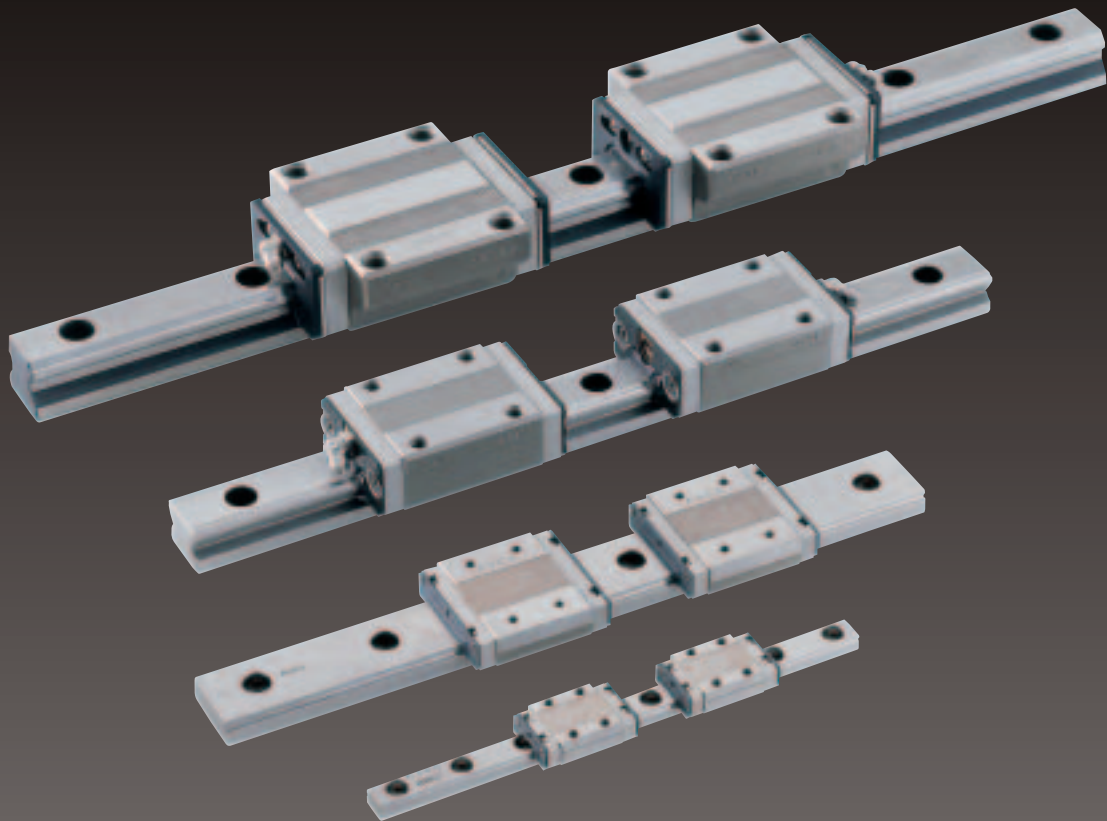




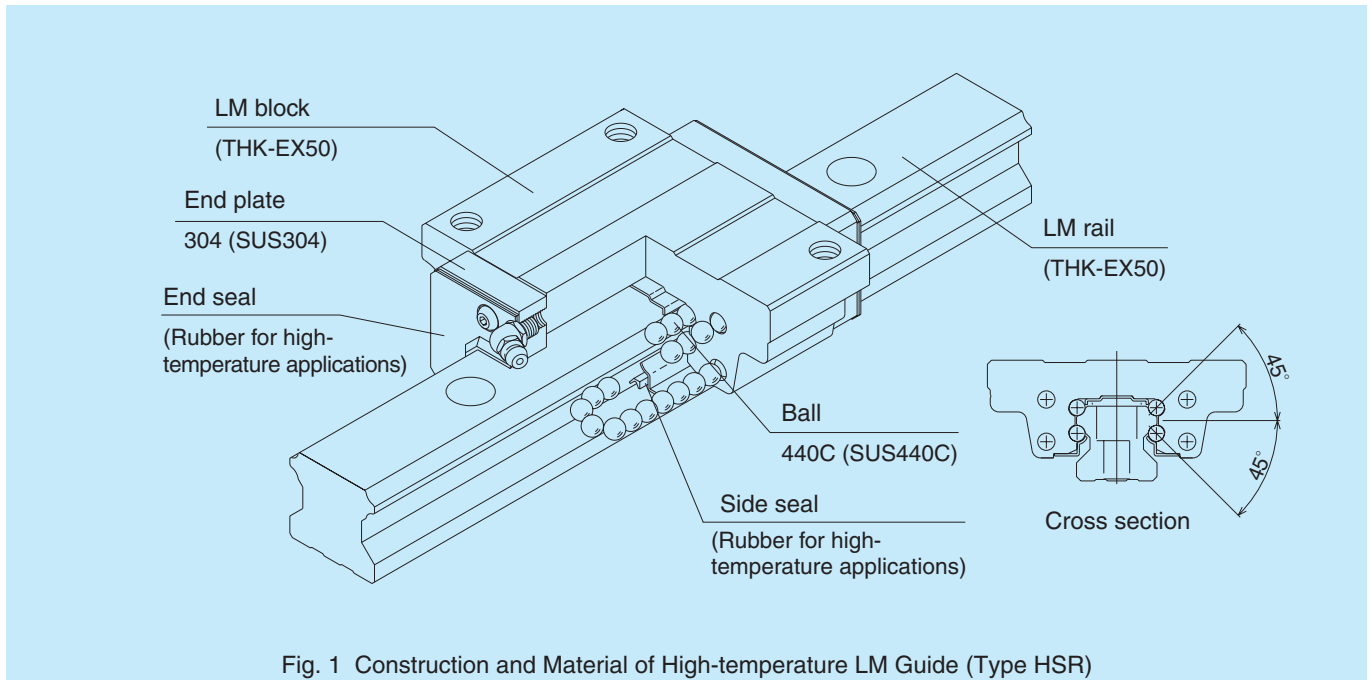
High-temperature LM Guide Series

Maximum permissible temperature: 150°C



THK High-temperature LM Guide

■ THK has developed its new line of High-temperature LM Guides for high-temperature applications.



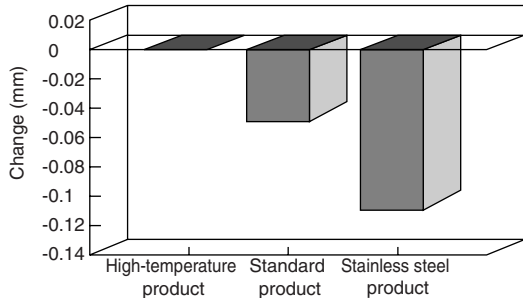
Construction and Features

- **High maximum permissible temperature: 150°C**
The stainless steel end plate and high-temperature rubber seals allow the Guide to be used under high temperatures.
- **High dimensional stability**
A special treatment minimizes dimensional fluctuations (except for thermal expansion at high temperatures).
- **Corrosion-resistant**
