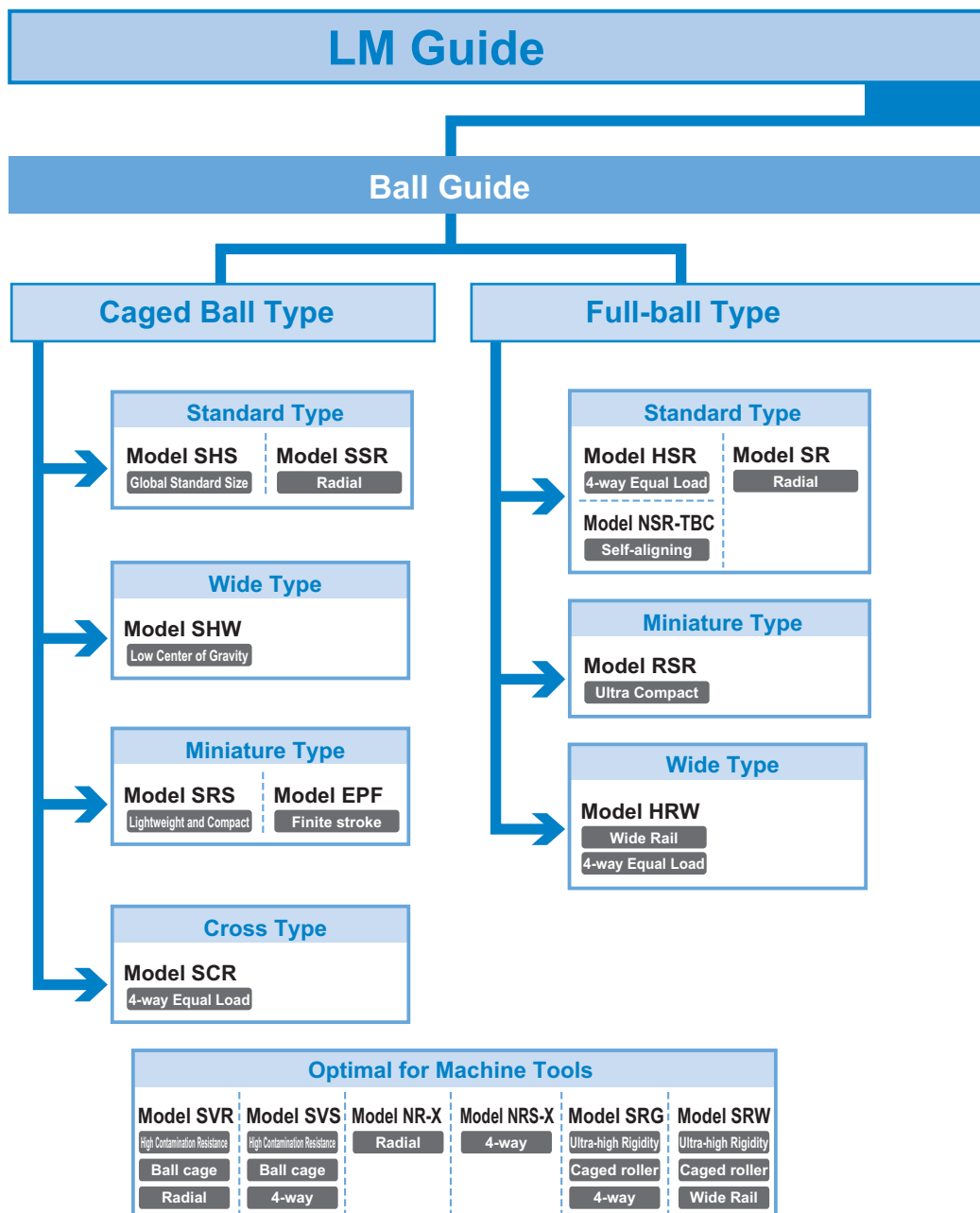




LM Guide®

THK General Catalog

Classification Table of the LM Guides



[Special environments]

Clean Room

In a clean environment generation of dust from the LM system has to be reduced and anti-rust oil cannot be used. Therefore, it is necessary to increase the corrosion resistance of the LM system. In addition, depending on the level of cleanliness, a dust collector is required.

Dust Generation from the LM System

■ Measure to Prevent Dust Generation Resulting from Flying Grease

THK AFE-CA and AFF Grease

Use environmentally clean grease that produces little dust.

■ Measure to Reduce Dust Generation Resulting from Metallic Abrasion Dust

Caged Ball LM Guide

Use the Caged Ball LM Guide, which has no friction between balls and generates little metallic abrasion dust, to allow generation of dust to be minimized.

Corrosion Prevention

■ Material-based Measure

Stainless Steel LM Guide

This LM Guide uses martensite stainless steel, which has corrosion resistant effect.

Highly Corrosion Resistant LM Guide

It uses austenite stainless steel, which has a high corrosion resistant effect, in its LM rail.

■ Measure Through Surface Treatment

THK AP-HC, AP-C and AP-CF Treatment

The LM system is surface treated to increase corrosion resistance.

Caged Ball LM Guide

 SHS SSR SVR/SVS
SHW SRS SCR EPF

Caged Roller LM Guide

 SRG SRN SRW

Stainless Steel LM Guide

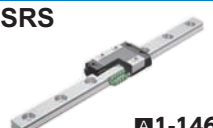









 SSR SHW SRS HSR SR
HRW HR RSR

LM Guides for Special Environment

 High Corrosion Resistance HSR-M2
Oil-Free SR-MS

Surface Treatment

Grease

SHS  A1-92	SSR  A1-104	SVR/SVS  A1-116	SHW  A1-136
SRS  A1-146	SCR  A1-162	EPF  A1-170	
SRG  A1-396	SRN  A1-416	SRW  A1-426	
SSR  A1-104	SHW  A1-136	SRS  A1-146	HSR  A1-178
SR  A1-204	HRW  A1-236	HR  A1-256	RSR  A1-246
HSR-M2  A1-370	SR-MS  A1-384		
THK AP-HC Treatment  B0-20			
THK AFE-CA Grease  A24-12		THK AFF Grease  A24-14	

Vacuum

In a vacuum environment, measures are required to prevent gas from being emitted from a resin and the scattering of grease. Anti-rust oil cannot be used, therefore, it is necessary to select a product with high corrosion resistance.

■ Measure to Prevent Emission of Gas from Resin Stainless Steel LM Guide

The endplate (ball circulation path normally made of resin) of the LM block is made of stainless steel to reduce emission of gas.

■ Measure to Prevent Grease from Evaporating Vacuum Grease

If a general-purpose grease is used in a vacuum environment, oil contained in the grease evaporates and the grease loses lubricity. Therefore, use a vacuum grease that uses fluorine based oil, whose vapor pressure is low, as the base oil.

■ Corrosion Prevention

Stainless Steel LM Guide

In a vacuum environment, use a stainless steel LM Guide, which is highly corrosion resistant.

High Temperature LM Guide

If high temperature is predicted due to baking, use a High Temperature LM Guide, which is highly resistant to heat and corrosion.

■ Highly Corrosion Resistant LM Guide

This LM Guide uses austenite stainless steel, which has a high anti-corrosion effect, in the LM rail.

High Temperature LM Guide



HSR-M1 SR-M1
RSR-M1

LM Guides for Special Environment



For Medium-to-Low Vacuum HSR-M1VV
Oil-Free SR-MS

Highly Corrosion Resistant LM Guide

Stainless Steel LM Guide



HSR SR HRW HR RSR

Vacuum Grease

Oil-Free LM Guide

Oil-Free

In environments susceptible to liquid lubricants, a lubrication method other than grease or oil is required.

■ Dry Lubricant

Dry Lubrication S-Compound Film

Dry Lubrication S-Compound Film is a fully dry lubricant developed for use under atmospheric to high-vacuum environments. It has superior characteristics in load carrying capacity, wear resistance and sealability to other lubrication systems.

HSR-M1



A1-334

SR-M1



A1-350

RSR-M1



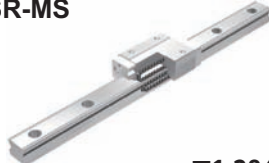
A1-360

HSR-M1VV



A1-376

SR-MS



A1-384

HSR-M2



A1-370

HSR



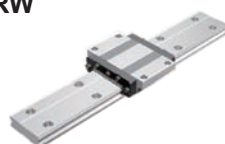
A1-178

SR



A1-204

HRW



A1-236

HR



A1-256

RSR



A1-246

SR-MS



A1-384

Corrosion Prevention

As with clean room applications, it is necessary to increase corrosion resistance through material selection and surface treatment.

■ Material-based Measure

Stainless Steel LM Guide

This LM Guide uses martensite stainless steel, which has an anti-corrosion effect.

Highly Corrosion Resistant LM Guide

It uses austenite stainless steel, which has a high anti-corrosion effect, in its LM rail.

■ Measure Through Surface Treatment

THK AP-HC, AP-C and AP-CF Treatment

The LM system is surface treated to increase corrosion resistance.

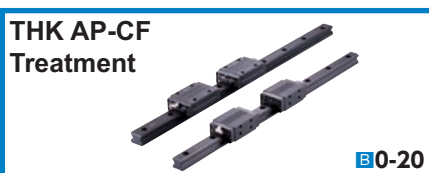
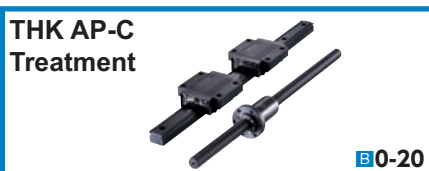
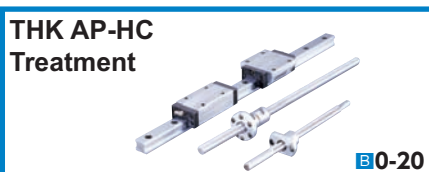
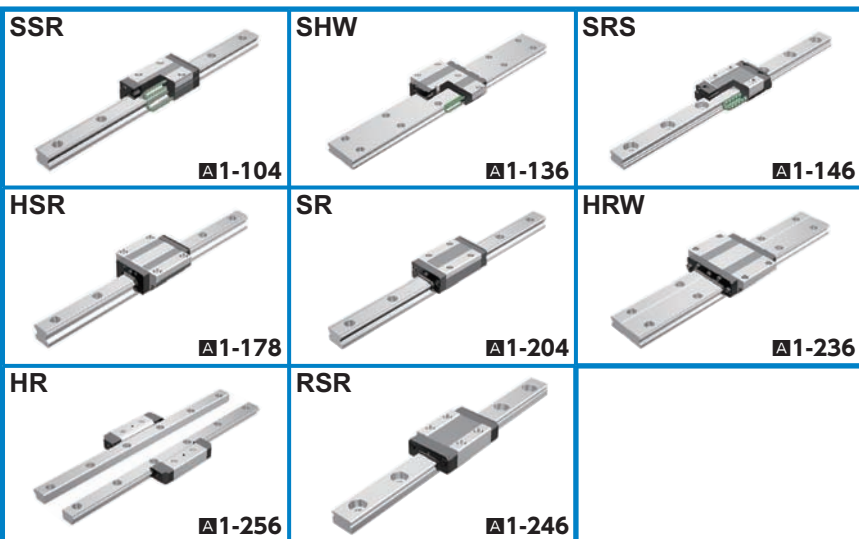
Stainless Steel LM Guide



SSR SHW SRS HSR SR
HRW HR RSR

Highly Corrosion Resistant LM Guide

Surface Treatment



High Speed

In a high speed environment, it is necessary to apply an optimum lubrication method that reduces heat generation during high speed operation and increases grease retention.

■ Measures to Reduce Heat Generation

Caged Ball LM Guide

Use of a ball cage eliminates friction between balls to reduce heat generation. In addition, grease retention is increased, thus to achieve long service life and high speed operation.

THK AFA Grease, AFJ Grease

It reduces heat generation in high speed operation and has superb lubricity.

■ Measure to Improve Lubrication

QZ Lubricator

Continuous oil lubrication ensures that the lubrication and maintenance interval can significantly be extended. It also applies the right amount of oil to the raceway, making itself an eco-friendly lubrication system that does not contaminate the surrounding area.

Caged Ball LM Guide

Supported models

SHS SSR SVR/SVS
SHW SRS SCR EPF

Caged Roller LM Guide

Supported models

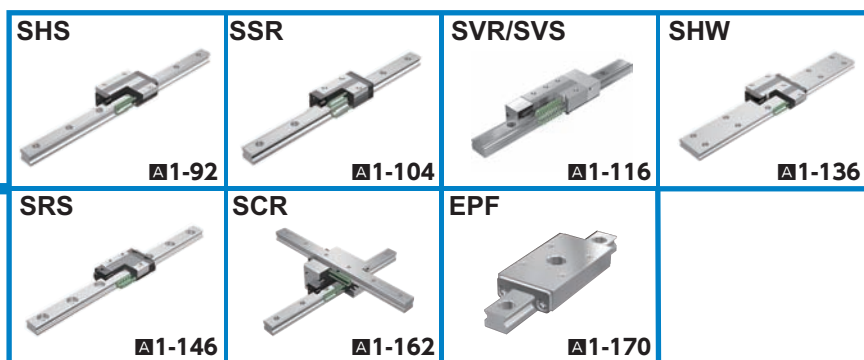
SRG SRN SRW

QZ Lubricator

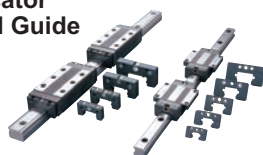
Grease

Point of Selection

Setting Conditions



QZ Lubricator
for the LM Guide



A1-487

THK AFA Grease



A24-7

THK AFJ Grease



A24-20

High Temperature

In a high temperature environment, dimensional alterations caused by heat is problematic. Use a High Temperature LM Guide, which is heat resistant and has minimal dimensional alterations after being heated. Also, use a high temperature grease.

■ Heat Resistance

High Temperature LM Guide

A special heat treatment to maintain dimensional stability minimizes dimensional variations due to heating and cooling.

■ Grease

High Temperature Grease

Use a high temperature grease with which the rolling resistance of the LM system is consistent even at high temperature.

High Temperature LM Guide



HSR-M1 SR-M1 RSR-M1
HSR-M1VV

High Temperature Grease

Low Temperature

In a low temperature environment, use an LM system with a minimal amount of resin components and a grease that minimize fluctuations in rolling resistance, even at low temperature.

■ Impact of Low Temperature on Resin Components

Stainless Steel LM Guide

The endplate (ball circulation path normally made of resin) of the LM block is made of stainless steel.

■ Corrosion Prevention

Provide surface treatment to the LM system to increase its corrosion resistance.

■ Grease

Use THK AFC Grease, with which the rolling resistance of the system little is consistent even at low temperature.

Stainless Steel LM Guide



SSR SHW SRS HSR SR
HRW HR RSR

Surface Treatment

Low Temperature Grease

Micro Motion

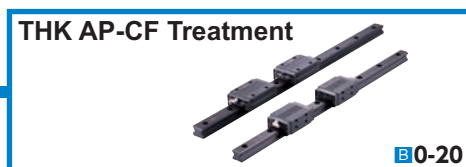
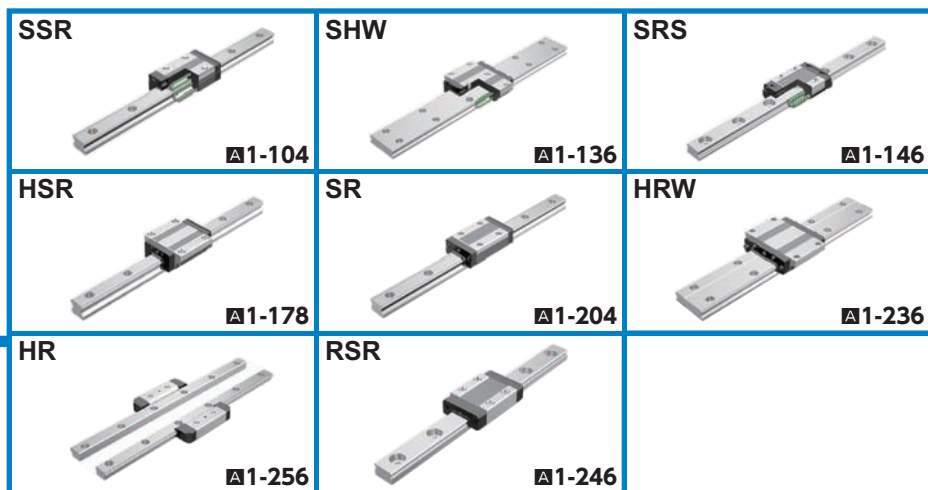
Micro strokes cause the oil film to break, resulting in poor lubrication and early wear. In such cases, select a grease with which the oil film strength is high and an oil film can easily be formed.

■ Grease

THK AFC Grease

AFC Grease is a urea-based grease that excels in oil film strength and wear resistance.

Grease



Foreign Matter

If foreign matter enters the LM system, it will cause abnormal wear and shorten the service life. Therefore, it is necessary to prevent such entrance of foreign matter.

Especially in an environment containing small foreign matter or a water-soluble coolant that a telescopic cover or a bellows cannot remove, it is necessary to attach a contamination protection accessory capable of efficiently removing foreign matter.

■ Metal Scraper

It is used to remove relatively large foreign objects such as cutting chips, spatter and sand or hard foreign matter that adhere to the LM rail.

■ Laminated Contact Scraper LaCS

Unlike a metal scraper, it removes foreign matter while it is in contact with the LM rail. Therefore, it demonstrates a high contamination protection effect against small foreign matter, which has been difficult to remove with conventional metal scrapers.

■ QZ Lubricator

QZ Lubricator is a lubrication system that feeds the right amount of lubricant by closely contacting its highly oil-impregnated fiber net to the ball raceway.

