LM Guide

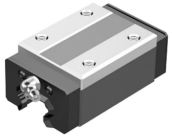
Shipping Date

The shipping date indicates when the product will ship if ordered now.

Contact THK through Omni THK's inquiry form if you need a product sooner or if you need a large quantity.

Set Item/Standalone Items

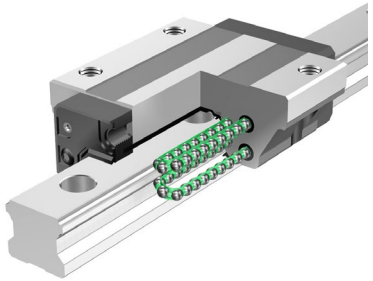
Set item = **Standalone block** + **Standalone rail**



Series

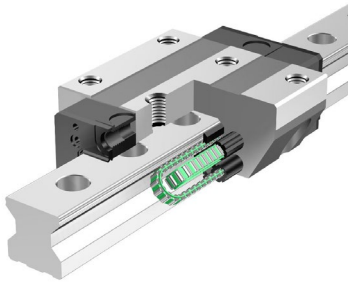
LM Guide

The LM Guide is a linear motion guide that **uses balls as a rolling element**. THK offers various series that have been optimized for applications ranging from miniature LM Guides to large ones used in machine tools, and from linear motion to curved motion.

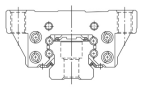
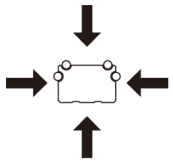
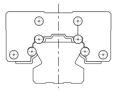
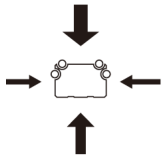
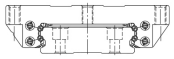
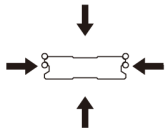
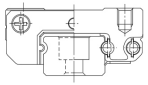
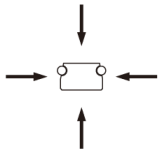
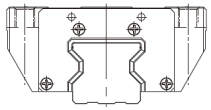
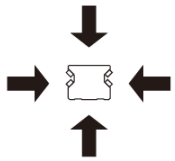


Roller Guide

The roller guide is a linear motion guide that **uses rollers as a rolling element**. The use of rollers helps achieve ultra-high rigidity.

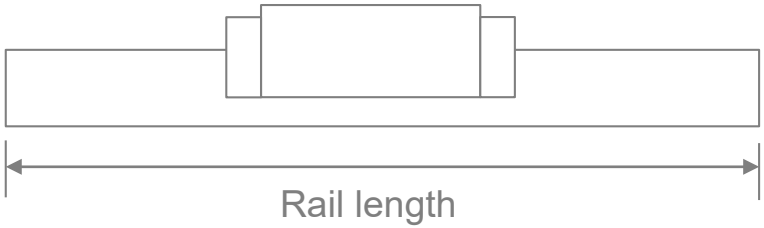


Model No.

Model No.	Cross Section	Load Capacity Diagram	Features	Classification	Recommended Machine Type
SHS			4-Way Equal Load Global Standard	Caged Ball	The solution to all-purpose needs. General industrial machinery, machine tools, IT industry, medical equipment, automotive manufacturing equipment, consumer applications, etc.
HSR				Full-ball	
SSR			Radial Type	Caged Ball	High error-absorbing capability. General industrial machinery, IT industry, medical equipment, automotive manufacturing equipment, consumer applications, etc.
SR				Full-ball	
SHW			4-Way Equal Load Wide Rail	Caged Ball	Especially effective for single-axis specifications. General industrial machinery, machine tools, automotive manufacturing equipment, consumer applications, etc.
SRS			4-Way Equal Load Miniature	Caged Ball	Allows for compact designs. General industrial machinery, IT industry, medical equipment, etc.
SRS-G				Full-ball	
SRG			4-Way Equal Load Ultra-High Rigidity	Caged Roller	Ultra-high rigidity. Machining centers, NC lathes, etc.

Rail Length

You can specify the length in increments of 1 mm.



Size

Access the THK catalog from Omni THK's catalog button for more information.

Caged Ball LM Guide Miniature

2SRS12MUU+120LM

You may specify the product with rail length less than 120mm.
Please specify the rail length close to your needs.

Life Calculator | Catalog | CAD | Reference Diagram

Ship Date	Click below and Login
Price	elow and Login

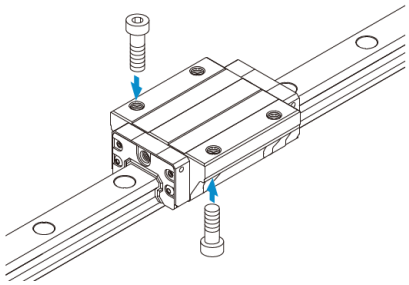
Check Price and Ship Date

Block Types

SHS

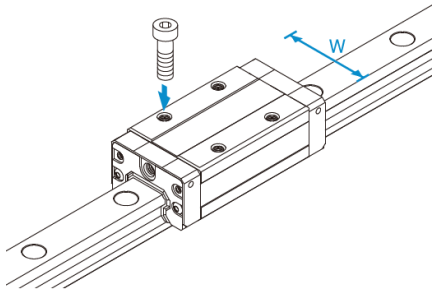
C Type

The flange of the LM block has tapped holes.
This type can be mounted from the top or the bottom.
It is used in places where the table cannot have through holes for mounting bolts.



