



**NEW**

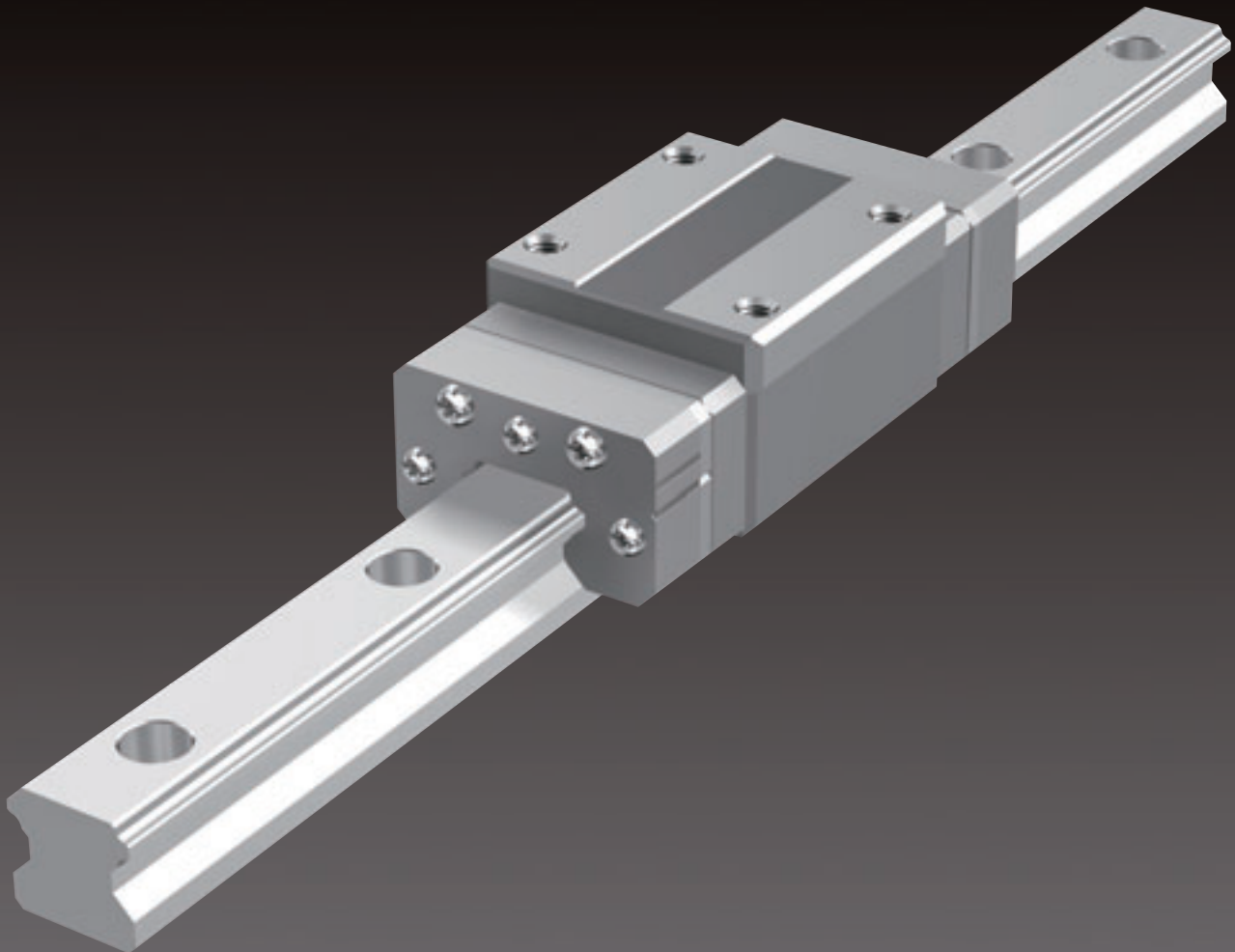
# LM Guide for Medium-to-Low Vacuum

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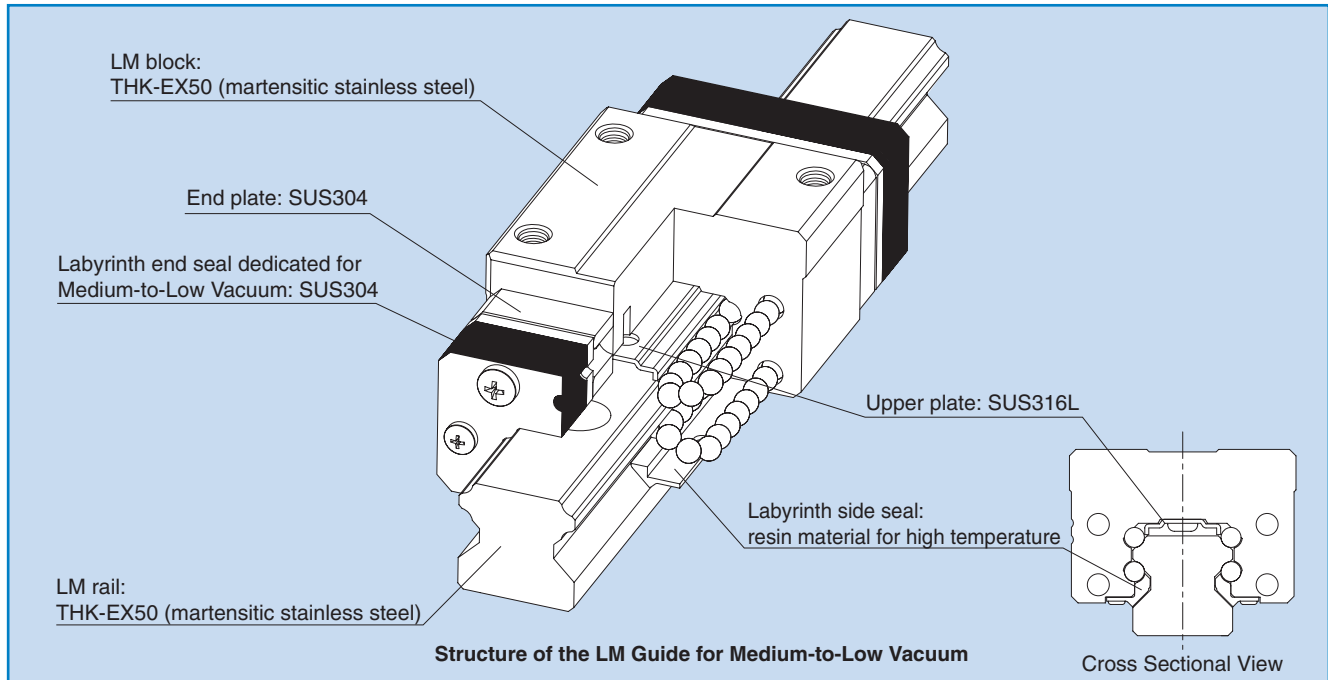
Achieves a stable rolling resistance in an environment at pressure from atmospheric pressure to vacuum ( $10^{-3}$  Pa)

Newly developed: Uses a labyrinth end seal dedicated for Medium-to-Low Vacuum

Newly developed: Contains grease designed for Medium-to-Low Vacuum



# LM Guide for Medium-to-Low Vacuum



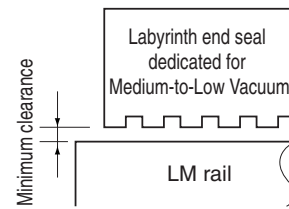
## ● Features

- Operable in various environments at pressure between atmospheric pressure and vacuum ( $10^{-3}$  Pa).
- Capable of withstanding baking temperature up to  $200^{\circ}\text{C}$ .\*
- Use of a newly developed labyrinth end seal dedicated for Medium-to-Low Vacuum increases grease retention and allows extended use in vacuum.
- Use of grease designed for Medium-to-Low Vacuum achieves a stable rolling resistance.

\* If the baking temperature exceeds  $100^{\circ}\text{C}$ , multiply the basic load rating with the temperature coefficient.