■ Metal Cap Dedicated for LM Rail Mounting Holes GC Cap

GC cap is a metallic cap that plugs the LM rail mounting hole (article compliant with the RoHS Directives). It prevents the entrance of foreign material and coolant from the LM rail top face (mounting hole) under harsh environments, and significantly increases the dust control performance of the LM Guide if used with a dust control seal.

■ Protector

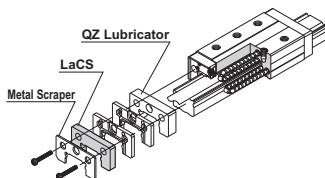
The protector minimizes the entrance of foreign material even in harsh environments where foreign material such as fine particles and liquids are present.

LM Guide

+Metal scraper

+Contact scraper LaCS

+Cap GC, etc.



A1-457

Supported models

Caged Ball LM Guide

SHS SSR SVR/SVS SHW SRS

Full Ball LM Guide

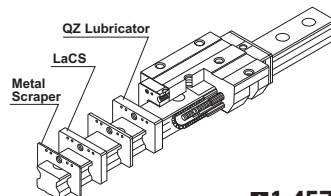
HSR NR/NRS-X

Caged Roller LM Guide

+Metal scraper

+Contact scraper LaCS

+Cap GC, etc.



A1-457

Supported models

SRG

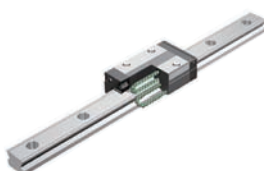
Caged Ball LM Guide

SHS



A1-92

SSR



A1-104

SHW



A1-136

SRS



A1-146

SVR/SVS



Featuring the protector A1-116

Full ball LM Guide

HSR



A1-178

NR/NRS-X



A1-216

Caged Roller LM Guide

SRG



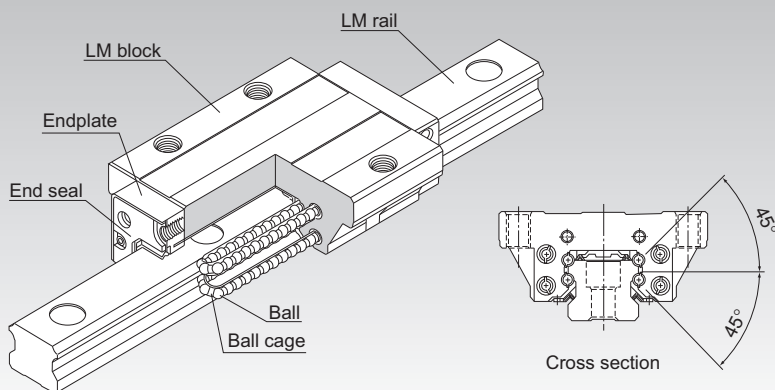
Featuring the protector

A1-396

SHS



Caged Ball LM Guide Global Standard Size Model SHS



*For the Ball Cage, see **A1-88**.

Point of Selection **A1-10**

Point of Design **A1-434**

Options **A1-457**

Model No. **A1-522**

Precautions on Use **A1-528**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-58**

Equivalent factor in each direction **A1-60**

Radial Clearance **A1-70**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-444**

Permissible Error of the Mounting Surface **A1-450**

Dimensions of Each Model with an Option Attached **A1-470**

Structure and Features

Balls roll in four rows of raceways precision-ground on an LM rail and an LM block, and ball cages and endplates incorporated in the LM block allow the balls to circulate.

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations. In addition, the LM block can receive a well-balanced preload, increasing the rigidity in the four directions while maintaining a constant, low friction coefficient. With the low sectional height and the high rigidity design of the LM block, this model achieves highly accurate and stable straight motion.

[4-way Equal Load]

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations and in extensive applications.

[Self-adjustment Capability]

The self-adjustment capability through front-to-front configuration of THK's unique circular-arc grooves (DF set) enables a mounting error to be absorbed even under a preload, thus to achieve highly accurate, smooth straight motion.

[Global Standard Size]

SHS is designed to have dimensions almost the same as that of Full Ball LM Guide model HSR, which THK as a pioneer of the linear motion system has developed and is practically a global standard size.

[Low Center of Gravity, High Rigidity]

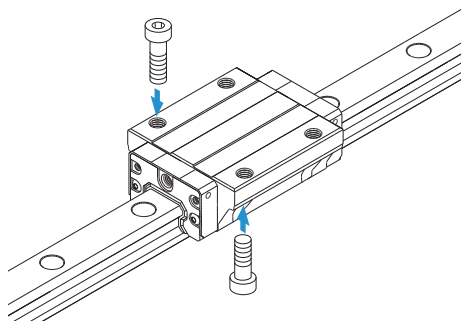
As a result of downsizing the LM rail section, the center of gravity is lowered and the rigidity is increased.

Types and Features

Model SHS-C

Specification Table⇒ **A1-96**

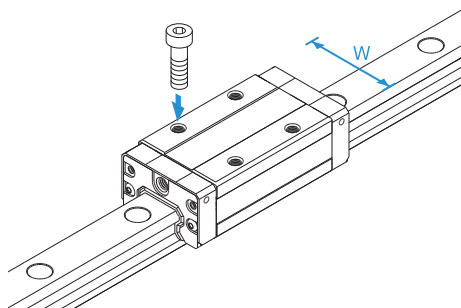
The flange of the LM block has tapped holes.
Can be mounted from the top or the bottom.
Used in places where the table cannot have through holes for mounting bolts.



Model SHS-V

Specification Table⇒ **A1-98**

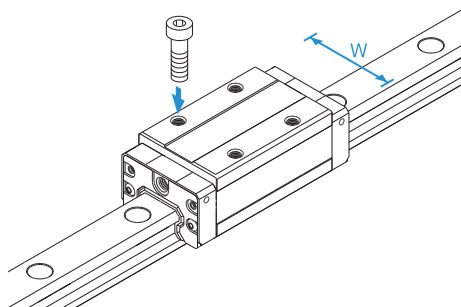
With this type, the LM block has a smaller width (W) and tapped holes.
Used in places where the space for table width is limited.



Model SHS-R

Specification Table⇒ **A1-100**

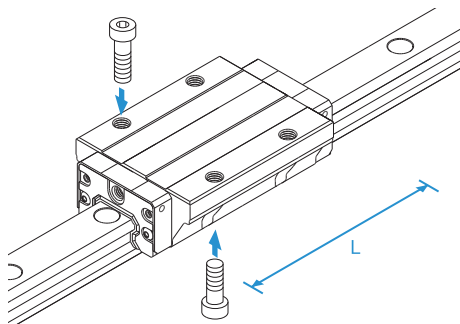
The LM block has a smaller width (W) and the mounting holes are tapped.
It succeeds the height dimension of full-ball type LM Guide HSR-R.



Model SHS-LC

Specification Table⇒ **A1-98**

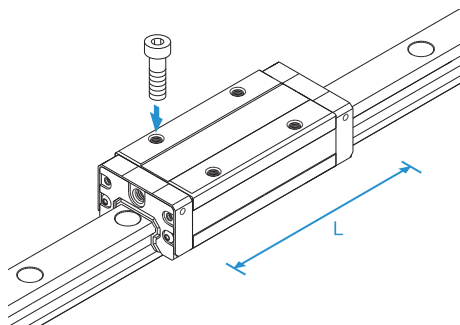
The LM block has the same cross-sectional shape as model SHS-C, but has a longer overall LM block length (L) and a greater rated load.



Model SHS-LV

Specification Table⇒ **A1-98**

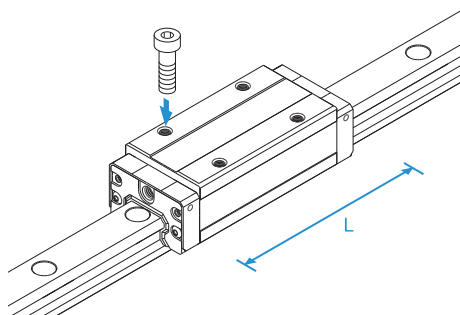
The LM block has the same cross-sectional shape as model SHS-V, but has a longer overall LM block length (L) and a greater rated load.



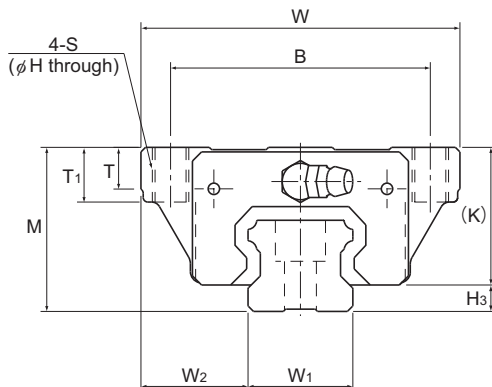
Model SHS-LR

Specification Table⇒ **A1-100**

The LM block has the same cross-sectional shape as model SHS-R, but has a longer overall LM block length (L) and a greater rated load.



Models SHS-C and SHS-LC



Model No.	Outer dimensions			LM block dimensions												Pilot hole for side nipple**		
	Height	Width	Length											Grease nipple				
	M	W	L	B	C	S	H	L ₁	T	T ₁	K	N	E		e ₀	f ₀	D ₀	
SHS 15C SHS 15LC	24	47	64.4 79.4	38	30	M5	4.4	48 63	5.9	8	21	5.5	5.5	PB1021B	4	4	3	
SHS 20C SHS 20LC	30	63	79 98	53	40	M6	5.4	59 78	7.2	10	25.4	6.5	12	B-M6F	4.3	5.3	3	
SHS 25C SHS 25LC	36	70	92 109	57	45	M8	6.8	71 88	9.1	12	30.2	7.5	12	B-M6F	4.5	5.5	3	
SHS 30C SHS 30LC	42	90	106 131	72	52	M10	8.5	80 105	11.5	15	35	8	12	B-M6F	5.8	6	5.2	
SHS 35C SHS 35LC	48	100	122 152	82	62	M10	8.5	93 123	11.5	15	40.5	8	12	B-M6F	6.5	5.5	5.2	
SHS 45C SHS 45LC	60	120	140 174	100	80	M12	10.5	106 140	14.1	18	51.1	10.5	16	B-PT1/8	8	8	5.2	
SHS 55C SHS 55LC	70	140	171 213	116	95	M14	12.5	131 173	16	21	57.3	11	16	B-PT1/8	10	8	5.2	
SHS 65C SHS 65LC	90	170	221 272	142	110	M16	14.5	175 226	18.8	24	71	19	16	B-PT1/8	10	12	5.2	

Model number coding

SHS25 LC 2 QZ KKHH C0 +1200L P Z T - II

Model
number

Type of
LM block

With QZ
Lubricator

Contamination
protection
accessory
symbol (*1)

LM rail length
(in mm)

With steel
tape

Symbol for LM rail
jointed use

Symbol for
No. of rails used
on the same
plane (*4)

No. of LM blocks
used on the same rail

Radial clearance symbol (*2)

Normal (No symbol)

Light preload (C1)

Medium preload (C0)

Accuracy symbol (*3)

Normal grade (No Symbol)/High accuracy grade (H)

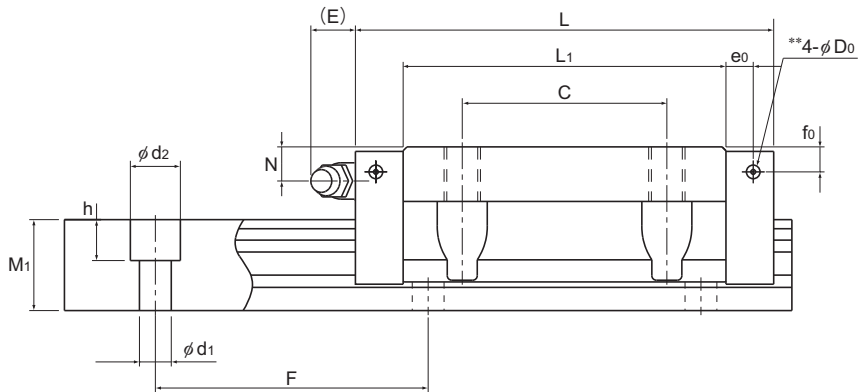
Precision grade (P)/Super precision grade (SP)

Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-70**. (*3) See **A1-76**. (*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.)

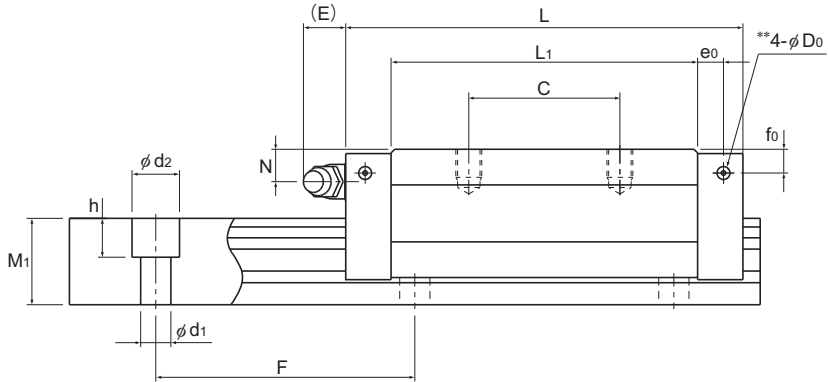
Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	LM rail dimensions							Basic load rating		Static permissible moment kN-m*					Mass	
	Width W ₁ 0 -0.05	W ₂	Height M ₁	Pitch F	d ₁ × d ₂ × h	Length* Max	C	C ₀		M _A		M _B		M _C	LM block kg	LM rail kg/m
										1 block	Double blocks	1 block	Double blocks	1 block		
3	15	16	13	60	4.5 × 7.5 × 5.3	3000	14.2 17.2	24.2 31.9	0.175 0.296	0.898 1.43	0.175 0.296	0.898 1.43	0.16 0.212	0.23 0.29	1.3	
4.6	20	21.5	16.5	60	6 × 9.5 × 8.5	3000	22.3 28.1	38.4 50.3	0.334 0.568	1.75 2.8	0.334 0.568	1.75 2.8	0.361 0.473	0.46 0.61	2.3	
5.8	23	23.5	20	60	7 × 11 × 9	3000	31.7 36.8	52.4 64.7	0.566 0.848	2.75 3.98	0.566 0.848	2.75 3.98	0.563 0.696	0.72 0.89	3.2	
7	28	31	23	80	9 × 14 × 12	3000	44.8 54.2	66.6 88.8	0.786 1.36	4.08 6.6	0.786 1.36	4.08 6.6	0.865 1.15	1.34 1.66	4.5	
7.5	34	33	26	80	9 × 14 × 12	3000	62.3 72.9	96.6 127	1.38 2.34	6.76 10.9	1.38 2.34	6.76 10.9	1.53 2.01	1.9 2.54	6.2	
8.9	45	37.5	32	105	14 × 20 × 17	3090	82.8 100	126 166	2.05 3.46	10.1 16.3	2.05 3.46	10.1 16.3	2.68 3.53	3.24 4.19	10.4	
12.7	53	43.5	38	120	16 × 23 × 20	3060	128 161	197 259	3.96 6.68	19.3 31.1	3.96 6.68	19.3 31.1	4.9 6.44	5.35 6.97	14.5	
19	63	53.5	53	150	18 × 26 × 22	3000	205 253	320 408	8.26 13.3	40.4 62.6	8.26 13.3	40.4 62.6	9.4 13.7	10.7 13.7	23.7	

Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product.
THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.
The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-102.**)
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



Unit: mm

	H ₃	LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
		Width	Height	Pitch		Length*		C	C ₀	M _A		M _B		M _C	LM block	LM rail
		W ₁ 0 -0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	3	15	9.5	13	60	4.5×7.5×5.3	3000	14.2 17.2	24.2 31.9	0.175 0.296	0.898 1.43	0.175 0.296	0.898 1.43	0.16 0.212	0.19 0.22	1.3
	4.6	20	12	16.5	60	6×9.5×8.5	3000	22.3 28.1	38.4 50.3	0.334 0.568	1.75 2.8	0.334 0.568	1.75 2.8	0.361 0.473	0.35 0.46	2.3
	5.8	23	12.5	20	60	7×11×9	3000	31.7 36.8	52.4 64.7	0.566 0.848	2.75 3.98	0.566 0.848	2.75 3.98	0.563 0.696	0.54 0.67	3.2
	7	28	16	23	80	9×14×12	3000	44.8 54.2	66.6 88.8	0.786 1.36	4.08 6.6	0.786 1.36	4.08 6.6	0.865 1.15	0.94 1.16	4.5
	7.5	34	18	26	80	9×14×12	3000	62.3 72.9	96.6 127	1.38 2.34	6.76 10.9	1.38 2.34	6.76 10.9	1.53 2.01	1.4 1.84	6.2
	8.9	45	20.5	32	105	14×20×17	3090	82.8 100	126 166	2.05 3.46	10.1 16.3	2.05 3.46	10.1 16.3	2.68 3.53	2.54 3.19	10.4
	12.7	53	23.5	38	120	16×23×20	3060	128 161	197 259	3.96 6.68	19.3 31.1	3.96 6.68	19.3 31.1	4.9 6.44	4.05 5.23	14.5
	19	63	31.5	53	150	18×26×22	3000	205 253	320 408	8.26 13.3	40.4 62.6	8.26 13.3	40.4 62.6	9.4 11.9	8.41 10.7	23.7

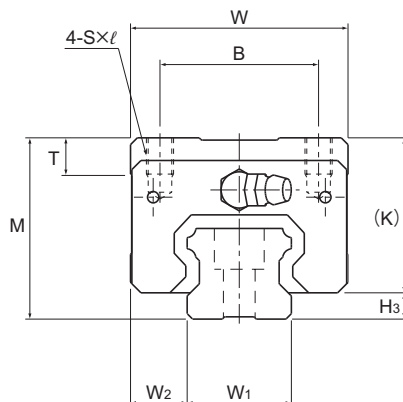
Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-102**.)