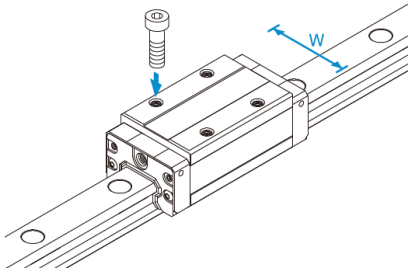
V Type

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



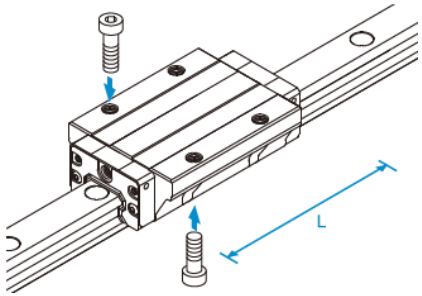
R Type

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



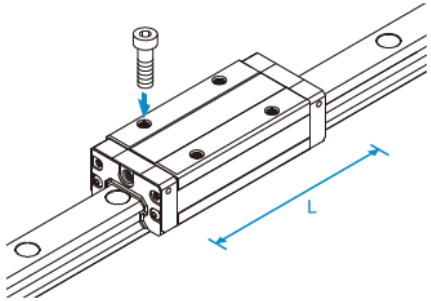
LC Type

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



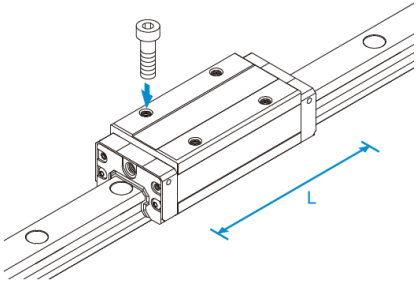
LV Type

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



LR Type

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

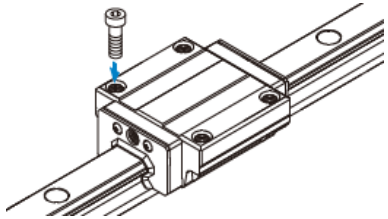


Block Types

HSR

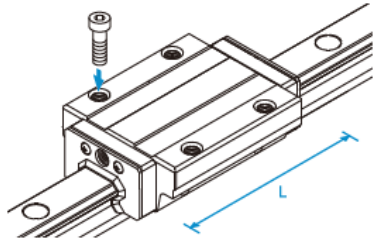
A Type

The flange of this LM block has tapped holes.



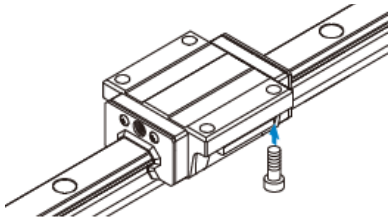
LA Type

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



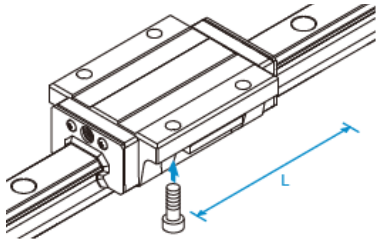
B Type

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



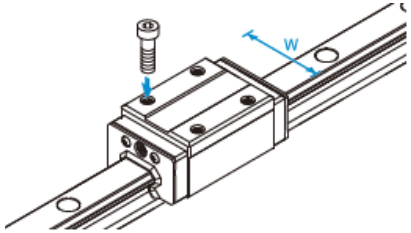
LB Type

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



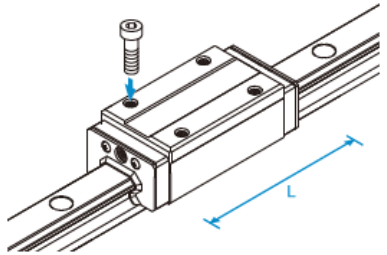
R Type

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



LR Type

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

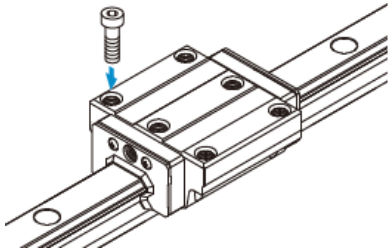


Block Types

HSR

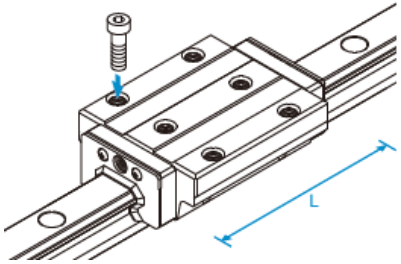
CA Type

This type has six tapped holes on the LM block.



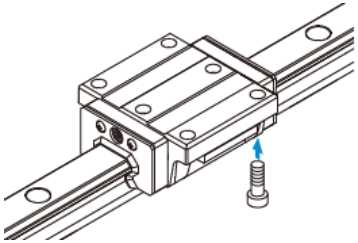
HA Type

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



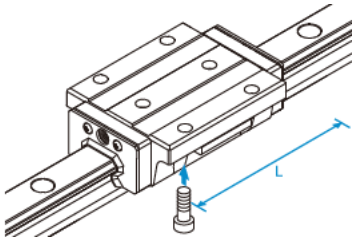
CB Type

6-bolt type
The LM block has six through holes. It is used in places where the table cannot have through holes for mounting bolts.



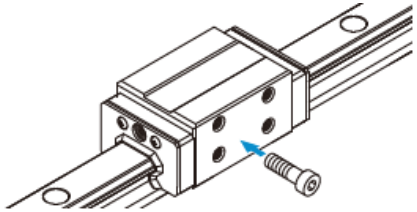
HB Type

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



YR Type

When using two conventional LM Guides facing each other, it took a long time to machine the table, and it was difficult to achieve the desired accuracy and adjust the clearance. With the Model HSR-YR, the tapped holes on the side of the LM block simplify the structure, which drastically reduces labor time and increases accuracy.

