kN	LM block kg	LM rail kg/m
PB1021B	15	18.5	12.5	60	$3.5 \times 6 \times 4.5$	9.51 5.39	19.3 11.1	0.2 0.15	1.2
B-M6F	20	19.5	15.5	60	$6 \times 9.5 \times 8.5$	12.5 7.16	25.2 14.4	0.4 0.3	2.1
B-M6F	23	25	18	60	$7 \times 11 \times 9$	20.3 11.7	39.5 22.5	0.6 0.4	2.7
B-M6F	28	31	23	80	$7 \times 11 \times 9$	30 17.2	56.8 32.5	1.1 0.8	4.3
B-M6F	34	33	27.5	80	$9 \times 14 \times 12$	41.7 23.8	77.2 44.1	1.5 1.0	6.4
B-PT1/8	45	37.5	35.5	105	$11 \times 17.5 \times 14$	55.3	101	2.5	11.3
B-PT1/8	48	46	38	120	$14 \times 20 \times 17$	89.1	157	4.2	12.8

- For standard LM-rail lengths, see page A-188.
- For model-number coding, see page A-180.