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

Models SHS-R and SHS-LR



Model No.	Outer dimensions			LM block dimensions										Pilot hole for side nipple**		
	Height	Width	Length													
	M	W	L	B	C	S × l	L ₁	T	K	N	E	Grease nipple	e _o	f _o	D _o	
SHS 15R	28	34	64.4	26	26	M4 × 5	48	5.9	25	9.5	5.5	PB1021B	4	8	3	
SHS 25R SHS 25LR	40	48	92 109	35	35 50	M6 × 8	71 88	8	34.2	11.5	12	B-M6F	6	9.5	3	
SHS 30R SHS 30LR	45	60	106 131	40	40 60	M8 × 10	80 105	8	38	11	12	B-M6F	5.8	9	5.2	
SHS 35R SHS 35LR	55	70	122 152	50	50 72	M8 × 12	93 123	14.7	47.5	15	12	B-M6F	6.5	12.5	5.2	
SHS 45R SHS 45LR	70	86	140 174	60	60 80	M10 × 17	106 140	14.9	61.1	20.5	16	B-PT1/8	8	18	5.2	
SHS 55R SHS 55LR	80	100	171 213	75	75 95	M12 × 18	131 173	19.4	67.3	21	16	B-PT1/8	10	18	5.2	

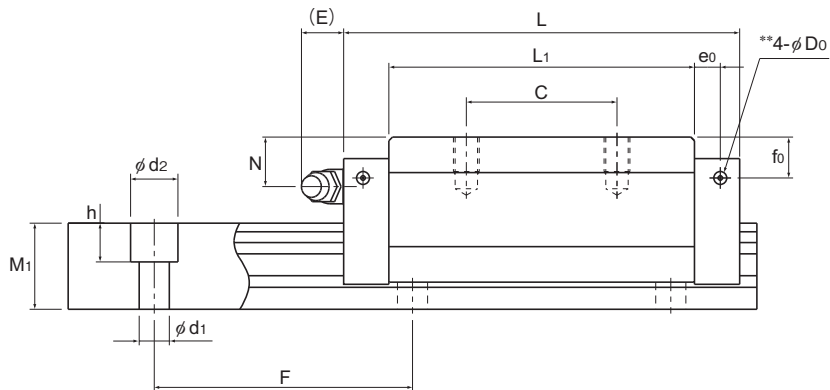
Model number coding

SHS45	LR	2	QZ	KKHH	C0	+1200L	P	T	- II
Model number	Type of LM block	With QZ Lubricator	Contamination protection accessory symbol (*1)		LM rail length (in mm)		Symbol for LM rail jointed use		Symbol for No. of rails used on the same plane (*4)
	No. of LM blocks used on the same rail		Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)			Accuracy symbol (*3) Normal grade (No Symbol)/High accuracy grade (H) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)			

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-70**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	H ₃	LM rail dimensions						Basic load rating		Static permissible moment kN·m*					Mass	
		Width	Height	Pitch		Length*		C	C ₀	M _A		M _B		M _C	LM block	LM rail
		W ₁ 0 -0.05	W ₂	M ₁	F	d ₁ × d ₂ × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	3	15	9.5	13	60	4.5 × 7.5 × 5.3	3000	14.2	24.2	0.175	0.898	0.175	0.898	0.16	0.22	1.3
	5.8	23	12.5	20	60	7 × 11 × 9	3000	31.7 36.8	52.4 64.7	0.566 0.848	2.75 3.98	0.566 0.848	2.75 3.98	0.563 0.696	0.66 0.8	3.2
	7	28	16	23	80	9 × 14 × 12	3000	44.8 54.2	66.6 88.8	0.786 1.36	4.08 6.6	0.786 1.36	4.08 6.6	0.865 1.15	1.04 1.36	4.5
	7.5	34	18	26	80	9 × 14 × 12	3000	62.3 72.9	96.6 127	1.38 2.34	6.76 10.9	1.38 2.34	6.76 10.9	1.53 2.01	1.8 2.34	6.2
	8.9	45	20.5	32	105	14 × 20 × 17	3090	82.8 100	126 166	2.05 3.46	10.1 16.3	2.05 3.46	10.1 16.3	2.68 3.53	3.24 4.19	10.4
	12.7	53	23.5	38	120	16 × 23 × 20	3060	128 161	197 259	3.96 6.68	19.3 31.1	3.96 6.68	19.3 31.1	4.9 6.44	5.05 6.57	14.5

Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-102**.)

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 SHS model rail. If a rail length longer than the listed max length is required, rails may be jointed to meet the overall length. Contact THK for details. For special rail lengths, it is recommended to use a value corresponding to the G dimension from the table. As the G dimension increases, this portion becomes less stable and the accuracy performance is severely impacted.

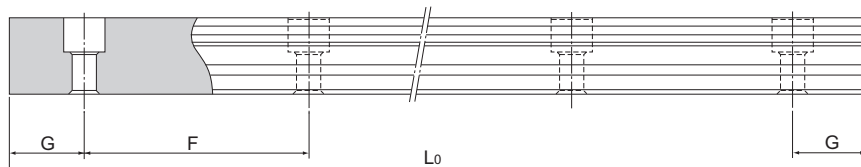


Table1 Standard Length and Maximum Length of the LM Rail for Model SHS

Unit: mm

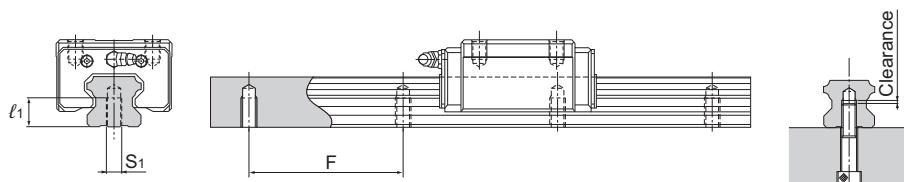
Model No.	SHS 15	SHS 20	SHS 25	SHS 30	SHS 35	SHS 45	SHS 55	SHS 65
LM rail standard length (L ₀)	160	220	220	280	280	570	780	1270
	220	280	280	360	360	675	900	1570
	280	340	340	440	440	780	1020	2020
	340	400	400	520	520	885	1140	2620
	400	460	460	600	600	990	1260	
	460	520	520	680	680	1095	1380	
	520	580	580	760	760	1200	1500	
	580	640	640	840	840	1305	1620	
	640	700	700	920	920	1410	1740	
	700	760	760	1000	1000	1515	1860	
	760	820	820	1080	1080	1620	1980	
	820	940	940	1160	1160	1725	2100	
	940	1000	1000	1240	1240	1830	2220	
	1000	1060	1060	1320	1320	1935	2340	
	1060	1120	1120	1400	1400	2040	2460	
	1120	1180	1180	1480	1480	2145	2580	
	1180	1240	1240	1560	1560	2250	2700	
	1240	1360	1300	1640	1640	2355	2820	
	1360	1480	1360	1720	1720	2460	2940	
	1480	1600	1420	1800	1800	2565	3060	
	1600	1720	1480	1880	1880	2670		
		1840	1540	1960	1960	2775		
		1960	1600	2040	2040	2880		
		2080	1720	2200	2200	2985		
		2200	1840	2360	2360	3090		
			1960	2520	2520			
			2080	2680	2680			
			2200	2840	2840			
			2320	3000	3000			
			2440					
Standard pitch F	60	60	60	80	80	105	120	150
G	20	20	20	20	20	22.5	30	35
Max length	3000	3000	3000	3000	3000	3090	3060	3000

Note1) The maximum length varies with accuracy grades. Contact THK for details.

Note2) If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Tapped-hole LM Rail Type of Model SHS

SHS model rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



- (1) Determine the bolt length so that a clearance of 2 to 5 mm is secured between the bolt end and the bottom of the tap (effective tap depth). (See figure above.)
- (2) For standard pitches of the taps, see Table1 on **A1-102**.

Table2 Dimensions of the LM Rail Tap

Unit: mm

Model No.	S_1	Effective tap depth l_1
SHS 15	M5	8
SHS 20	M6	10
SHS 25	M6	12
SHS 30	M8	15
SHS 35	M8	17
SHS 45	M12	20
SHS 55	M14	24
SHS 65	M20	30

Model number coding

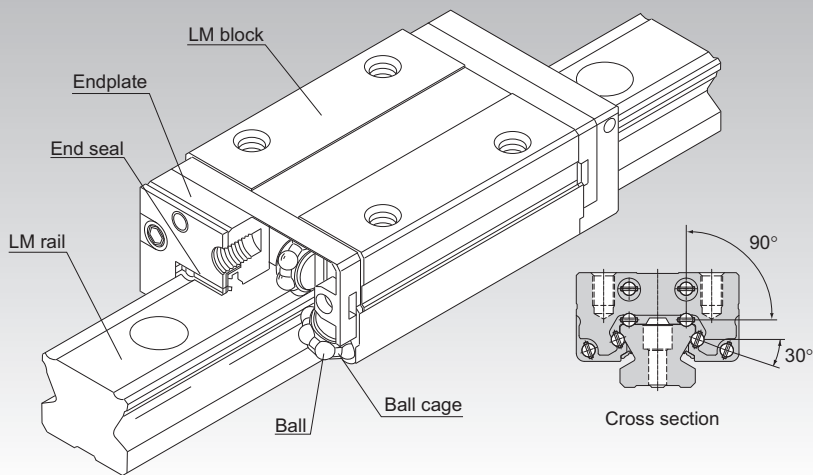
SHS35 LC2UU +1000LH K

Symbol for
tapped-hole LM rail type

SSR



Caged Ball LM Guide Radial Type Model SSR



*For the Ball Cage, see **A1-88**.

Point of Selection **A1-10**

Point of Design **A1-434**

Options **A1-457**

Model No. **A1-522**

Precautions on Use **A1-528**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-58**

Equivalent factor in each direction **A1-60**

Radial Clearance **A1-70**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-447**

Permissible Error of the Mounting Surface **A1-450**

Dimensions of Each Model with an Option Attached **A1-470**

Structure and Features

Balls roll in four rows of raceways precision-ground on an LM rail and an LM block, and ball cages and endplates incorporated in the LM block allow the balls to circulate.

Use of the ball cage eliminates friction between balls and increases grease retention, thus to achieve low noise, high speed and long-term maintenance-free operation.

[Compact, Radial Type]

Since it is a compactly designed model that has a low sectional height and a ball contact structure in the radial direction, this model is optimal for horizontal guide units.

[Superb Planar Running Accuracy]

Use of a ball contact structure that is highly resistant to loads in the radial direction minimizes radial displacement under radial loads and provides stable, highly accurate motion.

[Self-adjustment Capability]

The self-adjustment capability through front-to-front configuration of THK's unique circular-arc grooves (DF set) enables a mounting error to be absorbed even under a preload, thus to achieve highly accurate, smooth straight motion.

[Stainless Steel Type also Available as Standard]

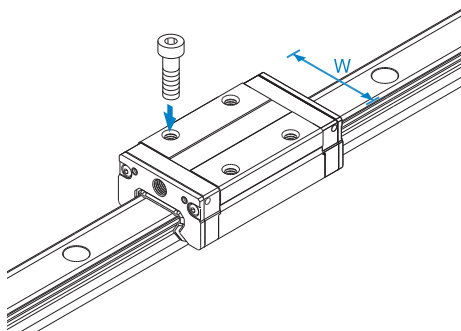
A stainless steel type with its LM block, LM rail and balls all made of stainless steel, which is superbly corrosion resistant, is also available as standard.

Types and Features

Model SSR-XW

With this type, the LM block has a smaller width (W) and tapped holes.

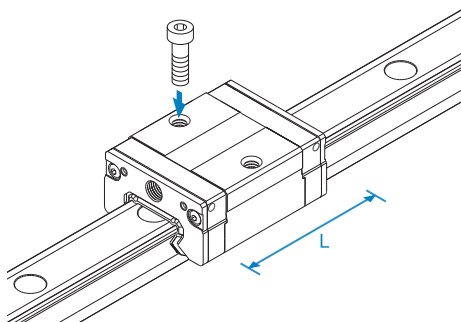
Specification Table⇒ **A1-108**



Model SSR-XV

This type has the same cross-sectional shape as SSR-XW but has a shorter overall LM block length (L).

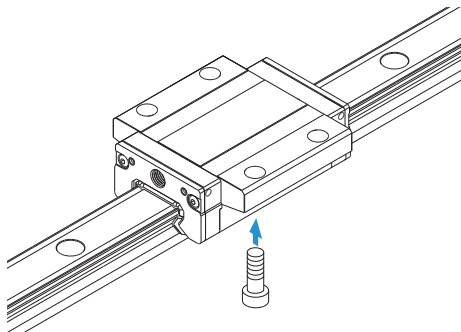
Specification Table⇒ **A1-110**



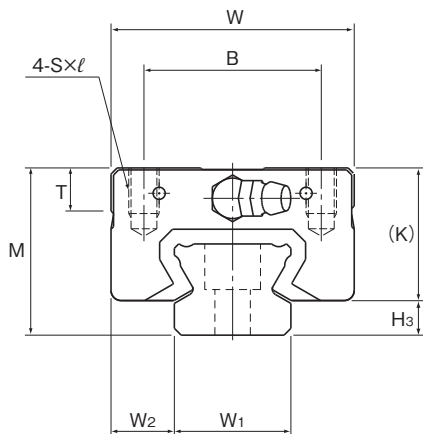
Model SSR-XTB

Since the LM block can be mounted from the bottom, this type is optimal for applications where through holes for mounting bolts cannot be drilled on the table.

Specification Table⇒ **A1-112**



Models SSR-XW and SSR-XWM



Model No.	Outer dimensions			LM block dimensions												H ₃
	Height	Width	Length												Grease nipple	
	M	W	L	B	C	S×ℓ	L ₁	T	K	N	E	f ₀	e ₀	D ₀		
SSR 15XW SSR 15XWM	24	34	56.9	26	26	M4×7	39.9	6.5	19.5	4.5	5.5	2.7	4.5	3	PB1021B	4.5
SSR 20XW SSR 20XWM	28	42	66.5	32	32	M5×8	46.6	8.2	22	5.5	12	2.9	5.2	3	B-M6F	6
SSR 25XW SSR 25XWM	33	48	83	35	35	M6×9	59.8	8.4	26.2	6	12	3.3	6.8	3	B-M6F	6.8
SSR 30XW SSR 30XWM	42	60	97	40	40	M8×12	70.7	11.3	32.5	8	12	4.5	7.6	4	B-M6F	9.5
SSR 35XW	48	70	110.9	50	50	M8×12	80.5	13	36.5	8.5	12	4.7	8.8	4	B-M6F	11.5

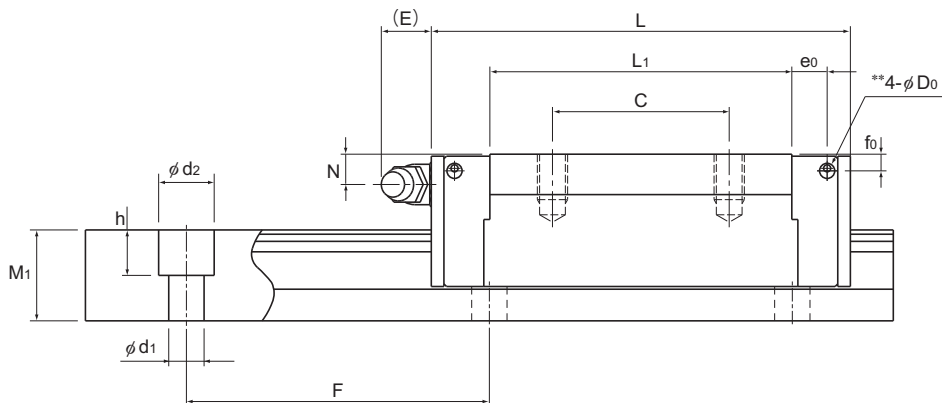
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

Model number coding




SSR25X	W	2	QZ	UU	C1	M	+1200L	Y	P	T	M	-II
Model number	Type of LM block	No. of LM blocks used on the same rail	With QZ lubricator	Contamination protection accessory symbol (*1)	Radial clearance symbol (*2) Normal (No symbol) Light preload (C1)	Stainless steel LM block	LM rail length (in mm) Applied to only 15 and 25	Accuracy symbol (*3) Normal grade (No Symbol) High accuracy grade (H)/Precision grade (P) Super precision grade (SP)/Ultra precision grade (UP)	Symbol for LM rail jointed use	Stainless steel LM rail	Symbol for No. of rails used on the same plane (*4)	

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-70**. (*3) See **A1-76**. (*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.) Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width		Height	Pitch		Length*	C	C ₀							LM block	LM rail
W_1 ±0.05	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
15	9.5	12.5	60	4.5×7.5×5.3	3000 (1240)	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962		0.15	1.2
20	11	15.5	60	6×9.5×8.5	3000 (1480)	19.6	23.4	0.138	0.723	0.0847	0.448	0.18		0.25	2.1
23	12.5	18	60	7×11×9	3000 (2020)	31.5	36.4	0.258	1.42	0.158	0.884	0.33		0.4	2.7
28	16	23	80	7×11×9	3000 (2520)	46.5	52.7	0.446	2.4	0.274	1.49	0.571		0.8	4.3
34	18	27.5	80	9×14×12	3000	64.6	71.6	0.711	3.72	0.437	2.31	0.936		1.1	6.4

Note1) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-114.**)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