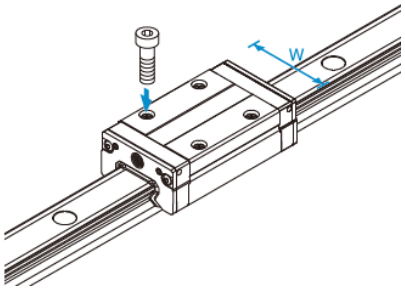


Block Types

SSR

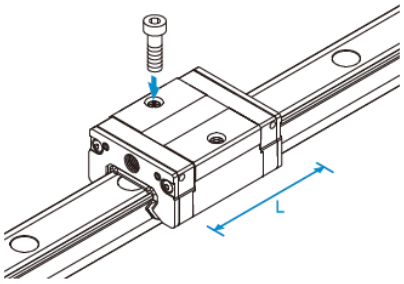
XW Type

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



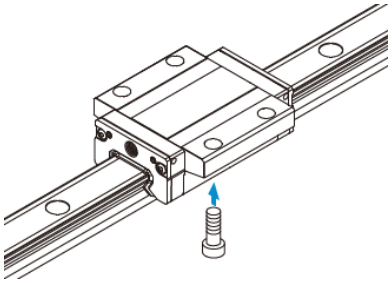
XV Type

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



XTB Type

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 into the table.

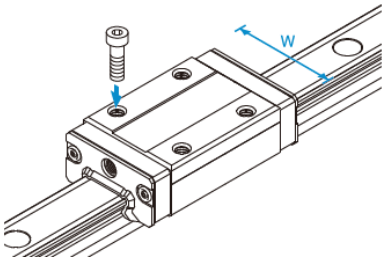


Block Types

SR

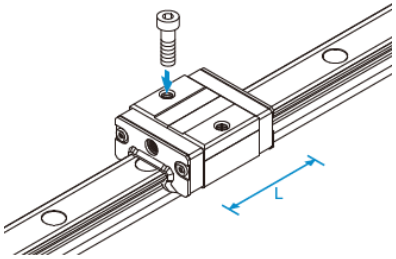
W Type

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



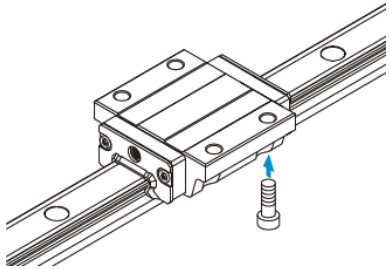
V Type

This compact type has the same cross-sectional shape as the Model SR-W, but it has a smaller overall LM block length (L).



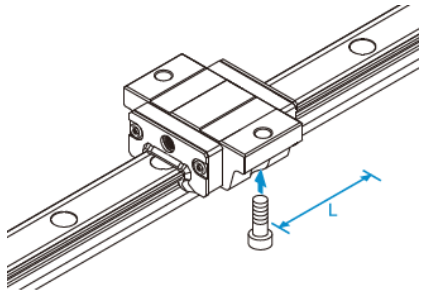
TB Type

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



SB Type

This compact type has the same cross-sectional shape as the Model SR-TB, but it has a smaller overall LM block length (L).

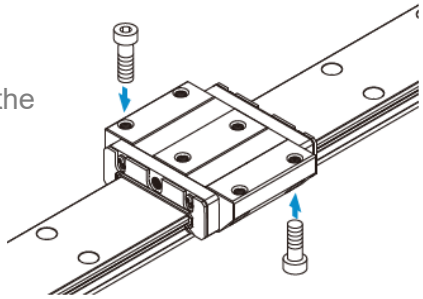


Block Types

SHW

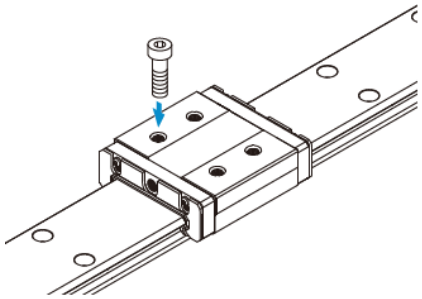
CA Type

The flange of the LM block has tapped holes.
It can be mounted from the top or the bottom.



CR Type

The LM block has tapped holes.

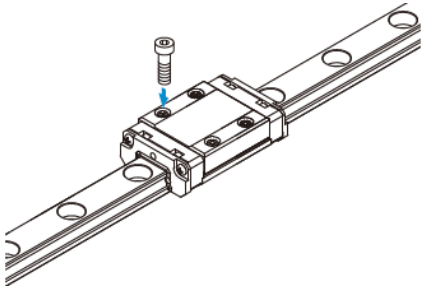


Block Types

SRS

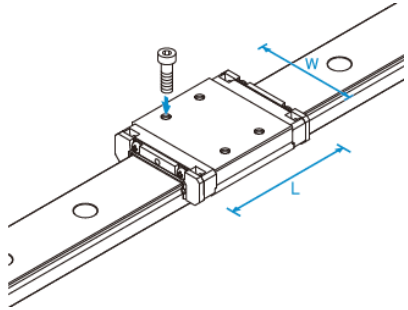
M Type

A standard type of SRS.



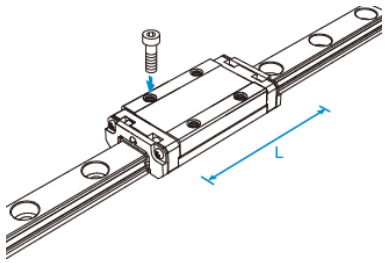
WM Type

This type has a longer overall LM block length (L), a greater width (W), and a larger rated load and permissible moment than the Model SRS-M.