## Structure of the labyrinth end seal dedicated for Medium-to-Low Vacuum

The labyrinth end seal dedicated for Medium-to-Low Vacuum forms a multi-stage space as shown in the figure on the right to minimize the pressure difference between adjacent stages. This reduces the outflow velocity of the oil inside the LM block to a minimum. In addition, the seal will not affect the rolling resistance since it does not contact the LM rail.

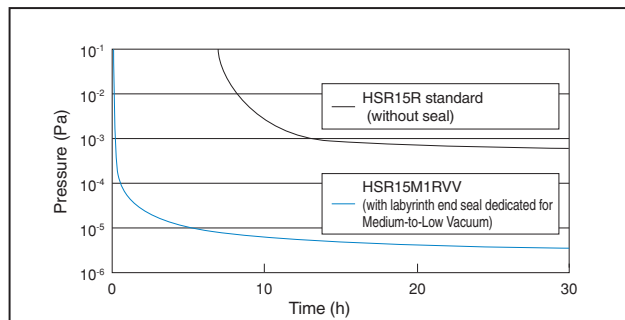


## ● Achievable vacuum level

The LM Guide for Medium-to-Low Vacuum demonstrates an excellent achievable vacuum level.

[Test conditions] Temperature:  $25^{\circ}\text{C}$  ( $\pm 5^{\circ}\text{C}$ )

	HSR15M1RVV	HSR15R (for reference)
Grease	Grease for Medium-to-Low Vacuum	AFB-LF Grease
Seal	Labyrinth end seal dedicated for Medium-to-Low Vacuum	None
End plate	Stainless steel	Resin



Achievable vacuum level

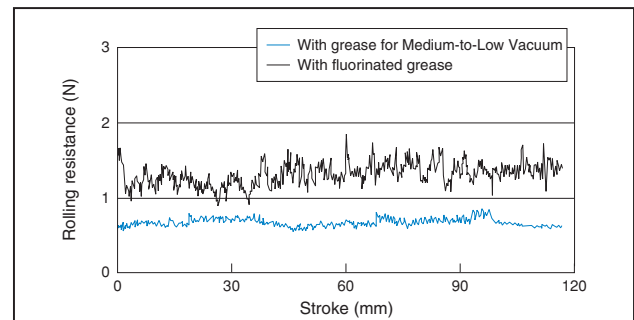
## ● Rolling resistance

The grease used in the LM Guide for Medium-to-Low Vacuum has a smaller rolling resistance than conventional fluorine grease and ensures stable rolling motion.

Specimen: HSR15M1RVV

Temperature:  $25^{\circ}\text{C}$  ( $\pm 5^{\circ}\text{C}$ )