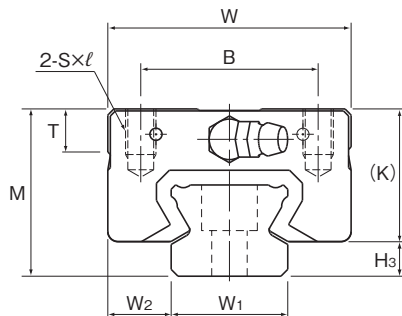
Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Note2) For models SSR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table1). When, replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table1 The dimension of the rail mounting hole

Model No.	Standard rail	Semi-Standard rail
SSR 15	For M4 (Symbol Y)	For M3 (No symbol)
SSR 25	For M6 (Symbol Y)	For M5 (No symbol)

Models SSR-XV and SSR-XVM



Model No.	Outer dimensions			LM block dimensions											H ₃
	Height	Width	Length											Grease nipple	
	M	W	L	B	S×ℓ	L ₁	T	K	N	E	f ₀	e ₀	D ₀		
SSR 15XV SSR 15XVM	24	34	40.3	26	M4×7	23.3	6.5	19.5	4.5	5.5	2.7	4.5	3	PB1021B	4.5
SSR 20XV SSR 20XVM	28	42	47.7	32	M5×8	27.8	8.2	22	5.5	12	2.9	5.2	3	B-M6F	6
SSR 25XV SSR 25XVM	33	48	60	35	M6×9	36.8	8.4	26.2	6	12	3.3	6.8	3	B-M6F	6.8

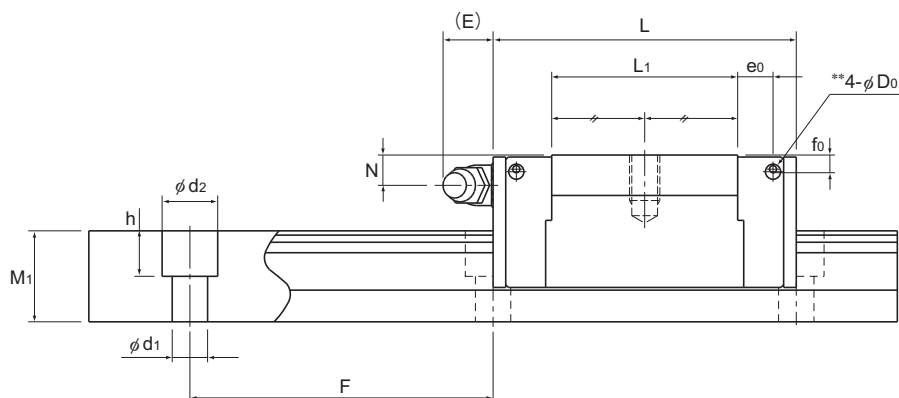
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

Model number coding

SSR25X	V	2	QZ	UU	C1	M	+1200L	Y	P	T	M	-III
Model number	Type of LM block	With QZ lubricator	Contamination protection accessory symbol (*1)	Radial clearance symbol (*2)	Stainless steel LM block	LM rail length (in mm)	Applied to only 15 and 25	Accuracy symbol (*3)	Symbol for LM rail jointed use	Stainless steel LM rail	Symbol for No. of rails used on the same plane (*4)	
	No. of LM blocks used on the same rail			Normal (No symbol) Light preload (C1)				Normal grade (No Symbol) High accuracy grade (H)/Precision grade (P) Super precision grade (SP)/Ultra precision grade (UP)				

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-70**. (*3) See **A1-76**. (*4) See **A1-13**.

Note) This model number indicates that a single-rail unit constitutes one set. (i.e., required number of sets when 3 rails are used in parallel is 3 at a minimum.)
Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width		Height	Pitch		Length*	C	C ₀	M _A		M _B		M _C	LM block	LM rail
W ₁ ±0.05	W ₂	M ₁	F	d ₁ × d ₂ × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
15	9.5	12.5	60	4.5 × 7.5 × 5.3	3000 (1240)	9.1	9.7	0.0303	0.192	0.0189	0.122	0.0562	0.08	1.2
20	11	15.5	60	6 × 9.5 × 8.5	3000 (1480)	13.4	14.4	0.0523	0.336	0.0326	0.213	0.111	0.14	2.1
23	12.5	18	60	7 × 11 × 9	3000 (2020)	21.7	22.5	0.104	0.661	0.0652	0.419	0.204	0.23	2.7

Note1) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-114**.)

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

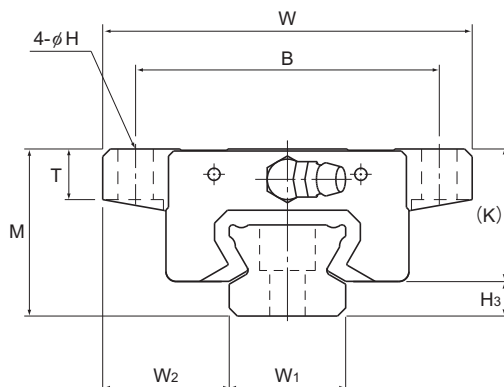
Note2) For models SSR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table1).

When replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table1 The dimension of the rail mounting hole

Model No.	Standard rail	Semi-Standard rail
SSR 15	For M4 (Symbol Y)	For M3 (No symbol)
SSR 25	For M6 (Symbol Y)	For M5 (No symbol)

Model SSR-XTB



Model No.	Outer dimensions			LM block dimensions												H ₃
	Height	Width	Length												Grease nipple	
	M	W	L	B	C	H	L ₁	T	K	N	E	f ₀	e ₀	D ₀		
SSR 15XTB	24	52	56.9	41	26	4.5	39.9	7	19.5	4.5	5.5	2.7	4.5	3	PB1021B	4.5
SSR 20XTB	28	59	66.5	49	32	5.5	46.6	9	22	5.5	12	2.9	5.2	3	B-M6F	6
SSR 25XTB	33	73	83	60	35	7	59.8	10	26.2	6	12	3.3	6.8	3	B-M6F	6.8

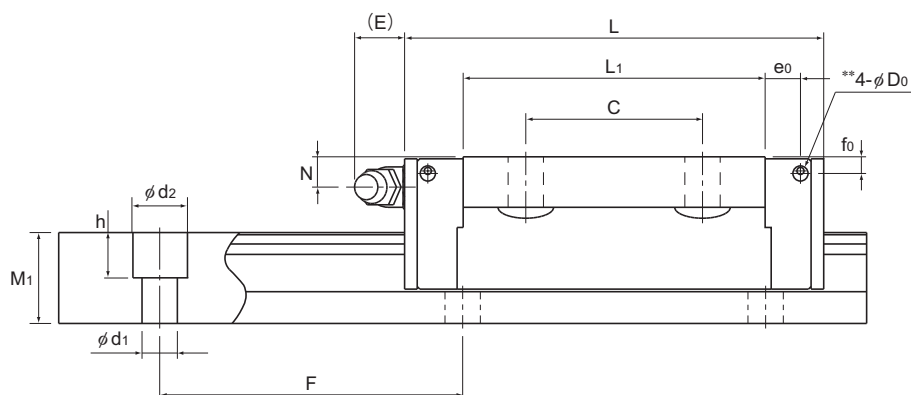
Model number coding

SSR15X	TB	2	QZ	UU	C1	+820L	Y	P	T	-II
Model number	Type of LM block	No. of LM blocks used on the same rail	With QZ lubricator	Contamination protection accessory symbol (*1)	LM rail length (in mm)	Applied to only 15 and 25 sizes	Symbol for LM rail jointed use	Accuracy symbol (*3)	Symbol for No. of rails used on the same plane (*4)	
				Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)				Normal grade (No Symbol) High accuracy grade (H) Precision grade (P) Super precision grade (SP) Ultra precision grade (UP)		




(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-70**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
	Width		Height	Pitch		Length*	C	C ₀							LM block	LM rail
	W ₁ ±0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m	
	15	18.5	12.5	60	4.5×7.5×5.3	3000 (1240)	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962	0.19	1.2	
	20	19.5	15.5	60	6×9.5×8.5	3000 (1480)	19.6	23.4	0.138	0.723	0.0847	0.448	0.18	0.31	2.1	
	23	25	18	60	7×11×9	3000 (2020)	31.5	36.4	0.258	1.42	0.158	0.884	0.33	0.53	2.7	

Note1) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-114.**)

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

Note2) For models SSR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table1).

When, replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail.

Contact THK for details.

Table1 The dimension of the rail mounting hole

Model No.	Standard rail	Semi-Standard rail
SSR 15	For M4 (Symbol Y)	For M3 (No symbol)
SSR 25	For M6 (Symbol Y)	For M5 (No symbol)

Standard Length and Maximum Length of the LM Rail

Table1 shows the standard lengths and the maximum lengths of model SSR variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used. Contact THK for details. For the G dimension when a special length is required, we recommend selecting the corresponding G value from the table. The longer the G dimension is, the less stable the G area may become after installation, thus causing an adverse impact to accuracy.



Table1 Standard Length and Maximum Length of the LM Rail

Unit: mm

Model No.	SSR 15X	SSR 20X	SSR 25X	SSR 30X	SSR 35X
LM rail standard length (L_0)	160	220	220	280	280
	220	280	280	360	360
	280	340	340	440	440
	340	400	400	520	520
	400	460	460	600	600
	460	520	520	680	680
	520	580	580	760	760
	580	640	640	840	840
	640	700	700	920	920
	700	760	760	1000	1000
	760	820	820	1080	1080
	820	940	940	1160	1160
	940	1000	1000	1240	1240
	1000	1060	1060	1320	1320
	1060	1120	1120	1400	1400
	1120	1180	1240	1480	1480
	1180	1240	1300	1640	1640
	1240	1300	1360	1720	1720
	1300	1360	1420	1800	1800
	1360	1420	1480	1880	1880
	1420	1480	1540	1960	1960
	1480	1540	1600	2040	2040
	1540	1600	1660	2120	2120
		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
G	20	20	20	20	20
Max length	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000

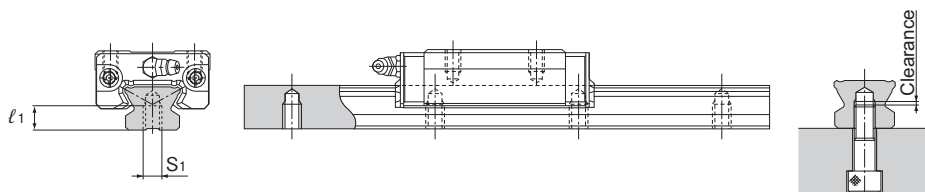
Note1) The maximum length varies with accuracy grades. Contact THK for details.

Note2) If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Note3) The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-hole LM Rail Type of Model SSR

SSR model rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



- (1) A tapped-hole LM rail type is available only for high accuracy or lower grades.
- (2) Determine the bolt length so that a clearance of 2 to 5 mm is secured between the bolt end and the bottom of the tap (effective tap depth). (See figure above.)
- (3) For standard pitches of the taps, see Table1 on **A1-114**.

Table2 Dimensions of the LM Rail Tap Unit: mm

Model No.	S ₁	Effective tap depth l_1
SSR 15X	M5	7
SSR 20X	M6	9
SSR 25X	M6	10
SSR 30X	M8	14
SSR 35X	M8	16

Model number coding

SSR20X W2UU +1200LH K

Symbol for
tapped-hole LM rail t

Structure and Features

A wide and highly rigid LM Guide that uses ball cages to achieve low noise, long-term maintenance-free operation and high speed.

[Wide, Low Center of Gravity]

Model SHW, which has a wide LM rail and a low center of gravity, is optimal for locations requiring space saving and large M_c moment rigidity.

[4-way Equal Load]

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations and in extensive applications.

[Self-adjustment Capability]

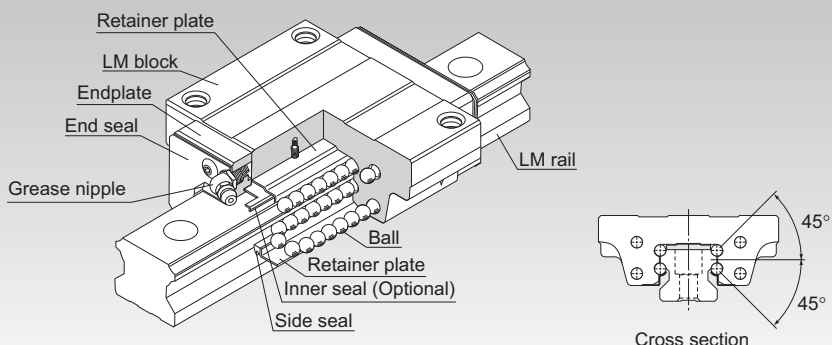
The self-adjustment capability through front-to-front configuration of THK's unique circular-arc grooves (DF set) enables a mounting error to be absorbed even under a preload, thus to achieve highly accurate, smooth straight motion.

[Low Dust Generation]

Use of ball cages eliminates friction between balls and retains lubricant, thus achieving low dust generation.

HSR

LM Guide Global Standard Size Model HSR



Point of Selection **A1-10**

Point of Design **A1-434**

Options **A1-457**

Model No. **A1-522**

Precautions on Use **A1-528**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-58**

Equivalent factor in each direction **A1-60**

Radial Clearance **A1-71**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-445**

Permissible Error of the Mounting Surface **A1-450**

Dimensions of Each Model with an Option Attached **A1-470**

Structure and Features

Balls roll in four 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.

Since retainer plates hold the balls, they do not fall off even if the LM rail is pulled out (except models HSR 8, 10 and 12).

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations. In addition, the LM block can receive a well-balanced preload, increasing the rigidity in the four directions while maintaining a constant, low friction coefficient. With the low sectional height and the high rigidity design of the LM block, this model achieves highly accurate and stable straight motion.

[4-way Equal Load]

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations and in extensive applications.

[High Rigidity Type]

Since balls are arranged in four rows in a well-balanced manner, a large preload can be applied and the rigidity in four directions can easily be increased.

[Self-adjustment Capability]

The self-adjustment capability through front-to-front configuration of THK's unique circular-arc grooves (DF set) enables a mounting error to be absorbed even under a preload, thus to achieve highly accurate, smooth straight motion.

[High Durability]

Even under a preload or excessive biased load, differential slip of balls does not occur. As a result, smooth motion, high wear resistance, and long-term maintenance of accuracy are achieved.

[Stainless Steel Type also Available]

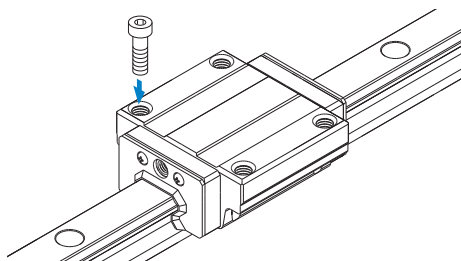
A special type which LM block, LM rail and balls are made of stainless steel is also available.

Types

Model HSR-A

Specification Table⇒ **A1-184**

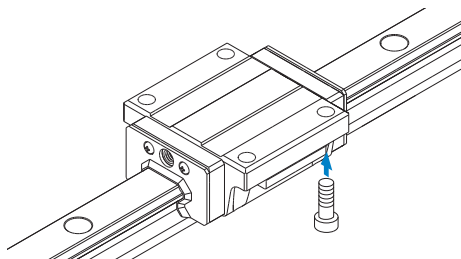
The flange of its LM block has tapped holes.



Model HSR-B

Specification Table⇒ **A1-186**

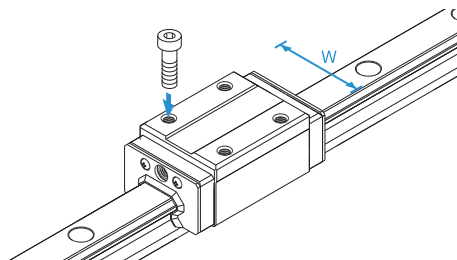
The flange of the LM block has through holes. Used in places where the table cannot have through holes for mounting bolts.



Model HSR-R

Specification Table⇒ **A1-190**

Having a smaller LM block width (W) and tapped holes, this model is optimal for compact design.



Model HSR-YR

When using two units of LM Guide facing each other, the previous model required much time in machining the table and had difficulty achieving the desired accuracy and adjusting the clearance. Since model HSR-YR has tapped holes on the side of the LM block, a simpler structure is gained and reduced man-hour and increase in accuracy can be achieved.

Specification Table⇒ **A1-192**

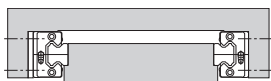
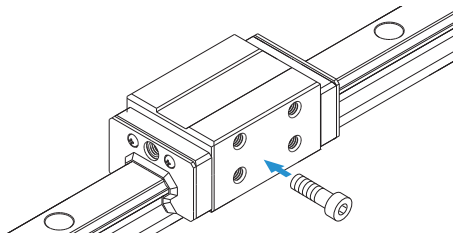


Fig.1 Conventional Structure

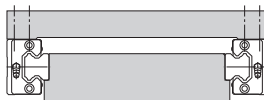
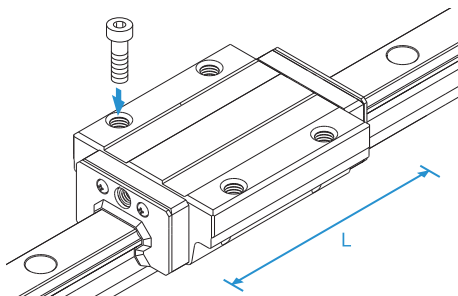


Fig.2 Mounting Structure for Model HSR-YR

Model HSR-LA

The LM block has the same cross-sectional shape as model HSR-A, but has a longer overall LM block length (L) and a greater rated load.