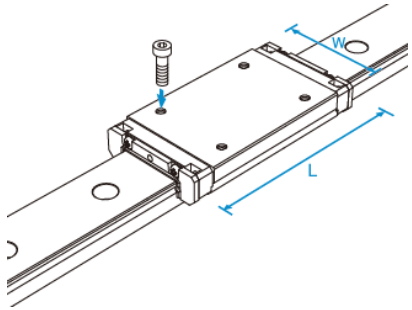
N Type

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



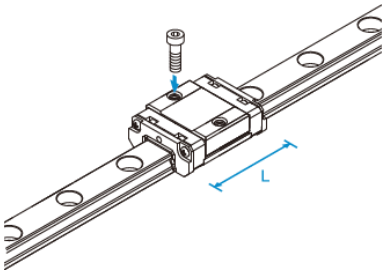
WN Type

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



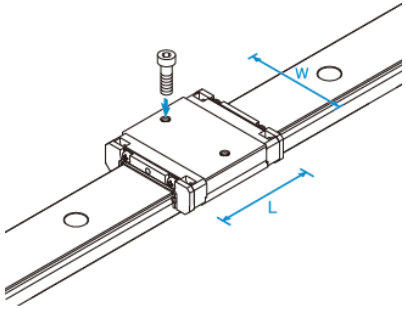
S Type

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



WS Type

This type has a longer overall LM block length (L), a greater width (W), and a larger rated load and permissible moment than the Model SRS-S.

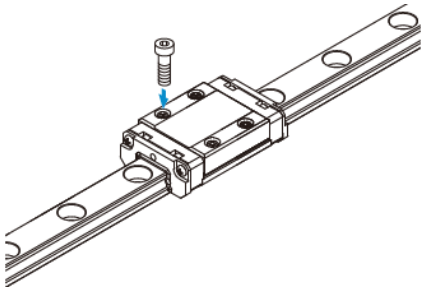


Block Types

SRS-G The Model SRS-G is a cageless, full-ball type version of the Model SRS. As a result, it has a lower dynamic load rating than the Model SRS.

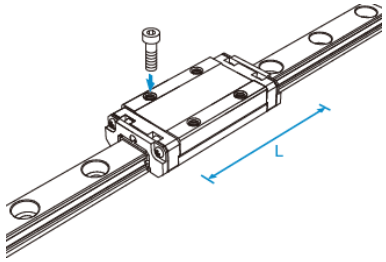
M Type

The standard type for the Model SRS-G.



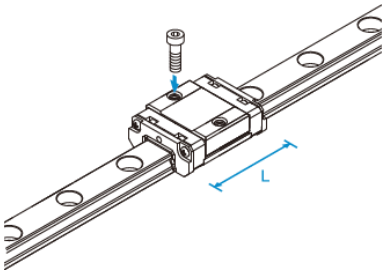
N Type

This type has a longer overall LM block length (L) and a higher load rating and permissible moment than the Model SRS-GM.



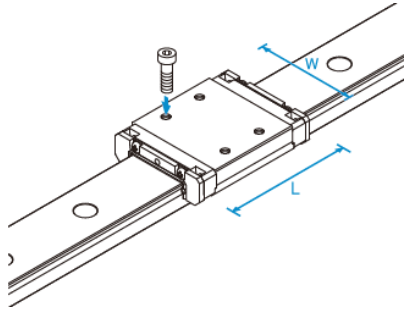
S Type

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



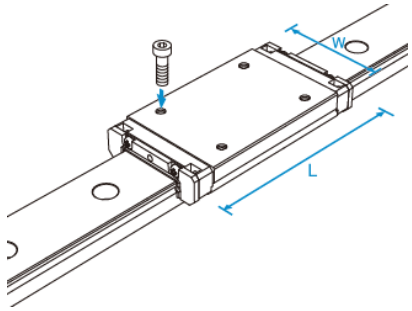
WM Type

This type has a longer overall LM block length (L), a greater width (W), and a larger rated load and permissible moment than the Model SRS-GM.



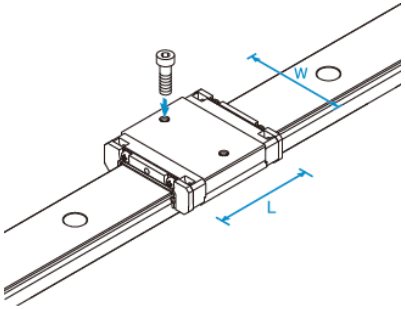
WN Type

This type has a longer overall LM block length (L) and a higher load rating and permissible moment than the Model SRS-GWM.



WS Type

This type has a longer overall LM block length (L), a greater width (W), and a larger rated load and permissible moment than the Model SRS-GS.

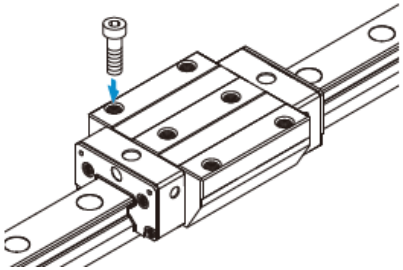


Block Types

SRG

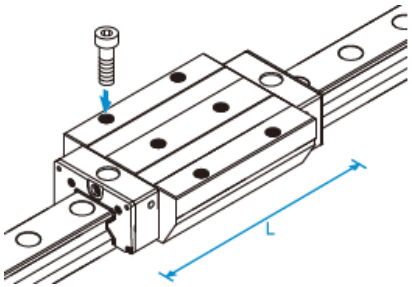
A Type

The flange of the LM block has tapped holes.