The Guide is made entirely of stainless steel.
- **Heat-resistant grease**
High-temperature grease (fluorine-based) is sealed in.
- **Heat-resistant seal**
High-temperature rubber used for the seals make them durable in hot environments.

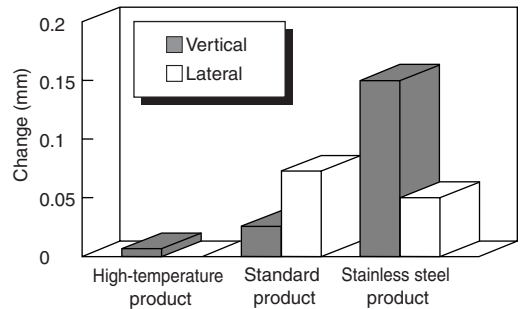
Dimensional Stability Data

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

LM rail overall length



LM rail bend

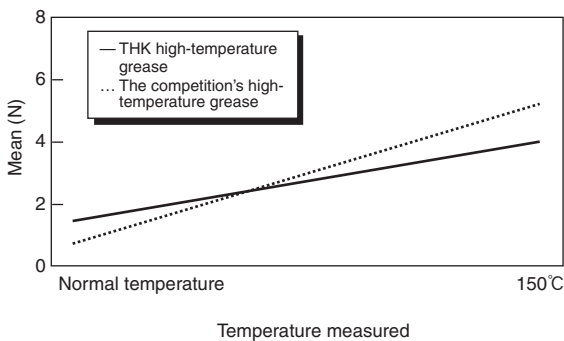


- The overall length and bend data indicate changes that occurred when the samples were heated to 150°C for 100h, then cooled to normal temperature.
- The samples were the high-temperature, standard, and stainless steel models of HSR25+580L.