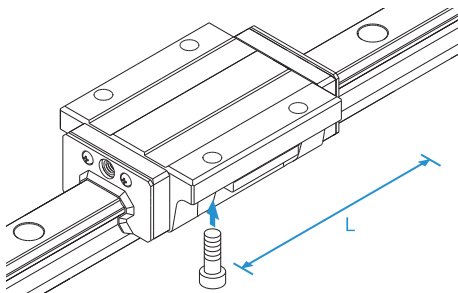
Specification Table⇒ **A1-184**



Model HSR-LB

The LM block has the same cross-sectional shape as model HSR-B, but has a longer overall LM block length (L) and a greater rated load.

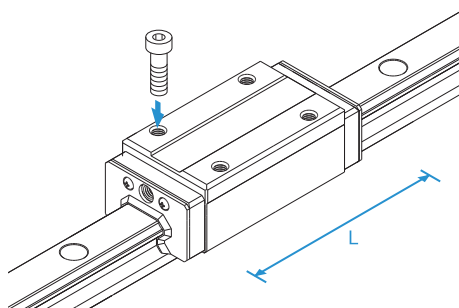
Specification Table⇒ **A1-186**



Model HSR-LR

Specification Table⇒ **A1-190**

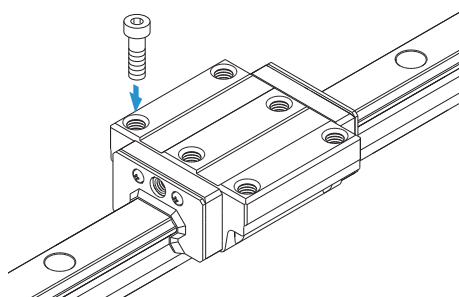
The LM block has the same cross-sectional shape as model HSR-R, but has a longer overall LM block length (L) and a greater rated load.



Model HSR-CA

Specification Table⇒ **A1-194**

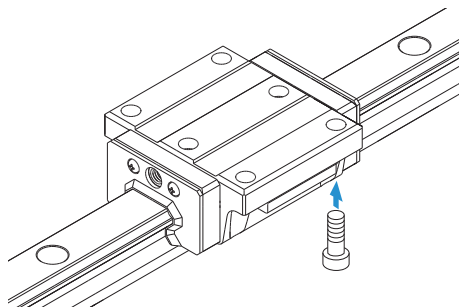
Has six tapped holes on the LM block.



Model HSR-CB

Specification Table⇒ **A1-196**

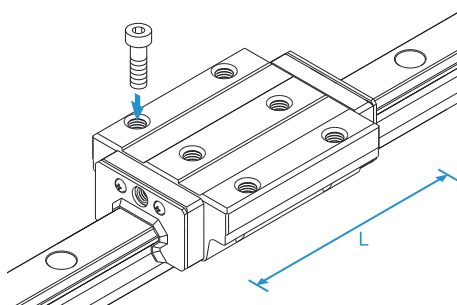
The LM block has six through holes. Used in places where the table cannot have through holes for mounting bolts.



Model HSR-HA

The LM block has the same cross-sectional shape as model HSR-CA, but has a longer overall LM block length (L) and a greater rated load.

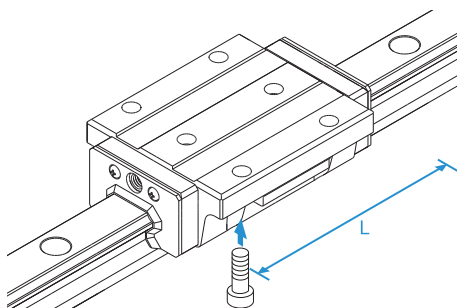
Specification Table⇒ **A1-194**



Model HSR-HB

The LM block has the same cross sectional shape as model HSR-CB, but has a longer overall LM block length (L) and a greater rated load.

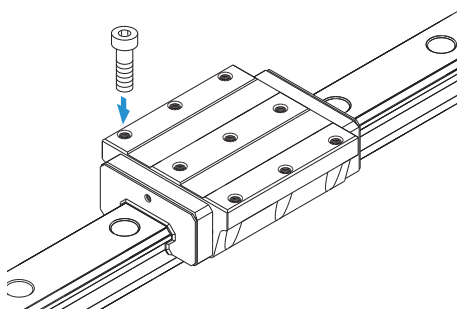
Specification Table⇒ **A1-196**



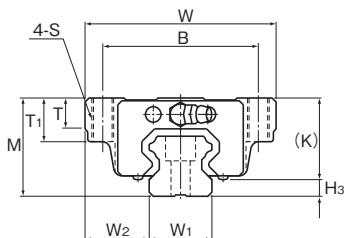
Models HSR 100/120/150 HA/HB/HR

Large types of model HSR that can be used in large-scale machine tools and building structures.

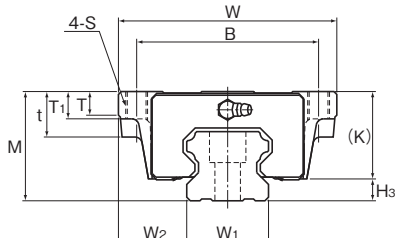
Specification Table⇒ **A1-198**



Models HSR-A and HSR-AM, Models HSR-LA and HSR-LAM



Models HSR15 to 35A/LA/AM/LAM



Models HSR45 to 85A/LA

Model No.	Outer dimensions			LM block dimensions											H ₃
	Height	Width	Length	B	C	S	L ₁	t	T	T ₁	K	N	E	Grease nipple	
	M	W	L												
HSR 15A HSR 15AM	24	47	56.6	38	30	M5	38.8	—	7	11	19.3	4.3	5.5	PB1021B	4.7
HSR 20A HSR 20AM	30	63	74	53	40	M6	50.8	—	9.5	10	26	5	12	B-M6F	4
HSR 20LA HSR 20LAM	30	63	90	53	40	M6	66.8	—	9.5	10	26	5	12	B-M6F	4
HSR 25A HSR 25AM	36	70	83.1	57	45	M8	59.5	—	11	16	30.5	6	12	B-M6F	5.5
HSR 25LA HSR 25LAM	36	70	102.2	57	45	M8	78.6	—	11	16	30.5	6	12	B-M6F	5.5
HSR 30A HSR 30AM	42	90	98	72	52	M10	70.4	—	9	18	35	7	12	B-M6F	7
HSR 30LA HSR 30LAM	42	90	120.6	72	52	M10	93	—	9	18	35	7	12	B-M6F	7
HSR 35A HSR 35AM	48	100	109.4	82	62	M10	80.4	—	12	21	40.5	8	12	B-M6F	7.5
HSR 35LA HSR 35LAM	48	100	134.8	82	62	M10	105.8	—	12	21	40.5	8	12	B-M6F	7.5
HSR 45A HSR 45LA	60	120	139 170.8	100	80	M12	98 129.8	25	13	15	50	10	16	B-PT1/8	10
HSR 55A HSR 55LA	70	140	163 201.1	116	95	M14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	13
HSR 65A HSR 65LA	90	170	186 245.5	142	110	M16	147 206.5	37	21.5	23	76	19	16	B-PT1/8	14
HSR 85A HSR 85LA	110	215	245.6 303	185	140	M20	178.6 236	55	28	30	94	23	16	B-PT1/8	16

Model number coding

HSR25 A 2 QZ UU C0 M +1200L P T M - II

Model
number

Type of
LM block

With QZ
Lubricator

Contamination
protection
accessory
symbol (*1)

Stainless steel
LM block

LM rail length
(in mm)

Stainless steel
LM rail

Symbol for
No. of rails used
on the same
plane (*4)

No. of LM blocks
used on the same
rail

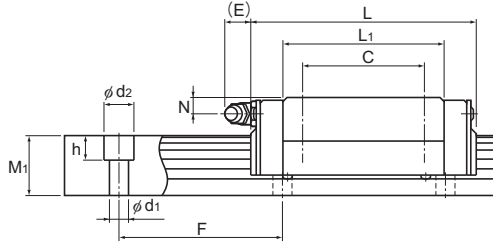
Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width	Height	Pitch		Length*		C	C ₀	M _A		M _B		M _C		LM block	LM rail
W ₁ ±0.05	W ₂	M ₁	F	d ₁ × d ₂ × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block		kg	kg/m
15	16	15	60	4.5 × 7.5 × 5.3	3000 (1240)	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998		0.2	1.5
20	21.5	18	60	6 × 9.5 × 8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.35	2.3
20	21.5	18	60	6 × 9.5 × 8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307		0.47	2.3
23	23.5	22	60	7 × 11 × 9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.59	3.3
23	23.5	22	60	7 × 11 × 9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518		0.75	3.3
28	31	26	80	9 × 14 × 12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652		1.1	4.8
28	31	26	80	9 × 14 × 12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852		1.3	4.8
34	33	29	80	9 × 14 × 12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.6	6.6
34	33	29	80	9 × 14 × 12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37		2	6.6
45	37.5	38	105	14 × 20 × 17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6		2.8 3.3	11
53	43.5	44	120	16 × 23 × 20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56		4.5 5.7	15.1
63	53.5	53	150	18 × 26 × 22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79		8.5 10.7	22.5
85	65	65	180	24 × 35 × 28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7		17 23	35.2

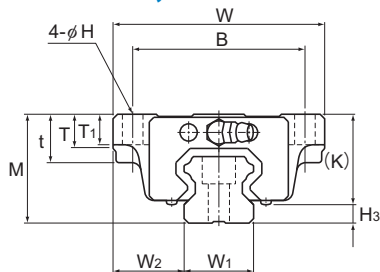
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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

Models HSR-B, HSR-BM, HSR-LB and HSR-LBM



Model No.	Outer dimensions			LM block dimensions											H ₃
	Height	Width	Length											Grease nipple	
	M	W	L	B	C	H	L ₁	t	T	T ₁	K	N	E		
HSR 15B HSR 15BM	24	47	56.6	38	30	4.5	38.8	11	7	7	19.3	4.3	5.5	PB1021B	4.7
HSR 20B HSR 20BM	30	63	74	53	40	6	50.8	10	9.5	10	26	5	12	B-M6F	4
HSR 20LB HSR 20LBM	30	63	90	53	40	6	66.8	10	9.5	10	26	5	12	B-M6F	4
HSR 25B HSR 25BM	36	70	83.1	57	45	7	59.5	16	11	10	30.5	6	12	B-M6F	5.5
HSR 25LB HSR 25LBM	36	70	102.2	57	45	7	78.6	16	11	10	30.5	6	12	B-M6F	5.5
HSR 30B HSR 30BM	42	90	98	72	52	9	70.4	18	9	10	35	7	12	B-M6F	7
HSR 30LB HSR 30LBM	42	90	120.6	72	52	9	93	18	9	10	35	7	12	B-M6F	7
HSR 35B HSR 35BM	48	100	109.4	82	62	9	80.4	21	12	13	40.5	8	12	B-M6F	7.5
HSR 35LB HSR 35LBM	48	100	134.8	82	62	9	105.8	21	12	13	40.5	8	12	B-M6F	7.5
HSR 45B HSR 45LB	60	120	139 170.8	100	80	11	98 129.8	25	13	15	50	10	16	B-PT1/8	10
HSR 55B HSR 55LB	70	140	163 201.1	116	95	14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	13
HSR 65B HSR 65LB	90	170	186 245.5	142	110	16	147 206.5	37	21.5	23	76	19	16	B-PT1/8	14
HSR 85B HSR 85LB	110	215	245.6 303	185	140	18	178.6 236	55	28	30	94	23	16	B-PT1/8	16

Model number coding

HSR25 B 2 QZ UU C0 M +1200L P T M -II

Model
number

Type of
LM block

With QZ
Lubricator

Contamination
protection
accessory
symbol (*1)

Stainless steel
LM block

LM rail length
(in mm)

Stainless steel
LM rail
Symbol for LM rail
jointed use

Symbol for
No. of rails used
on the same
plane (*4)

No. of LM blocks
used on the same rail

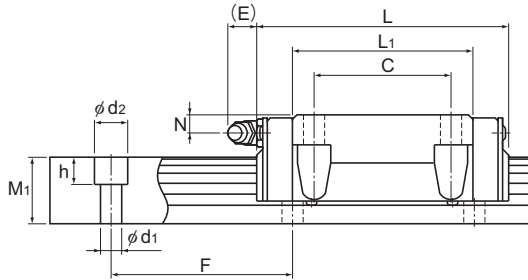
Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)




(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
	Width W ₁ ±0.05		Height W ₂	Pitch M ₁	Pitch F	Length* d ₁ ×d ₂ ×h Max	C kN	C ₀ kN	M _A 		M _B 		M _C 	LM block kg	LM rail kg/m
									1 block	Double blocks	1 block	Double blocks	1 block		
15	16	15	60	4.5×7.5×5.3	3000 (1240)	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998	0.2	1.5	
20	21.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235	0.35	2.3	
20	21.5	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307	0.47	2.3	
23	23.5	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366	0.59	3.3	
23	23.5	22	60	7×11×9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518	0.75	3.3	
28	31	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652	1.1	4.8	
28	31	26	80	9×14×12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852	1.3	4.8	
34	33	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05	1.6	6.6	
34	33	29	80	9×14×12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37	2	6.6	
45	37.5	38	105	14×20×17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6	2.8 3.3	11	
53	43.5	44	120	16×23×20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56	4.5 5.7	15.1	
63	53.5	53	150	18×26×22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79	8.5 10.7	22.5	
85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	17 23	35.2	

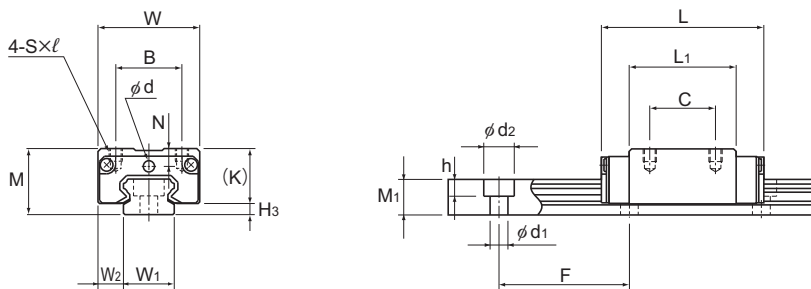
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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 HSR-RM



Models HSR8RM and 10RM

Model No.	Outer dimensions			LM block dimensions										H ₃
	Height	Width	Length	B	C	S × l	L ₁	T	K	N	E	Greasing hole d	Grease nipple	
HSR 8RM	11	16	24	10	10	M2×2.5	15	—	8.9	2.6	—	2.2	—	2.1
HSR 10RM	13	20	31	13	12	M2.6×2.5	20.1	—	10.8	3.5	—	2.5	—	2.2
HSR 12RM	20	27	45	15	15	M4×4.5	30.5	6	16.9	5.2	4	—	PB107	3.1

Model number coding

HSR12 R 2 UU C1 M +670L H T M - II

Model number

Type of LM block

No. of LM blocks used on the same rail

Contamination protection accessory symbol (*1)

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)

Stainless steel LM block

LM rail length (in mm)

Accuracy symbol (*3)

Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)

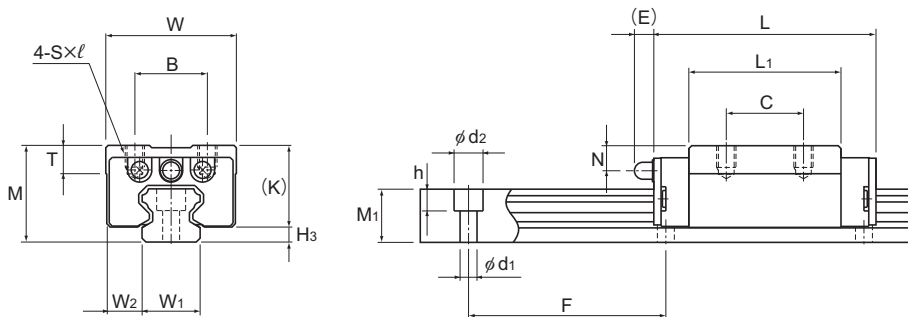
Stainless steel LM rail

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*4)




(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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 HSR12RM

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
	Width	Height	Pitch	Length*	C	C ₀							LM block	LM rail	
							W ₁ ±0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max			kN
	kg	kg/m													
	8	4	6	20	2.4×4.2×2.3	(975)	1.08	2.16	0.00492	0.0319	0.00492	0.0319	0.00727	0.012	0.3
	10	5	7	25	3.5×6×3.3	(995)	1.96	3.82	0.0123	0.0716	0.0123	0.0716	0.0162	0.025	0.45
	12	7.5	11	40	3.5×6×4.5	(1240)	4.7	8.53	0.0409	0.228	0.0409	0.228	0.0445	0.08	0.83

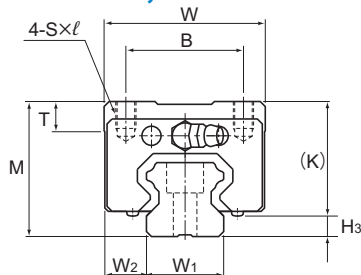
Note) Since stainless steel is used in the LM block, LM rail and balls, these models are highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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