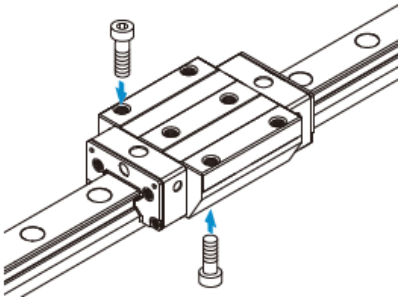
LA Type

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



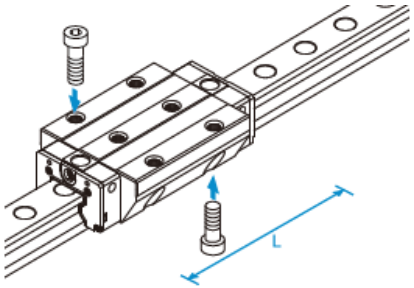
C Type

The flange of the LM block has tapped holes.
This type can be mounted from the top or the bottom.
It is used in places where the table cannot have through holes for mounting bolts.



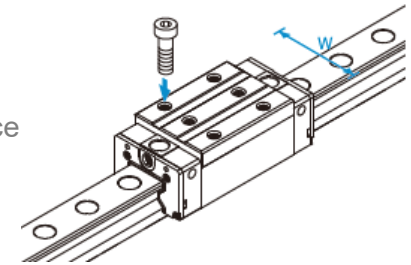
LC Type

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



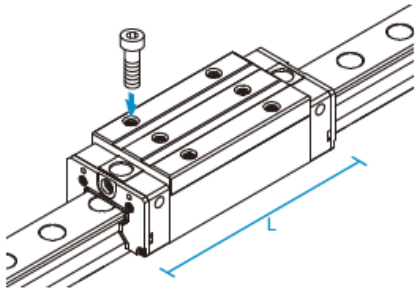
R Type

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



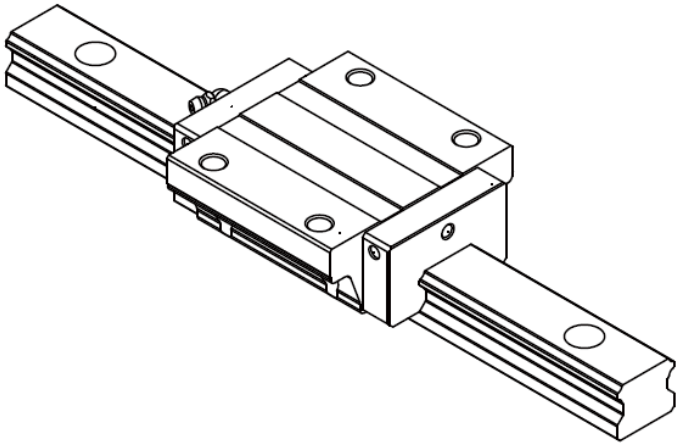
LR Type

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

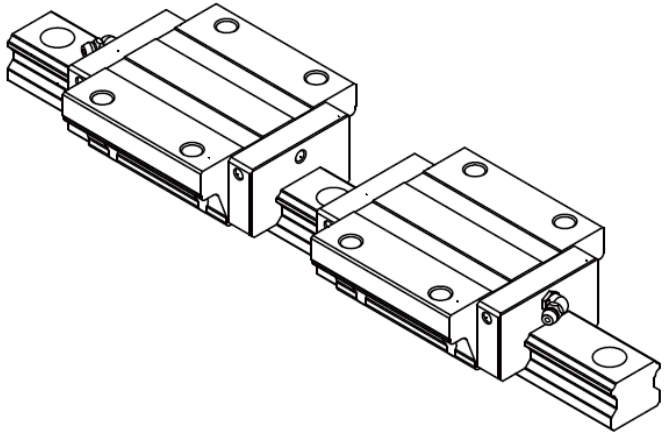


Number of Blocks

Single Block



Double Blocks



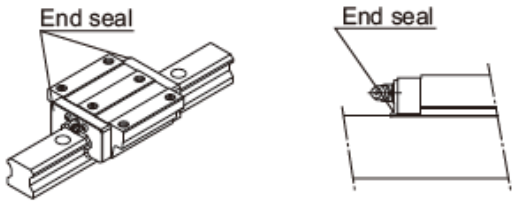
You can select more than two blocks.

Seal Options

No symbol	No seals
UU	End seals
SS	End seals + side seals + inner seals
DD	Double seals + side seals + inner seals
ZZ	End seals + side seals + inner seals + metal scrapers
KK	Double seals + side seals + inner seals + metal scrapers

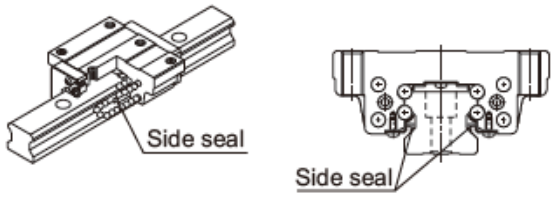
End Seals

Used in locations exposed to dust



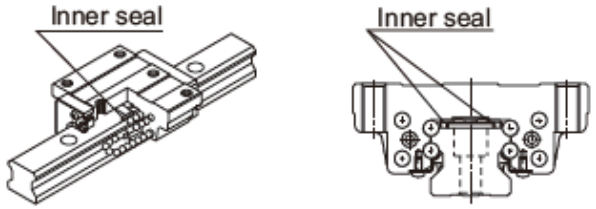
Side Seals

Used in locations where dust may enter the LM block from the side or bottom surface