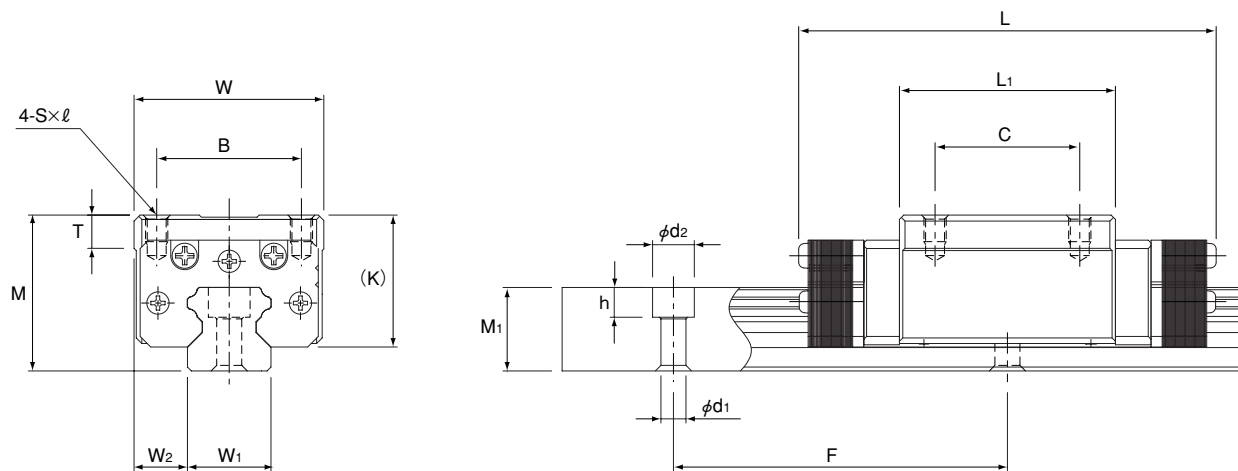
Pressure: atmospheric pressure



Rolling resistance fluctuation

# Model HSR15M1R-VV

## Dimensional table for model HSR15M1R-VV



Unit: mm

Model No.	Outer dimensions			LM block dimensions					
	Height M	Width W	Length L	B	C	S×l	L <sub>1</sub>	T	K
HSR15M1R-VV	28	34	75	26	26	M4×5	38.8	6	23.7

Unit: mm

Model No.	LM rail dimensions					Basic load rating		Static permissible moment [kN-m]			Mass			
	Width W <sub>1</sub> ±0.05	W <sub>2</sub>	Height M <sub>1</sub>	Pitch F	d <sub>1</sub> ×d <sub>2</sub> ×h	C [kN]	C <sub>0</sub> [kN]	M <sub>A</sub>		M <sub>B</sub>		M <sub>C</sub>	LM block [kg]	LM rail [kg/m]
								1 block	Double blocks	1 block	Double blocks			
HSR15M1R-VV	15	9.5	15	60	4.5×7.5 ×5.3	8.33	13.5	0.0805	0.457	0.0805	0.457	0.0844	0.27	1.5

### Note

If you desire a product other than the model numbers indicated above, contact THK.

Static permissible moment\*

1 block: static permissible moment value with 1 LM block

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

### Example of model number coding

**HSR15M1R 1 VV C1 + 400L P - II**

Model  
number

Radial clearance  
symbol  
Labyrinth seal symbol\*

Number of LM  
blocks on one rail

Number of rails used  
on the same plane  
Accuracy symbol

LM rail length (mm)

\* This symbol in this example represents use of a labyrinth end seal for Medium-to-Low Vacuum + a labyrinth side seal.

Note 1: The radial clearance, maximum LM rail length and accuracy class are equal to that of model HSR. See the general catalog for details.

Note 2: With this model, a single-rail unit constitutes one set (i.e., the required number of sets when 2 rails are used in parallel is 2).

# THK LM Guide for Medium-to-Low Vacuum

## Precautions on Use

### ● Handling

- Pulling out the LM block from the LM rail will cause balls to fall. When removing the LM block from the LM rail and then replacing the block, an LM block removing/mounting jig is available. Contact THK for details.
- Do not disassemble the parts. Doing so may cause entrance of dust or a functional loss.
- Tilting the LM block or the LM rail may cause it to fall by its own weight.
- Do not drop or hit the LM Guide. Doing so may cause injury. It may also cause failure or breakage. Applying an impact to the product may cause a functional loss even if it may look intact.
- The product is provided with moisture-proof packaging after thoroughly degreased and cleaned. Unpack the product immediately before use whenever it is possible.
- After unpacking the product, store it in a clean dry container together with a desiccant (e.g., silica gel). Do not apply anticorrosive oil or use volatile corrosion inhibitor paper (agent).
- When handling the product, use vinyl gloves or the like in a clean place.

### ● Service temperature range

- The maximum service temperature of the product is 200°C. If using the product in an environment at temperature exceeding 100°C, be sure to take into account the temperature coefficient when calculating the rated life and the static safety factor. See the general catalog for details.

### ● Service environment and lubrication

- Use this product in a clean place under an environment at pressure from atmosphere pressure to vacuum ( $10^{-3}$  Pa).
- This product contains a lubricant dedicated for Medium-to-Low Vacuum. Do not mix lubricants of different properties when using the product.
- This product does not have a grease nipple or an oil hole for greasing (replenishment of grease is not allowed). The product must be used with the initially supplied lubricant. Contact THK for details.

### ● Storage

- When storing the LM Guide, enclose it in a package designated by THK and store it in a horizontal orientation in a place controlled to a constant environment while avoiding high temperature, low temperature and high humidity.

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