Models HSR-R, HSR-RM, HSR-LR and HSR-LRM



Model No.	Outer dimensions			LM block dimensions									Grease nipple	H ₃
	Height	Width	Length											
	M	W	L	B	C	S×ℓ	L ₁	T	K	N	E			
HSR 15R HSR 15RM	28	34	56.6	26	26	M4×5	38.8	6	23.3	8.3	5.5	PB1021B	4.7	
HSR 20R HSR 20RM	30	44	74	32	36	M5×6	50.8	8	26	5	12	B-M6F	4	
HSR 20LR HSR 20LRM	30	44	90	32	50	M5×6	66.8	8	26	5	12	B-M6F	4	
HSR 25R HSR 25RM	40	48	83.1	35	35	M6×8	59.5	9	34.5	10	12	B-M6F	5.5	
HSR 25LR HSR 25LRM	40	48	102.2	35	50	M6×8	78.6	9	34.5	10	12	B-M6F	5.5	
HSR 30R HSR 30RM	45	60	98	40	40	M8×10	70.4	9	38	10	12	B-M6F	7	
HSR 30LR HSR 30LRM	45	60	120.6	40	60	M8×10	93	9	38	10	12	B-M6F	7	
HSR 35R HSR 35RM	55	70	109.4	50	50	M8×12	80.4	11.7	47.5	15	12	B-M6F	7.5	
HSR 35LR HSR 35LRM	55	70	134.8	50	72	M8×12	105.8	11.7	47.5	15	12	B-M6F	7.5	
HSR 45R HSR 45LR	70	86	139 170.8	60	60 80	M10×17	98 129.8	15	60	20	16	B-PT1/8	10	
HSR 55R HSR 55LR	80	100	163 201.1	75	75 95	M12×18	118 156.1	20.5	67	21	16	B-PT1/8	13	
HSR 65R HSR 65LR	90	126	186 245.5	76	70 120	M16×20	147 206.5	23	76	19	16	B-PT1/8	14	
HSR 85R HSR 85LR	110	156	245.6 303	100	80 140	M18×25	178.6 236	29	94	23	16	B-PT1/8	16	

Model number coding

HSR35 R 2 QZ SS C0 M +1400L P T M -II

Model
number

Type of
LM block

With QZ
Lubricator

Contamination
protection
accessory
symbol (*1)

Stainless steel
LM block

LM rail length
(in mm)

Stainless steel
LM rail
Symbol for
LM rail jointed use

Symbol for
No. of rails used
on the same
plane (*4)

No. of LM blocks
used on the same
rail

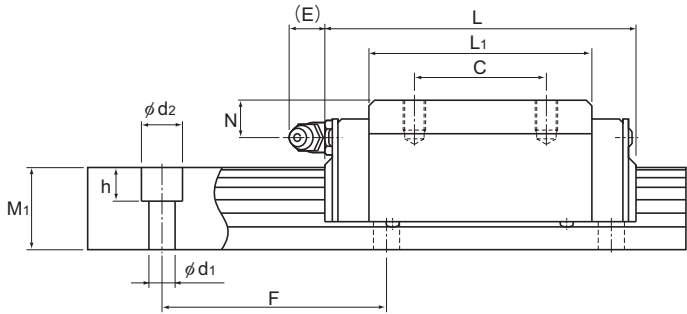
Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)




(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
	Width		Height	Pitch		Length*	C	C ₀						LM block	LM rail
	W ₁ ±0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	15	9.5	15	60	4.5×7.5×5.3	3000 (1240)	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998	0.18	1.5
	20	12	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235	0.25	2.3
	20	12	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307	0.35	2.3
	23	12.5	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366	0.54	3.3
	23	12.5	22	60	7×11×9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518	0.67	3.3
	28	16	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652	0.9	4.8
	28	16	26	80	9×14×12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852	1.1	4.8
	34	18	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05	1.5	6.6
	34	18	29	80	9×14×12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37	2	6.6
	45	20.5	38	105	14×20×17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6	2.6 3.1	11
	53	23.5	44	120	16×23×20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56	4.3 5.4	15.1
	63	31.5	53	150	18×26×22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79	7.3 9.3	22.5
	85	35.5	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	13 16	35.2

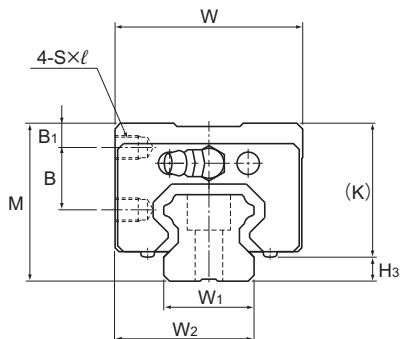
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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

Models HSR-YR and HSR-YRM



Model No.	Outer dimensions			LM block dimensions									H ₃
	Height	Width	Length								Grease nipple		
	M	W	L	B ₁	B	C	S×ℓ	L ₁	K	N	E		
HSR 15YR HSR 15YRM	28	33.5	56.6	4.3	11.5	18	M4×5	38.8	23.3	8.3	5.5	PB1021B	4.7
HSR 20YR HSR 20YRM	30	43.5	74	4	11.5	25	M5×6	50.8	26	5	12	B-M6F	4
HSR 25YR HSR 25YRM	40	47.5	83.1	6	16	30	M6×6	59.5	34.5	10	12	B-M6F	5.5
HSR 30YR HSR 30YRM	45	59.5	98	8	16	40	M6×9	70.4	38	10	12	B-M6F	7
HSR 35YR HSR 35YRM	55	69.5	109.4	8	23	43	M8×10	80.4	47.5	15	12	B-M6F	7.5
HSR 45YR	70	85.5	139	10	30	55	M10×14	98	60	20	16	B-PT1/8	10
HSR 55YR	80	99.5	163	12	32	70	M12×15	118	67	21	16	B-PT1/8	13
HSR 65YR	90	124.5	186	12	35	85	M16×22	147	76	19	16	B-PT1/8	14

Model number coding

HSR25 YR 2 UU C0 M +1200L P T M -II

Model number

Type of LM block

Contamination protection accessory symbol (*1)

Stainless steel LM block

LM rail length (in mm)

Stainless steel LM rail

Symbol for No. of rails used on the same plane (*4)

No. of LM blocks used on the same rail

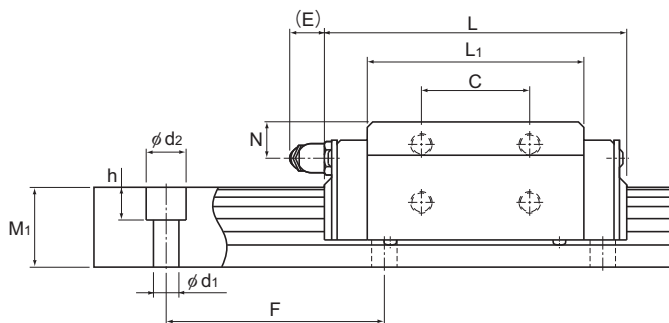
Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Symbol for LM rail jointed use

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width W_1 ± 0.05	Height W_2	Pitch M_1	Pitch F	Length* $d_1 \times d_2 \times h$	Length* Max	C kN	C_0 kN	M_A 		M_B 		M_C 		LM block kg	LM rail kg/m
1 block	Double blocks	1 block	Double blocks	1 block											
15	24	15	60	4.5×7.5×5.3	3000 (1240)	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998		0.18	1.5
20	31.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.25	2.3
23	35	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.54	3.3
28	43.5	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652		0.9	4.8
34	51.5	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.5	6.6
45	65	38	105	14×20×17	3090	82.2	101	1.5	8.37	1.5	8.37	1.94		2.6	11
53	76	44	120	16×23×20	3060	121	146	2.6	14.1	2.6	14.1	3.43		4.3	15.1
63	93	53	150	18×26×22	3000	195	228	5.08	25	5.08	25	6.2		7.3	22.5

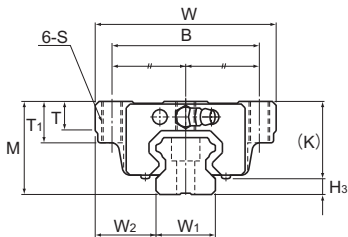
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

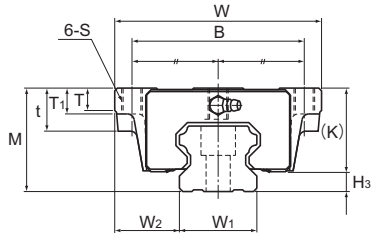
Static permissible moment*: 1 block: static permissible moment value with 1 LM block

Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Models HSR-CA, HSR-CAM, HSR-HA and HSR-HAM



Models HSR20 to 35CA/HA/CAM/HAM



Models HSR45 to 85CA/HA

Model No.	Outer dimensions			LM block dimensions											H ₃
	Height	Width	Length											Grease nipple	
	M	W	L	B	C	S	L ₁	t	T	T ₁	K	N	E		
HSR 20CA HSR 20CAM	30	63	74	53	40	M6	50.8	—	9.5	10	26	5	12	B-M6F	4
HSR 20HA HSR 20HAM	30	63	90	53	40	M6	66.8	—	9.5	10	26	5	12	B-M6F	4
HSR 25CA HSR 25CAM	36	70	83.1	57	45	M8	59.5	—	11	16	30.5	6	12	B-M6F	5.5
HSR 25HA HSR 25HAM	36	70	102.2	57	45	M8	78.6	—	11	16	30.5	6	12	B-M6F	5.5
HSR 30CA HSR 30CAM	42	90	98	72	52	M10	70.4	—	9	18	35	7	12	B-M6F	7
HSR 30HA HSR 30HAM	42	90	120.6	72	52	M10	93	—	9	18	35	7	12	B-M6F	7
HSR 35CA HSR 35CAM	48	100	109.4	82	62	M10	80.4	—	12	21	40.5	8	12	B-M6F	7.5
HSR 35HA HSR 35HAM	48	100	134.8	82	62	M10	105.8	—	12	21	40.5	8	12	B-M6F	7.5
HSR 45CA HSR 45HA	60	120	139 170.8	100	80	M12	98 129.8	25	13	15	50	10	16	B-PT1/8	10
HSR 55CA HSR 55HA	70	140	163 201.1	116	95	M14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	13
HSR 65CA HSR 65HA	90	170	186 245.5	142	110	M16	147 206.5	37	21.5	23	76	19	16	B-PT1/8	14
HSR 85CA HSR 85HA	110	215	245.6 303	185	140	M20	178.6 236	55	28	30	94	23	16	B-PT1/8	16

Model number coding

HSR25 HA 2 QZ KKHH C0 M +1300L P T M - II

Model
number

Type of
LM block

No. of LM blocks
used on the same
rail

With QZ
Lubricator

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Contamination
protection
accessory
symbol (*1)

Stainless steel
LM block

Accuracy symbol (*3)
Normal grade (No Symbol)
High accuracy grade (H)
Precision grade (P)
Super precision grade (SP)
Ultra precision grade (UP)

LM rail length
(in mm)

Stainless
steel
LM rail

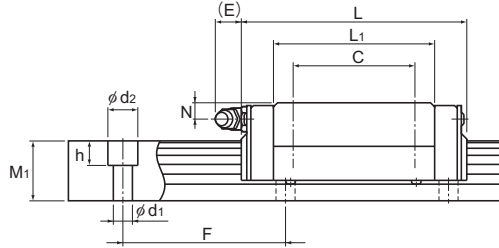
Symbol
for LM rail
jointed use

Symbol for
No. of rails used
on the same
plane (*4)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

LM rail dimensions							Basic load rating		Static permissible moment kN-m*						Mass	
Width		Height	Pitch		Length*		C	C ₀	M _A		M _B		M _C		LM block	LM rail
W ₁ ±0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max	kN	kN		1 block	Double blocks	1 block	Double blocks	1 block		kg	kg/m
20	21.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4		0.218	1.2	0.218	1.2	0.235	0.35	2.3	
20	21.5	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8		0.363	1.87	0.363	1.87	0.307	0.47	2.3	
23	23.5	22	60	7×11×9	3000 (2020)	27.6	36.4		0.324	1.8	0.324	1.8	0.366	0.59	3.3	
23	23.5	22	60	7×11×9	3000 (2020)	35.2	51.6		0.627	3.04	0.627	3.04	0.518	0.75	3.3	
28	31	26	80	9×14×12	3000 (2520)	40.5	53.7		0.599	3.1	0.599	3.1	0.652	1.1	4.8	
28	31	26	80	9×14×12	3000 (2520)	48.9	70.2		0.995	4.89	0.995	4.89	0.852	1.3	4.8	
34	33	29	80	9×14×12	3000 (2520)	53.9	70.2		0.895	4.51	0.895	4.51	1.05	1.6	6.6	
34	33	29	80	9×14×12	3000 (2520)	65	91.7		1.49	7.13	1.49	7.13	1.37	2	6.6	
45	37.5	38	105	14×20×17	3090	82.2 100	101 135		1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6	2.8 3.3	11	
53	43.5	44	120	16×23×20	3060	121 148	146 194		2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56	4.5 5.7	15.1	
63	53.5	53	150	18×26×22	3000	195 249	228 323		5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79	8.5 10.7	22.5	
85	65	65	180	24×35×28	3000	304 367	355 464		10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	17 23	35.2	

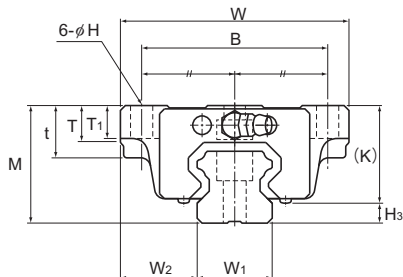
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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

Models HSR-CB, HSR-CBM, HSR-HB and HSR-HBM



Model No.	Outer dimensions			LM block dimensions										Grease nipple	H ₃
	Height M	Width W	Length L	B	C	H	L ₁	t	T	T ₁	K	N	E		
HSR 20CB HSR 20CBM	30	63	74	53	40	6	50.8	10	9.5	10	26	5	12	B-M6F	4
HSR 20HB HSR 20HBM	30	63	90	53	40	6	66.8	10	9.5	10	26	5	12	B-M6F	4
HSR 25CB HSR 25CBM	36	70	83.1	57	45	7	59.5	16	11	10	30.5	6	12	B-M6F	5.5
HSR 25HB HSR 25HBM	36	70	102.2	57	45	7	78.6	16	11	10	30.5	6	12	B-M6F	5.5
HSR 30CB HSR 30CBM	42	90	98	72	52	9	70.4	18	9	10	35	7	12	B-M6F	7
HSR 30HB HSR 30HBM	42	90	120.6	72	52	9	93	18	9	10	35	7	12	B-M6F	7
HSR 35CB HSR 35CBM	48	100	109.4	82	62	9	80.4	21	12	13	40.5	8	12	B-M6F	7.5
HSR 35HB HSR 35HBM	48	100	134.8	82	62	9	105.8	21	12	13	40.5	8	12	B-M6F	7.5
HSR 45CB HSR 45HB	60	120	139 170.8	100	80	11	98 129.8	25	13	15	50	10	16	B-PT1/8	10
HSR 55CB HSR 55HB	70	140	163 201.1	116	95	14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	13
HSR 65CB HSR 65HB	90	170	186 245.5	142	110	16	147 206.5	37	21.5	23	76	19	16	B-PT1/8	14
HSR 85CB HSR 85HB	110	215	245.6 303	185	140	18	178.6 236	55	28	30	94	23	16	B-PT1/8	16

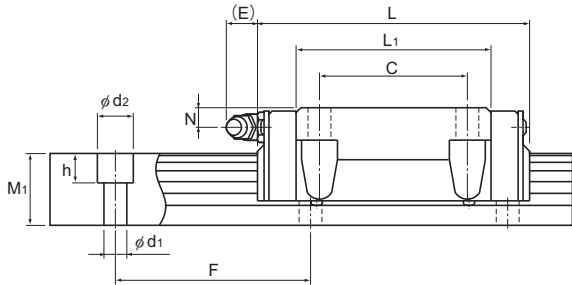
Model number coding

HSR35	CB	2	QZ	ZZHH	C0	M	+1400L	P	T	M	-II
Model number	Type of LM block	No. of LM blocks used on the same rail	With QZ Lubricator	Contamination protection accessory symbol (*1)	Stainless steel LM block	LM rail length (in mm)	Accuracy symbol (*3) Normal grade (No Symbol) High accuracy grade (H) Precision grade (P) Super precision grade (SP) Ultra precision grade (UP)	Stainless steel LM rail	Symbol for LM rail jointed use	Symbol for No. of rails used on the same plane (*4)	
			Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)								




(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)

Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
	Width		Height	Pitch		Length*	C	C ₀						LM block	LM rail	
	W ₁ ±0.05	W ₂	M ₁	F	d ₁ ×d ₂ ×h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m	
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235	0.35	2.3	
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307	0.47	2.3	
	23	23.5	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366	0.59	3.3	
	23	23.5	22	60	7×11×9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518	0.75	3.3	
	28	31	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652	1.1	4.8	
	28	31	26	80	9×14×12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852	1.3	4.8	
	34	33	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05	1.6	6.6	
	34	33	29	80	9×14×12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37	2	6.6	
	45	37.5	38	105	14×20×17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6	2.8 3.3	11	
	53	43.5	44	120	16×23×20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56	4.5 5.7	15.1	
	63	53.5	53	150	18×26×22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79	8.5 10.7	22.5	
	85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	17 23	35.2	

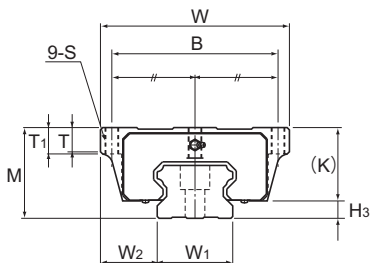
Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

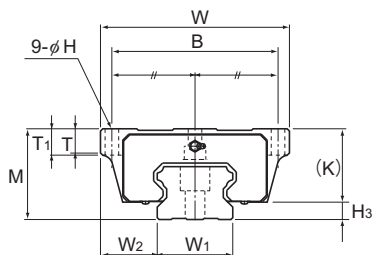
Static permissible moment*: 1 block: static permissible moment value with 1 LM block

Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Models HSR-HA, HSR-HB and HSR-HR



Models HSR100 to 150HA



Models HSR100 to 150HB

Model No.	Outer dimensions			LM block dimensions											Grease nipple	H ₃
	Height	Width	Length													
	M	W	L	B	C	H	S × ℓ	L ₁	T	T ₁	K	N	E			
HSR 100HA HSR 100HB HSR 100HR	120	250 250 200	334	220 220 130	200	20 — —	M18* — M18 × 27	261	32 32 33	35 35 —	100	23	16	B-PT1/4	20	
HSR 120HA HSR 120HB HSR 120HR	130	290 290 220	365	250 250 146	210	— 22 —	M20* — M20 × 30	287	34 34 33.7	38 38 —	110	26.5	16	B-PT1/4	20	
HSR 150HA HSR 150HB HSR 150HR	145	350 350 266	396	300 300 180	230	— 26 —	M24* — M24 × 35	314	36 36 33	40 40 —	123	29	16	B-PT1/4	22	

Note) "*" indicates a through hole.