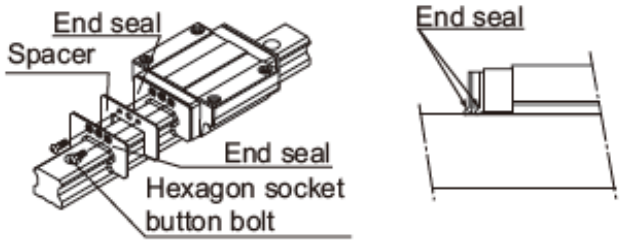
Inner Seals

Used in locations exposed to extremely large amounts of dust or cutting chips



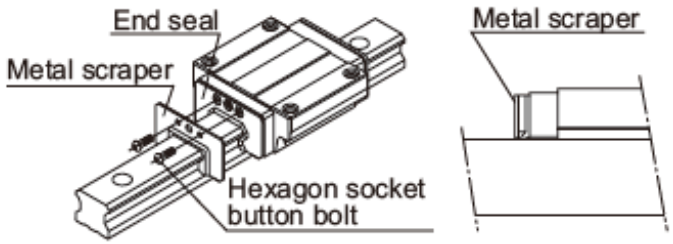
Double Seals

Used in locations exposed to large amounts of dust or cutting chips



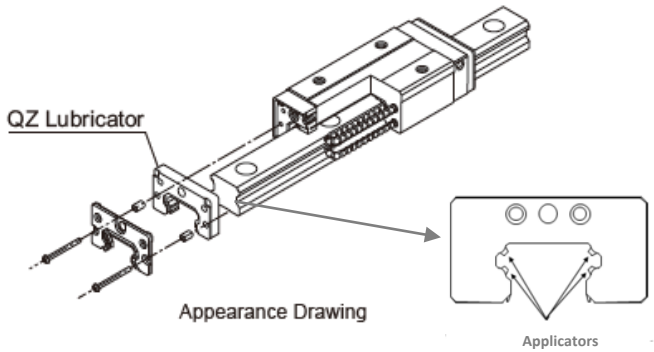
Metal Scrapers (Non-Contact)

Used in locations where welding spatter may adhere to the LM rail

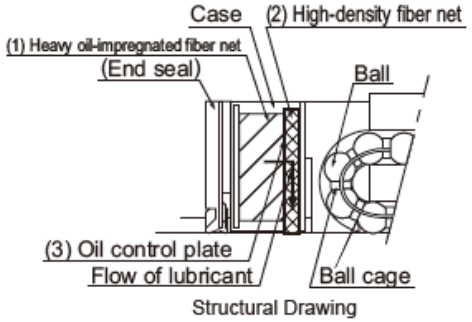


Lubricator

The QZ Lubricator feeds the right amount of lubricant to the LM rail raceway. This allows an oil film to continuously be formed between the rolling element and the raceway, and it extends the lubrication and maintenance intervals. Lubricant is supplied using the basic principle of capillary action, as used in felt-tip pens.



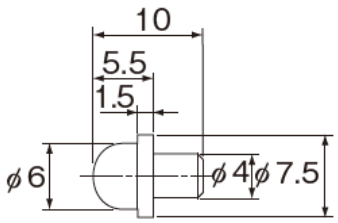
Oil is applied to the raceway during travel.



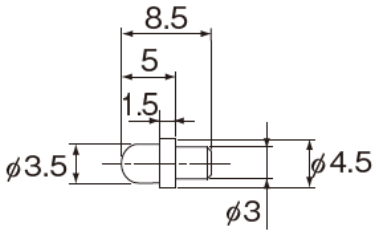
Grease Nipple

THK provides the grease nipples needed for the lubrication of LM systems.

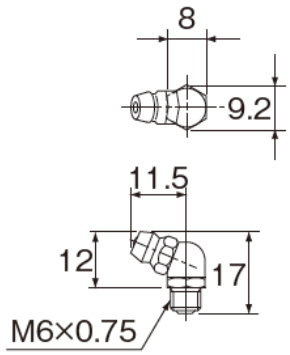
PB1021B



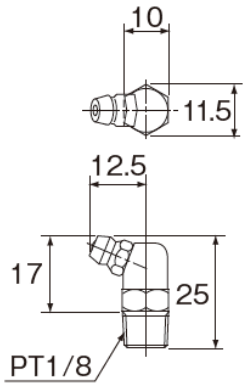
PB107



B-M6F (M6 x 0.75)

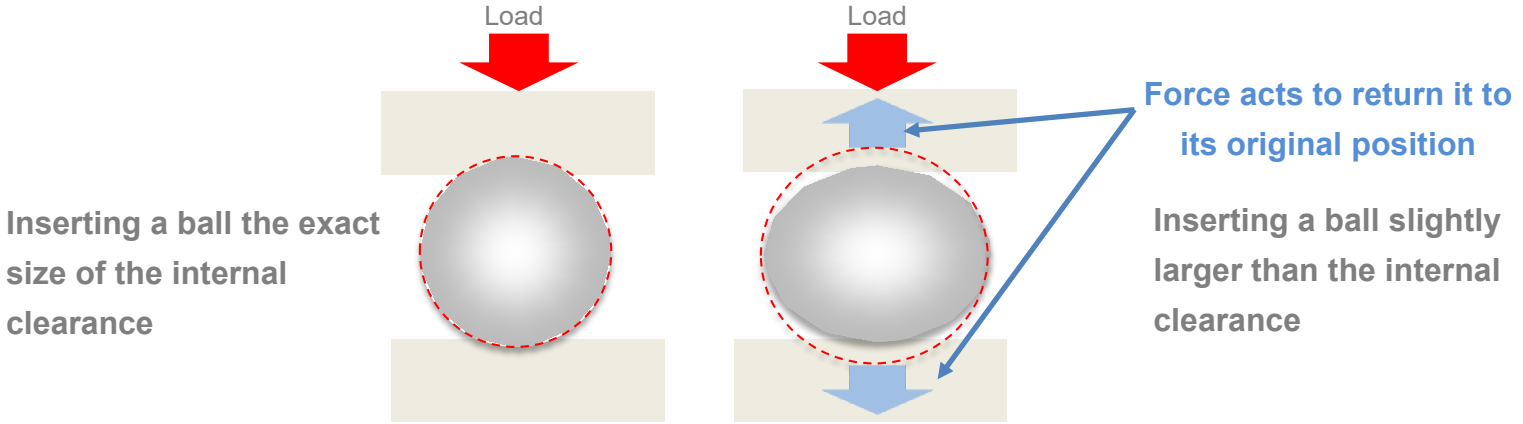


B-PT1/8



Radial Clearance (Preload)

By eliminating the internal clearance between the LM block and LM rail (providing a preload), it is possible to reduce the amount of deformation under a load (increasing the rigidity).



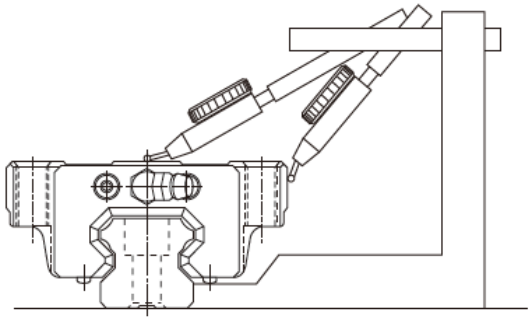
	Normal Clearance	Clearance C1 (Light Preload)	Clearance C0 (Medium Preload)
Usage Conditions	・The loading direction is fixed, impacts and vibrations are minimal, and two rails are installed in parallel. ・Very high precision is not required, and the sliding resistance must be as low as possible.	・An overhang load or moment load is applied. ・The LM Guide is used in a single-rail configuration. ・High accuracy with a light load is required.	・High rigidity is required, and vibrations and impacts occur. ・Heavy-cutting machine tools, etc.
Examples of Applications	・Beam-welding machines ・Book-binding machines ・Automatic wrapping machines ・XY axes of general industrial machinery ・Automatic sash-manufacturing machines ・Welding machines ・Flame cutting machines ・Tool changers ・Various kinds of material feeders	・Grinding machine table feed axes ・Automatic coating machines ・Industrial robots ・Various kinds of high-speed material feeders ・NC drilling machines ・Vertical axes of general industrial machinery ・Printed circuit board drilling machines ・Electric discharge machines ・Measuring instruments ・Precision XY tables	・Machining centers ・NC lathes ・Grinding stone feed axes of grinding machines ・Milling machines ・Vertical/horizontal boring machines ・Tool rest guides ・Vertical axes of machine tools

Accuracy

The accuracy of the LM Guide is specified in terms of running parallelism, dimensional tolerance for height and width, and height and width difference between a pair when two or more LM blocks are used on one rail, or when two or more rails are mounted on the same plane. See “Accuracy Standard for Each Model” in THK’s “Linear Motion Systems” general catalog for more information.

Running Parallelism

Running parallelism refers to the tolerance for parallelism between the LM block and the LM rail datum surface when the LM block travels the whole length of the LM rail with the LM rail bolted to a reference surface.

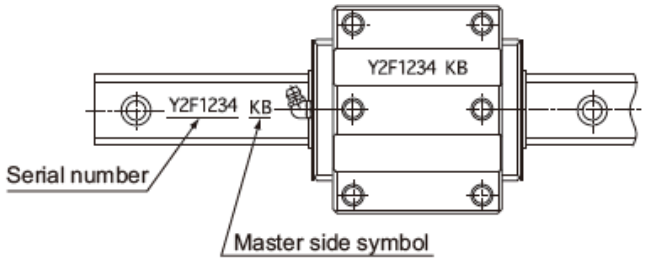


Difference in Height M

The difference in height M indicates the difference between the minimum and maximum values of the height (M) of each of the LM blocks used together on the same plane.

Difference in Width W2

The difference in width W2 indicates the difference between the minimum and maximum values of the width (W2) between an LM rail and each of the LM blocks mounted together on the LM rail.



Note 1) When two or more rails are used on the same plane in parallel, only the width (W2) variation and dimensional tolerance of the master rail apply. Master LM rails will have a printed serial number on them that ends with "KB." However, this is not the case for normal grade products.
Note 2) Accuracy measurements each represent the average value of the central point or the central area of the LM block.
Note 3) If it is mounted on a less rigid base, such as an aluminum base, the curve of the rail will affect the accuracy of the machine. Therefore, it is necessary to specify the straightness of the rail in advance.

Accuracy

These tables show guidelines for selecting the accuracy grade of the LM Guide according to the machine type.

Type of Machine		Accuracy Grades				
		Normal	H	P	SP	UP
Machine Tool	Machining center			●	●	
	Lathe			●	●	
	Milling machine			●	●	
	Boring machine			●	●	
	Jig borer				●	●
	Grinding machine				●	●
	Electric discharge machine			●	●	●
	Punching press		●	●		
	Laser beam machine		●	●		
	Woodworking machine	●	●	●		
	NC drilling machine		●	●		
	Tapping center		●	●		
	Palette changer	●				
	ATC	●				
	Wire cutting machine			●	●	
	Dressing machine				●	●

Type of Machine		Accuracy Grades				
		Normal	H	P	SP	UP
Industrial Robot	Cartesian coordinate	●	●	●		
	Cylindrical coordinate	●	●			
Semiconductor Manufacturing Equipment	Wire bonding machine			●	●	
	Prober				●	●
	Electronic component inserter		●	●		
	Printed circuit board drilling machine		●	●	●	
Other Equipment	Injection molding machine	●	●			
	3D measuring instrument				●	●
	Office equipment	●	●			
	Conveyance system	●	●			
	XY table		●	●	●	
	Coating machine	●	●			
	Welding machine	●	●			
	Medical equipment	●	●			
	Digitizer		●	●	●	
	Inspection equipment			●	●	●

Normal: Normal grade, H: High accuracy grade, P: Precision grade, SP: Super precision grade, UP: Ultra precision grade

Surface Treatment

The surfaces of the rails and shafts of LM systems can be treated for anti-corrosive or aesthetic purposes.
THK offers THK-AP treatment, which is the optimum surface treatment for LM systems.
Please contact THK if surface treatment is required.