Model number coding

HSR150 HR 2 UU C1 +2350L H T -II

Model number

Type of LM block

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*4)

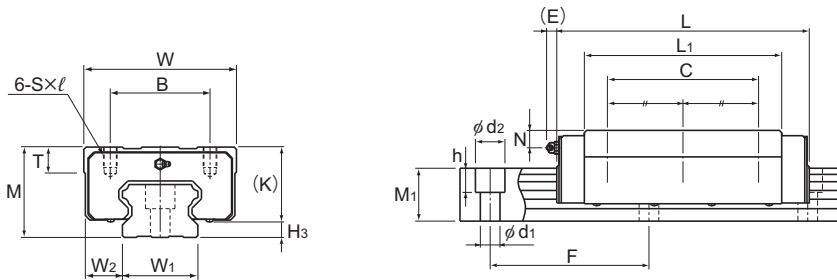
No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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.)



Models HSR100 to 150HR

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width		Height	Pitch		Length*	C	C ₀							LM block	LM rail
W_1 ± 0.05	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
100	75 75 50	70	210	26×39×32	3000	441	540	20.7	105	20.7	105	24.1		32	49
114	88 88 53	75	230	33×48×43	3000	540	653	27.5	138	27.5	138	33.3		43	61
144	103 103 61	85	250	39×58×46	3000	518	728	33.6	167	33.6	167	45.2		62	87

Note) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-200**.)

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 lengths and the maximum lengths of model HSR variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used. Contact THK for details. For the G dimension when a special length is required, we recommend selecting the corresponding G value from the table. The longer the G dimension is, the less stable the G area may become after installation, thus causing an adverse impact to accuracy.

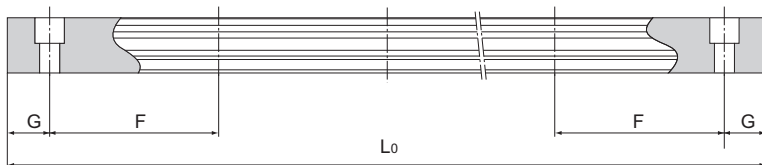


Table1 Standard Length and Maximum Length of the LM Rail for Model HSR

Unit: mm

Model No.	HSR 8	HSR 10	HSR 12	HSR 15	HSR 20	HSR 25	HSR 30	HSR 35	HSR 45	HSR 55	HSR 65	HSR 85	HSR 100	HSR 120	HSR 150
LM rail standard length (L ₀)	35	45	70	160	160	220	280	280	570	780	1270	1530	1340	1470	1600
	55	70	110	220	220	280	360	360	675	900	1570	1890	1760	1930	2100
	75	95	150	280	280	340	440	440	780	1020	2020	2250	2180	2390	2350
	95	120	190	340	340	400	520	520	885	1140	2620	2610	2600		
	115	145	230	400	400	460	600	600	990	1260					
	135	170	270	460	460	520	680	680	1095	1380					
	155	195	310	520	520	580	760	760	1200	1500					
	175	220	350	580	580	640	840	840	1305	1620					
	195	245	390	640	640	700	920	920	1410	1740					
	215	270	430	700	700	760	1000	1000	1515	1860					
	235	295	470	760	760	820	1080	1080	1620	1980					
	255	320	510	820	820	940	1160	1160	1725	2100					
	275	345	550	940	940	1000	1240	1240	1830	2220					
		370	590	1000	1000	1060	1320	1320	1935	2340					
		395	630	1060	1060	1120	1400	1400	2040	2460					
		420	670	1120	1120	1180	1480	1480	2145	2580					
		445		1180	1180	1240	1560	1560	2250	2700					
		470		1240	1240	1300	1640	1640	2355	2820					
				1360	1360	1360	1720	1720	2460	2940					
				1480	1480	1420	1800	1800	2565	3060					
				1600	1600	1480	1880	1880	2670						
					1720	1540	1960	1960	2775						
					1840	1600	2040	2040	2880						
					1960	1720	2200	2200	2985						
					2080	1840	2360	2360	3090						
					2200	1960	2520	2520							
						2080	2680	2680							
						2200	2840	2840							
						2320	3000	3000							
						2440									
Standard pitch F	20	25	40	60	60	60	80	80	105	120	150	180	210	230	250
G	7.5	10	15	20	20	20	20	20	22.5	30	35	45	40	45	50
Max length	(975)	(995)	(1240)	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000 (2520)	3090	3060	3000	3000	3000	3000	3000

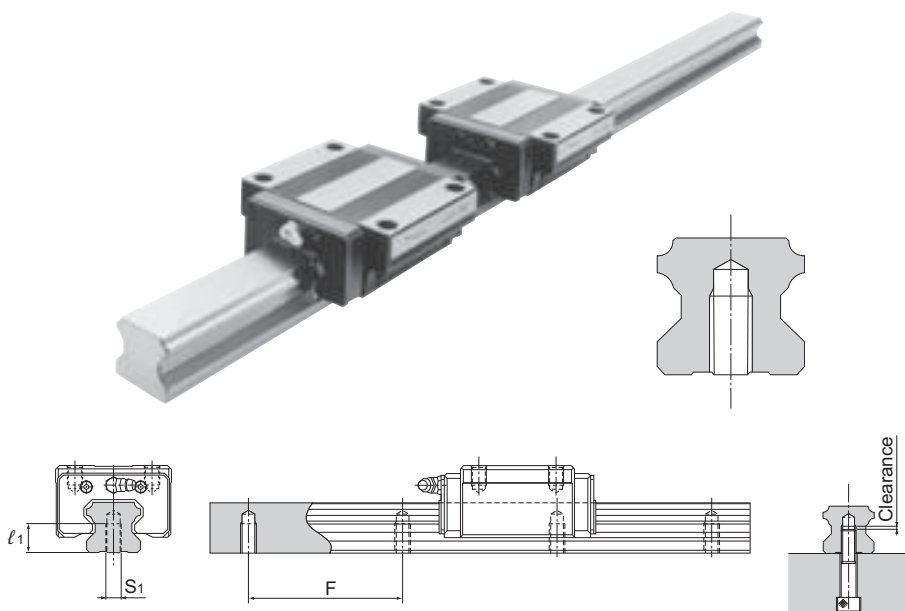
Note1) The maximum length varies with accuracy grades. Contact THK for details.

Note2) If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Note3) The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-hole LM Rail Type of Model HSR

HSR model rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



- (1) Determine the bolt length so that a clearance of 2 to 5 mm is secured between the bolt end and the bottom of the tap (effective tap depth). (See figure above.)
- (2) A tapped-hole LM rail type is available also for model HSR-YR.
- (3) For standard pitches of the taps, see Table1 on **A1-200**.

Table2 Dimensions of the LM Rail Tap

Unit: mm

Model No.	S ₁	Effective tap depth ℓ_1
HSR 15	M5	8
HSR 20	M6	10
HSR 25	M6	12
HSR 30	M8	15
HSR 35	M8	17
HSR 45	M12	24
HSR 55	M14	24
HSR 65	M20	30

Model number coding

HSR30A2UU +1000LH K

Symbol for
tapped-hole LM rail type

Prevention of LM block from falling off of LM rail

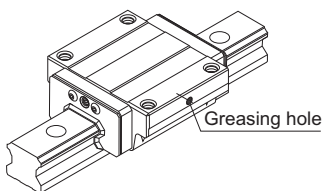
In miniature model HSR, the balls fall out if the LM block comes off the LM rail.

For this reason, LM Guide assemblies are delivered with a part which prevents the LM block from coming off the rail. If you remove this part when using the product, please take precautions to avoid overrunning the blocks off of the rail.

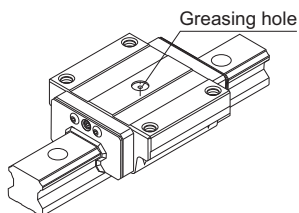
Greasing Hole

[Semi-standard Greasing Hole for Model HSR]

For model HSR, a semi-standard greasing hole is available. Specify the appropriate model number according to the application.



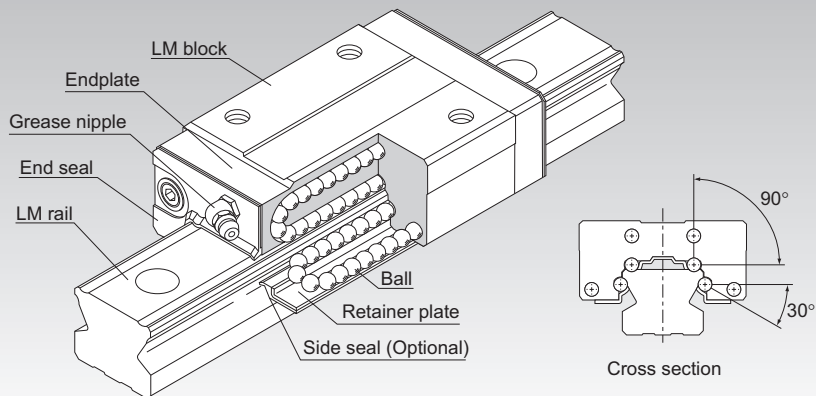
Type with a Greasing Hole Drilled on the Side Surface



Type with a Greasing Hole Drilled on the Top Face

SR

LM Guide Radial Type Model SR



Point of Selection **A1-10**

Point of Design **A1-434**

Options **A1-457**

Model No. **A1-522**

Precautions on Use **A1-528**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-58**

Equivalent factor in each direction **A1-60**

Radial Clearance **A1-71**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-443**

Permissible Error of the Mounting Surface **A1-450**

Dimensions of Each Model with an Option Attached **A1-470**

Structure and Features

Balls roll in four 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. Since a retainer plate holds the balls, they will not fall off even if the LM block is removed from the LM rail. With the low sectional height and the high rigidity design of the LM block, this model achieves highly accurate and stable straight motion.

[Compact, Heavy Load]

Since it is a compact designed model that has a low sectional height and a ball contact structure rigid in the radial direction, this model is optimal for horizontal guide units.

[Mounting accuracy can easily be achieved]

Since this model is a self-adjusting type capable of easily absorbing an accuracy error in parallelism and level between two rails, highly accurate and smooth motion can be achieved.

[Low Noise]

The endplate installed at each end of the LM block is designed to ensure the smooth and low-noise circulation of the balls at the turning areas.

[High Durability]

Even under a preload or excessive biased load, differential slip of balls is minimal. As a result, high wear resistance and long-term maintenance of accuracy are achieved.

[Stainless Steel Type also Available]

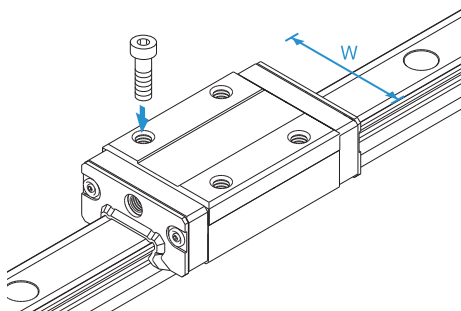
A special type which LM block, LM rail and balls are made of stainless steel is also available.

Types and Features

Model SR-W

With this type, the LM block has a smaller width (W) and tapped holes.

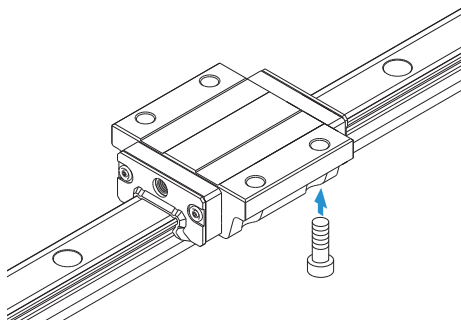
Specification Table⇒ **A1-210**



Model SR-TB

The LM block has the same height as model SR-W and can be mounted from the bottom.

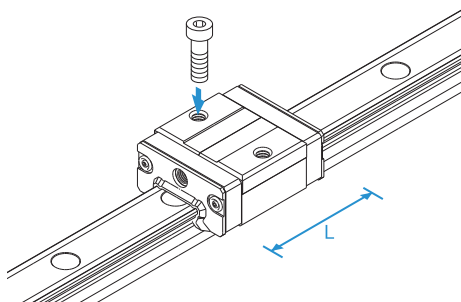
Specification Table⇒ **A1-212**



Model SR-V

A space-saving type whose LM block has the same cross-sectional shape as model SR-W, but has a smaller overall LM block length (L).

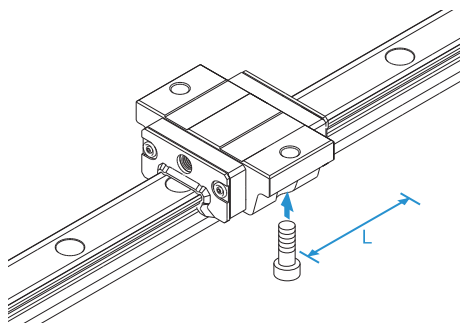
Specification Table⇒ **A1-210**



Model SR-SB

A space-saving type whose LM block has the same cross-sectional shape as model SR-TB, but has a smaller overall LM block length (L).

Specification Table⇒ **A1-212**



LM Guide

Characteristics of Model SR

When compared to models having a contact angle of 45° , model SR shows excellent characteristics as indicated below. Using these characteristics, you can design and manufacture highly accurate and highly rigid machines or equipment.

Difference in Rated Load and Service Life

Since SR has a contact angle of 90° , its rated load and service life are different from those with a contact angle of 45° . When comparing model SR with a model that has a contact angle of 45° and when the same radial load is applied to the two models with the same ball diameter as shown in the figure below, the load applied to SR is 70% of the other model. As a result, the service life of SR is more than twice that of the other model.

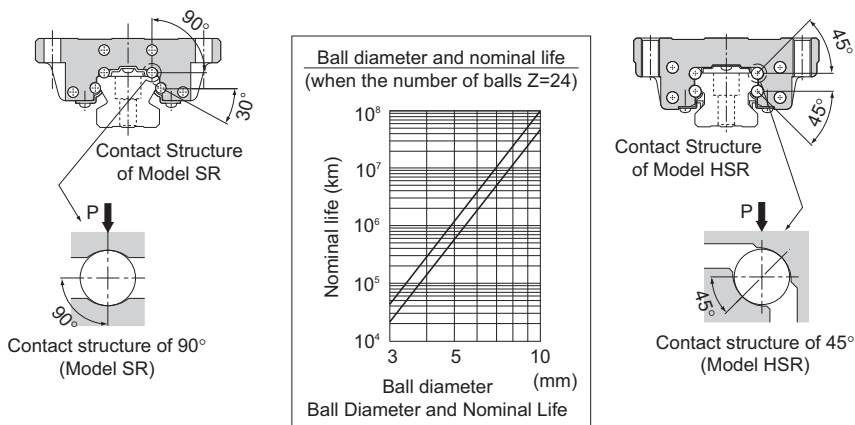


Fig.1

Difference in Accuracy

If a machining error (grinding error) occurs in the LM rail or LM block, it will affect the running accuracy. Assuming that there is a machining error of Δ on the raceway, it results in an error in the radial direction, and the error with the contact angle of 45° (model HSR) is 1.4 times greater than that of the contact angle of 90° (model SR). As for the machining error resulting in horizontal direction error, the error with the contact angle of 45° is 1.22 times greater than the contact angle of 30° .

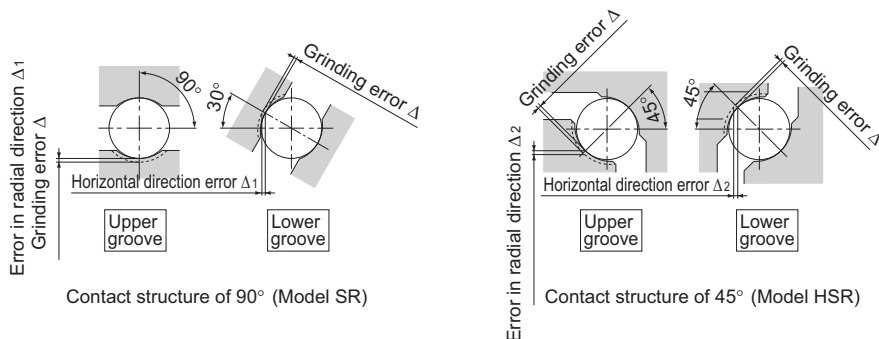


Fig.2 Machining Error and Accuracy

Difference in Rigidity

The 90° contact angle adopted by model SR has a difference with the 45° contact angle also in rigidity. When the same radial load "P" is applied, the displacement in the radial direction with model SR is only 56% of that with the contact angle of 45°. Accordingly, where high rigidity in the radial direction is required, model SR is more advantageous. The figure below shows the difference in radial load and displacement.

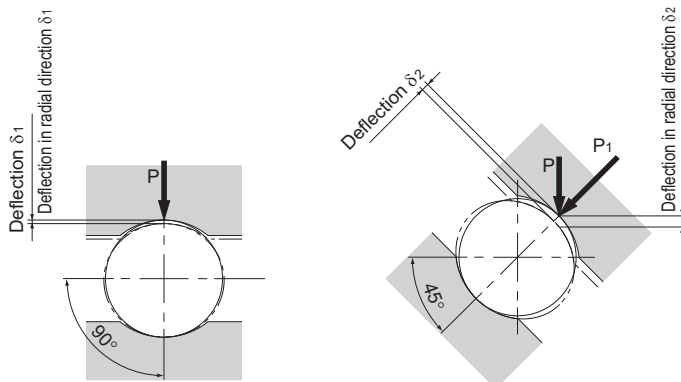


Fig.3 Deflection under a Radial Load

Load and deflection when contact angles are not the same (Da=6.35mm)
(deflection per ball)

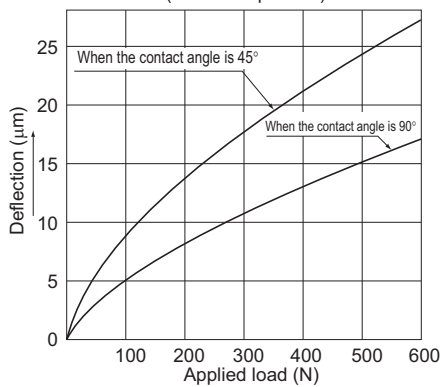


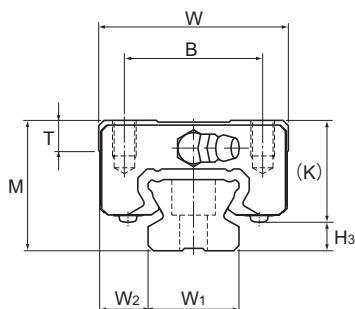
Fig.4 Radial Load and Deflection

Conclusion

Model SR with this type of 90° contact construction are ideal for locations where the load applied is mostly radial, locations where radial rigidity is required, and locations where accurate motion is demanded in the up, down, left and right directions.

However, if the reverse radial load, the lateral load or the moment is large, we recommend model HSR, which has a contact angle of 45° (4-way equal load).

Models SR-W, SR-WM, SR-V and SR-VM



Model No.	Outer dimensions			LM block dimensions										Grease nipple	H ₃
	Height	Width	Length												
	M	W	L	B	C	S×ℓ	L ₁	T	K	N	E				
SR 15V/VM SR 15W/WM	24	34	40.4 57	26	— 26	M4×7	22.9 39.5	5.7	18.2	6	5.5	PB1021B	5.8		
SR 20V/VM SR 20W/WM	28	42	47.3 66.2	32	— 32	M5×8	27.8 46.7	7.2	22	6	12	B-M6F	6		
SR 25V/VM SR 25W/WM	33	48	59.2 83	35	— 35	M6×9	35.2 59	7.7	26	7	12	B-M6F	7		
SR 30V/VM SR 30W/WM	42	60	67.9 96.8	40	— 40	M8×12	40.4 69.3	8.5	32.5	8	12	B-M6F	9.5		
SR 35V/VM SR 35W/WM	48	70	77.6 111	50	— 50	M8×12	45.7 79	12.5	36.5	8.5	12	B-M6F	11.5		
SR 45W	60	86	126	60	60	M10×15	90.5	15	47.5	11.5	16	B-PT1/8	12.5		
SR 55W	68	100	156	75	75	M12×20	117	16.7	54.5	12	16	B-PT1/8	13.5		
SR 70T	85	126	194.6	90	90	M16×25	147.6	24.5	70	12	16	B-PT1/8	15		
SR 85T	110	156	180	100	80	M18×30	130	25.5	91.5	27	12	A-PT1/8	18.5		
SR 100T	120	178	200	120	100	M20×35	150	29.5	101	32	12	A-PT1/8	19		
SR 120T	110	205	235	160	120	M20×35	180	24	95	14	13.5	B-PT1/4	15		
SR 150T	135	250	280	200	160	M20×35	215	24	113	17	13.5	B-PT1/4	22		

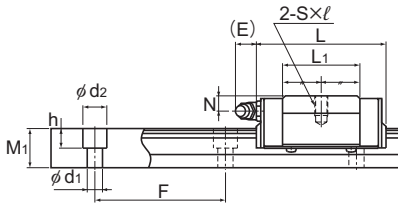
Model number coding

SR25 W 2 UU C0 M +1240L Y P T M -II

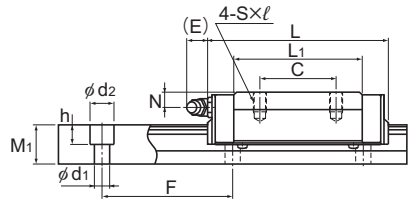
Model number	Type of LM block	Contamination protection accessory symbol (*1)	Stainless steel LM block	LM rail length (in mm)	Applied to only 15 and 25	Stainless steel LM rail	Symbol for No. of rails used on the same plane (*4)
No. of LM blocks used on the same rail	Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)	Accuracy symbol (*3) Normal grade (No Symbol)/High accuracy grade (H) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)	Symbol for LM rail jointed use				

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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 SR-V



Model SR-W

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN·m*						Mass	
Width		Height	Pitch		Length*	C	C ₀	M _A		M _B		M _C		LM block	LM rail
W ₁ ±0.05	W ₂	M ₁	F	d ₁ × d ₂ × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	Double blocks	kg	kg/m
15	9.5	12.5	60	3.5 × 6 × 4.5	(1240) 3000	9.1 13.8	11.7 20.5	0.0344 0.0984	0.234 0.551	0.0215 0.0604	0.149 0.343	0.0694 0.122	0.12 0.2	0.12	1.2
20	11	15.5	60	6 × 9.5 × 8.5	(1480) 3000	13.4 19.2	17.2 28.6	0.064 0.167	0.396 0.887	0.0397 0.102	0.25 0.55	0.135 0.224	0.2 0.3	0.2	2.1
23	12.5	18	60	7 × 11 × 9	(2020) 3000	21.6 30.9	26.8 44.7	0.125 0.326	0.773 1.74	0.0774 0.2	0.488 1.08	0.245 0.408	0.3 0.4	0.3	2.7
28	16	23	80	7 × 11 × 9	(2520) 3000	29.5 45.6	34.4 64.4	0.173 0.564	1.15 2.92	0.108 0.346	0.735 1.8	0.376 0.703	0.5 0.8	0.5	4.3
34	18	27.5	80	9 × 14 × 12	(2520) 3000	40.9 60.4	46.7 81.8	0.275 0.785	1.79 4.27	0.171 0.482	1.14 2.65	0.615 1.08	0.8 1.2	0.8	6.4
45	20.5	35.5	105	11 × 17.5 × 14	3000	80.4	107	1.17	6.34	0.721	3.94	1.89	2.2	11.3	
48	26	38	120	14 × 20 × 17	3000	136	179	2.61	13	1.6	8.05	3.33	3.6	12.8	
70	28	47	150	18 × 26 × 22	3000	226	282	5.03	25.7	3.09	15.9	7.47	7	22.8	
85	35.5	65.5	180	18 × 26 × 22	3000	120	224	2.54	15.1	1.25	7.47	5.74	10.1	34.9	
100	39	70.3	210	22 × 32 × 25	3000	148	283	3.95	20.9	1.95	10.3	8.55	14.1	46.4	
114	45.5	65	230	26 × 39 × 30	3000	279	377	5.83	32.9	2.87	16.2	13.7	—	—	
144	53	77	250	33 × 48 × 36	3000	411	537	9.98	55.8	4.92	27.5	24.3	—	—	

Note1) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

Those model numbers including and greater than SR85T are semi-standard models. If desiring these models, contact THK. Models SR85T and SR100T are equipped with grease nipple on the side face of the LM block.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-214.**)

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

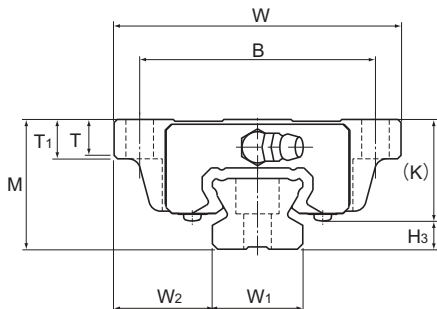
Note2) For models SR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table1).

When replacing this model with model SSR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table1 The dimension of the rail mounting hole

Model No.	Standard rail	Semi-Standard rail
SR 15	For M3 (No symbol)	For M4 (Symbol Y)
SR 25	For M6 (Symbol Y)	For M5 (No symbol)

Models SR-TB, SR-TBM, SR-SB and SR-SBM



Model No.	Outer dimensions			LM block dimensions										H ₃
	Height	Width	Length										Grease nipple	
	M	W	L	B	C	H	L ₁	T	T ₁	K	N	E		
SR 15SB/SBM SR 15TB/TBM	24	52	40.4 57	41	— 26	4.5	22.9 39.5	6.1	7	18.2	6	5.5	PB1021B	5.8
SR 20SB/SBM SR 20TB/TBM	28	59	47.3 66.2	49	— 32	5.5	27.8 46.7	8	9	22	6	12	B-M6F	6
SR 25SB/SBM SR 25TB/TBM	33	73	59.2 83	60	— 35	7	35.2 59	9.1	10	26	7	12	B-M6F	7
SR 30SB/SBM SR 30TB/TBM	42	90	67.9 96.8	72	— 40	9	40.4 69.3	8.7	10	32.5	8	12	B-M6F	9.5
SR 35SB/SBM SR 35TB/TBM	48	100	77.6 111	82	— 50	9	45.7 79	11.2	13	36.5	8.5	12	B-M6F	11.5
SR 45TB	60	120	126	100	60	11	90.5	12.8	15	47.5	11.5	16	B-PT1/8	12.5
SR 55TB	68	140	156	116	75	14	117	15.3	17	54.5	12	16	B-PT1/8	13.5

Note) Symbol M indicates that stainless steel is used in the LM block, LM rail and balls. Those models marked with this symbol are therefore highly resistant to corrosion and environment.

Model number coding

SR25 TB 2 UU C1 +1200L Y H T -II

Model number

Type of LM block

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Applied to only 15 and 25

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*4)

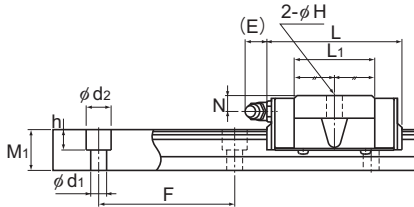
No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

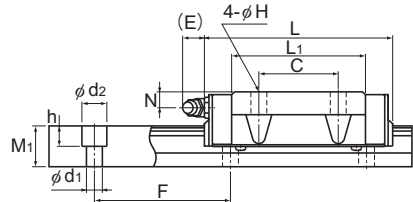
Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-494**. (*2) See **A1-71**. (*3) See **A1-76**. (*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 SR-SB



Model SR-TB

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width		Height	Pitch		Length*	C	C ₀							LM block	LM rail
W_1 ±0.05	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
15	18.5	12.5	60	3.5×6×4.5	(1240) 3000	9.1 13.8	11.7 20.5	0.0344 0.0984	0.234 0.551	0.0215 0.0604	0.149 0.343	0.0694 0.122		0.15 0.2	1.2
20	19.5	15.5	60	6×9.5×8.5	(1480) 3000	13.4 19.2	17.2 28.6	0.064 0.167	0.396 0.887	0.0397 0.102	0.25 0.55	0.135 0.224		0.3 0.4	2.1
23	25	18	60	7×11×9	(2020) 3000	21.6 30.9	26.8 44.7	0.125 0.326	0.773 1.74	0.0774 0.2	0.488 1.08	0.245 0.408		0.4 0.6	2.7
28	31	23	80	7×11×9	(2520) 3000	29.5 45.6	34.4 64.4	0.173 0.564	1.15 2.92	0.108 0.346	0.735 1.8	0.376 0.703		0.8 1.1	4.3
34	33	27.5	80	9×14×12	(2520) 3000	40.9 60.4	46.7 81.8	0.275 0.785	1.79 4.27	0.171 0.482	1.14 2.65	0.615 1.08		1 1.5	6.4
45	37.5	35.5	105	11×17.5×14	3000	80.4	107	1.17	6.34	0.721	3.94	1.89		2.5	11.3
48	46	38	120	14×20×17	3000	136	179	2.61	13	1.6	8.05	3.33		4.2	12.8

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-214**.)

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

Note2) For models SR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table1).

When, replacing this model with model SSR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table1 The dimension of the rail mounting hole

Model No.	Standard rail	Semi-Standard rail
SR 15	For M3 (No symbol)	For M4 (Symbol Y)
SR 25	For M6 (Symbol Y)	For M5 (No symbol)

Standard Length and Maximum Length of the LM Rail

Table1 shows the standard lengths and the maximum lengths of model SR variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used. Contact THK for details. For the G dimension when a special length is required, we recommend selecting the corresponding G value from the table. The longer the G dimension is, the less stable the G area may become after installation, thus causing an adverse impact to accuracy.

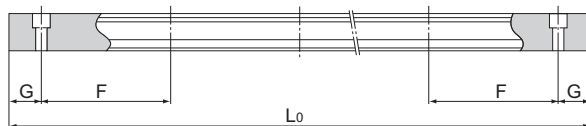


Table1 Standard Length and Maximum Length of the LM Rail for Model SR

Unit: mm

Model No.	SR 15	SR 20	SR 25	SR 30	SR 35	SR 45	SR 55	SR 70	SR 85	SR 100	SR 120	SR 150
LM rail standard length (L ₀)	160	220	220	280	280	570	780	1270	1520	1550	1700	1600
	220	280	280	360	360	675	900	1570	2060	1970	2390	2100
	280	340	340	440	440	780	1020	2020	2600	2600		
	340	400	400	520	520	885	1140	2620				
	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	1180	1480	1480	2250	2700					
	1180	1240	1240	1640	1640	2355	2820					
	1240	1300	1300	1720	1720	2460	2940					
	1300	1360	1360	1800	1800	2565						
	1360	1420	1420	1880	1880	2670						
	1420	1480	1480	1960	1960	2775						
	1480	1540	1540	2040	2040	2880						
	1540	1600	1600	2120	2120	2985						
		1660	1660	2200	2200							
		1720	1720	2280	2280							
		1780	1780	2360	2360							
		1840	1840	2440	2440							
		1900	1900	2520	2520							
		1960	1960	2600	2600							
		2020	2020	2680	2680							
		2080	2080	2760	2760							
		2140	2140	2840	2840							
			2200	2920	2920							
			2260									
			2320									
			2380									
			2440									
Standard pitch F	60	60	60	80	80	105	120	150	180	210	230	250
G	20	20	20	20	20	22.5	30	35	40	40	45	50
Max length	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000 (2520)	3000	3000	3000	3000	3000	3000	3000

Note1) The maximum length varies with accuracy grades. Contact THK for details.

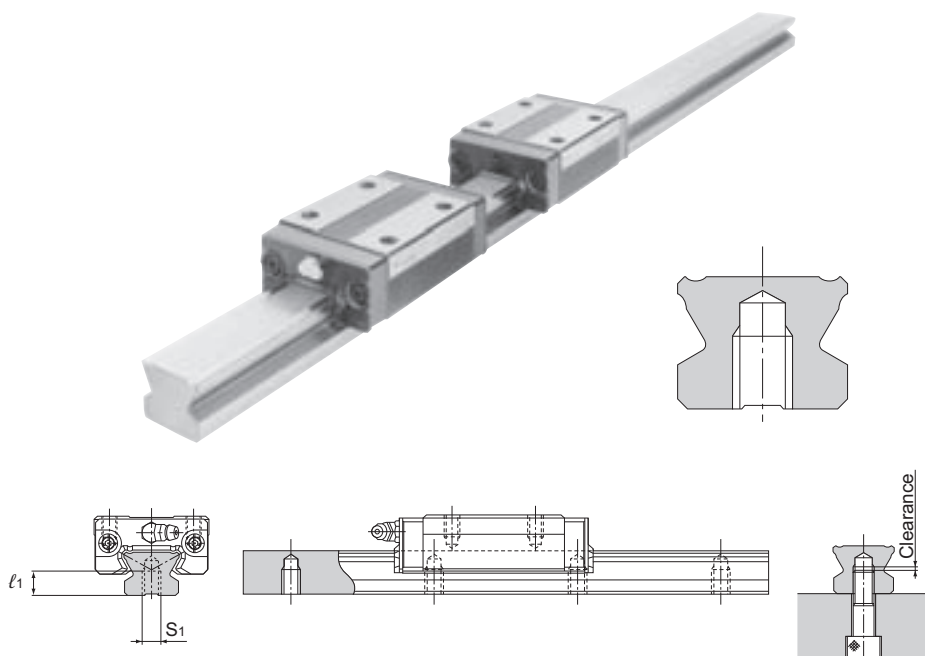
Note2) If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Note3) Those model numbers including and greater than SR85T are semi-standard models. If desiring these models, contact THK.

Note4) The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-hole LM Rail Type of Model SR

SR model rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



- (1) A tapped-hole LM rail type is available only for high accuracy or lower grades.
- (2) Determine the bolt length so that a clearance of 2 to 5 mm is secured between the bolt end and the bottom of the tap (effective tap depth). (See figure above.)
- (3) For standard pitches of the taps, see Table1 on **A1-214**.

Table2 Dimensions of the LM Rail Tap Unit: mm

Model No.	S ₁	Effective tap depth l_1
SR 15	M5	7
SR 20	M6	9
SR 25	M6	10
SR 30	M8	14
SR 35	M8	16
SR 45	M12	20
SR 55	M14	22

Model number coding

SR30 W2UU +1000LH K

Symbol for
tapped-hole LM rail type