AP-C Treatment

Industrial black chrome plating

AP-HC Treatment

Industrial hard chrome plating
Film hardness: 750 HV or higher

AP-CF Treatment

Industrial black chrome plating
Special fluorocarbon resin coating

Grease

Model Number		Standard Grease	Features
SHS	7 to 65	AFB-LF	AFB-LF is a general-purpose grease using a lithium-based consistency enhancer with refined mineral oil as the base oil. It excels in extreme pressure resistance and mechanical stability.
HSR	8 to 12	AFF	AFF Grease uses a high-grade synthetic oil, a lithium-based consistency enhancer, and a special additive. It achieves stable rolling resistance, low dust generation, and high fretting resistance at a level that conventional vacuum greases or low dust-generating greases have not.
	15 to 150	AFB-LF	AFB-LF is a general-purpose grease using a lithium-based consistency enhancer with refined mineral oil as the base oil. It excels in extreme pressure resistance and mechanical stability.
SSR	15 to 35	AFB-LF	
SR	15 to 35	AFB-LF	
SHW	12 to 17	AFF	AFF Grease uses a high-grade synthetic oil, a lithium-based consistency enhancer, and a special additive. It achieves stable rolling resistance, low dust generation, and high fretting resistance at a level that conventional vacuum greases or low dust-generating greases have not.
	21 to 50	AFB-LF	AFB-LF is a general-purpose grease using a lithium-based consistency enhancer with refined mineral oil as the base oil. It excels in extreme pressure resistance and mechanical stability.
SRS	5 to 15	AFF	AFF Grease uses a high-grade synthetic oil, a lithium-based consistency enhancer, and a special additive. It achieves stable rolling resistance, low dust generation, and high fretting resistance at a level that conventional vacuum greases or low dust-generating greases have not.
	20, 25	AFB-LF	AFB-LF is a general-purpose grease using a lithium-based consistency enhancer with refined mineral oil as the base oil. It excels in extreme pressure resistance and mechanical stability.
SRS-G	5 to 15	AFF	AFF Grease uses a high-grade synthetic oil, a lithium-based consistency enhancer, and a special additive. It achieves stable rolling resistance, low dust generation, and high fretting resistance at a level that conventional vacuum greases or low dust-generating greases have not.
	20, 25	AFB-LF	AFB-LF is a general-purpose grease using a lithium-based consistency enhancer with refined mineral oil as the base oil. It excels in extreme pressure resistance and mechanical stability.
SRG	15 to 65	AFB-LF	

Symbol for Number of Axes

If two or more LM Guides are used together in parallel on the same plane, specify the number of LM rails in advance.
*Please order quantities in multiples of the required number of axes. (For two axes, order 2, 4, etc. For three axes, order 3, 6, etc.)

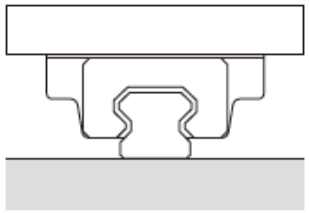
Model Number Coding

SHS25C2SSCO+1000LP -Ⅱ

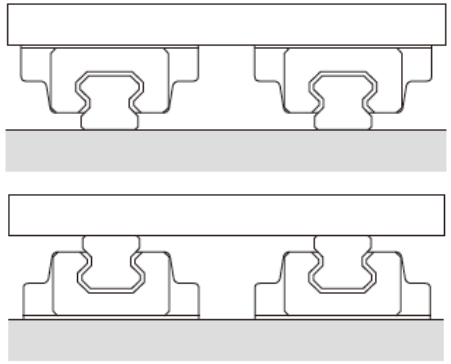
Model No.

Symbol for Number of Axes
Indicates 2 axes used in parallel.
For 1 axis, no symbol is used.

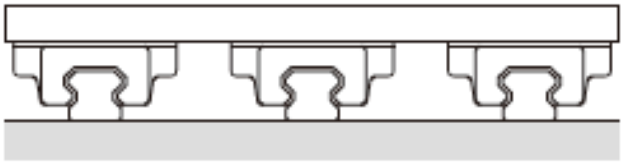
Symbol for number of axes:
None



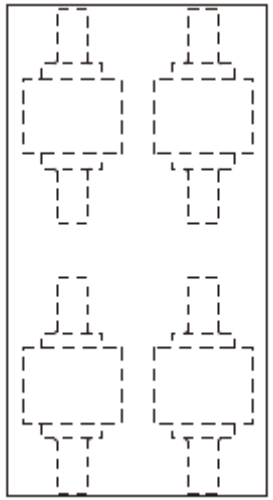
Symbol for number of axes Ⅱ
(Required number of axes: 2)



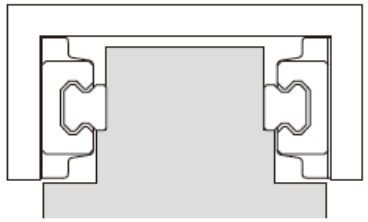
Symbol for number of axes III
(Required number of axes: 3)



Symbol for number of axes IV
(Required number of axes: 4)



Other
(Required number of axes: 2)



Anti-Rust Oil

Products are coated with anti-rust oil to prevent rust.

Model Number Coding Example