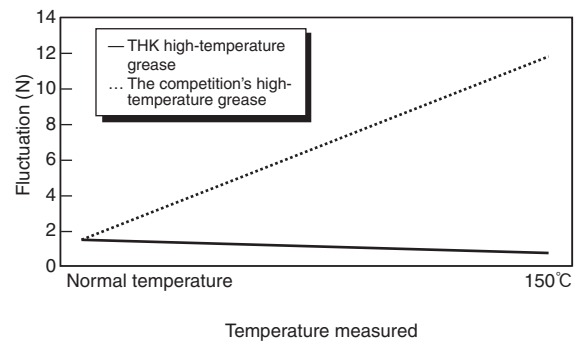
Greased Ball Rolling Resistance Data

The grease chosen for the new LM Guide provides smoother ball rolling, less subject to changes in rolling resistance and fluctuations (scratchy movement). This property holds good over the entire temperature range, from normal to high.

Mean value



Fluctuation



The data above was obtained with HSR25M1R1C1 used as the sample.

Thermal Characteristics of LM Rail and LM Block Materials

- Specific heat capacity : 0.481 J/(g-K)
- Thermal conductivity : 20.67 W/(m-K)
- Mean linear expansion coefficient : $11.8 \times 10^{-6} / ^\circ\text{C}$

Precautions on the Use of the THK High-temperature LM Guide

[Operating Temperature of High-temperature LM Guide]

Permissible up to 150°C.

[Choosing the Right Type of High-temperature LM Guide]

To choose the right type of guide for your application, please refer to Chapter 4, Selecting the Correct Type of LM Guide, in the General Catalog. (The selection procedures are the same as used for the standard LM Guide.) For the temperature coefficient f_T , please refer to graphs presented in the same chapter of the General Catalog. Use 1.0 as the hardness coefficient f_H .

[Dimensional Accuracy of High-temperature LM Guide]

Although the High-temperature LM Guide is built to the same dimensional accuracy as that of the standard LM Guide, yet at high temperatures the accuracy changes by an amount equal to the thermal expansion.

[Calculating the Linear Expansion of the High-temperature LM Guide]

The thermal expansion of High-temperature LM Guide can be calculated from the following equation:

$$L_{2-1} = \alpha (t_2 - t_1) L_1$$

L_{2-1} : thermal expansion due to heating (mm)

α : linear expansion coefficient (see the table below)

t_2 : heating temperature (°C)

t_1 : normal temperature (°C)

L_1 : length at normal temperature (mm)

Table 1 Linear Expansion Coefficients of Various Materials ($\times 10^{-6}/^\circ\text{C}$)

(Other values than those of THK High-temperature LM Guide are cited from *Practical Design Part II* (Nikkan Kogyo Shimbun))

| | High-temperature LM Guide | SS400 | FC25 | 304 (SUS304) | Aluminum |
|------------------------------|---------------------------|-----------|---------|--------------|----------|
| Linear expansion coefficient | 11.8 | 11.2~11.3 | 8.6~8.7 | 16.4 | 23 |

Note: Special care must be taken when installing the High-temperature LM Guide on a material with a thermal expansion coefficient which significantly differs from that of the Guide, or where the temperature distribution is not uniform even if the linear expansion coefficients are the same. These conditions can bend the rails and vary the preload on the LM Guide. (For the LM Guide preload, see the General Catalog.)

[Grease Used in High-temperature LM Guide]

Unless otherwise specified, fluorine-based grease is sealed into the High-temperature LM Guide as the standard lubricant. The physical properties of the High-temperature LM Guide grease are as shown below.

(Mixing other greases and lubricating oils can degrade performance. If your application requires use of the Guide under a vacuum, please contact THK.)

Grease name : Crytox GPL225 (DuPont)

| | |
|-----------------------------|---------------|
| Base oil | GPL105 |
| Base oil viscosity (20°C) | 550 (cSt) |
| Oil separation (30 h), 99°C | 4% (wt) |
| Additive | Anticorrosive |
| Operating temperature range | -35~205°C |
| Mixing consistency | NLGI No.2 |

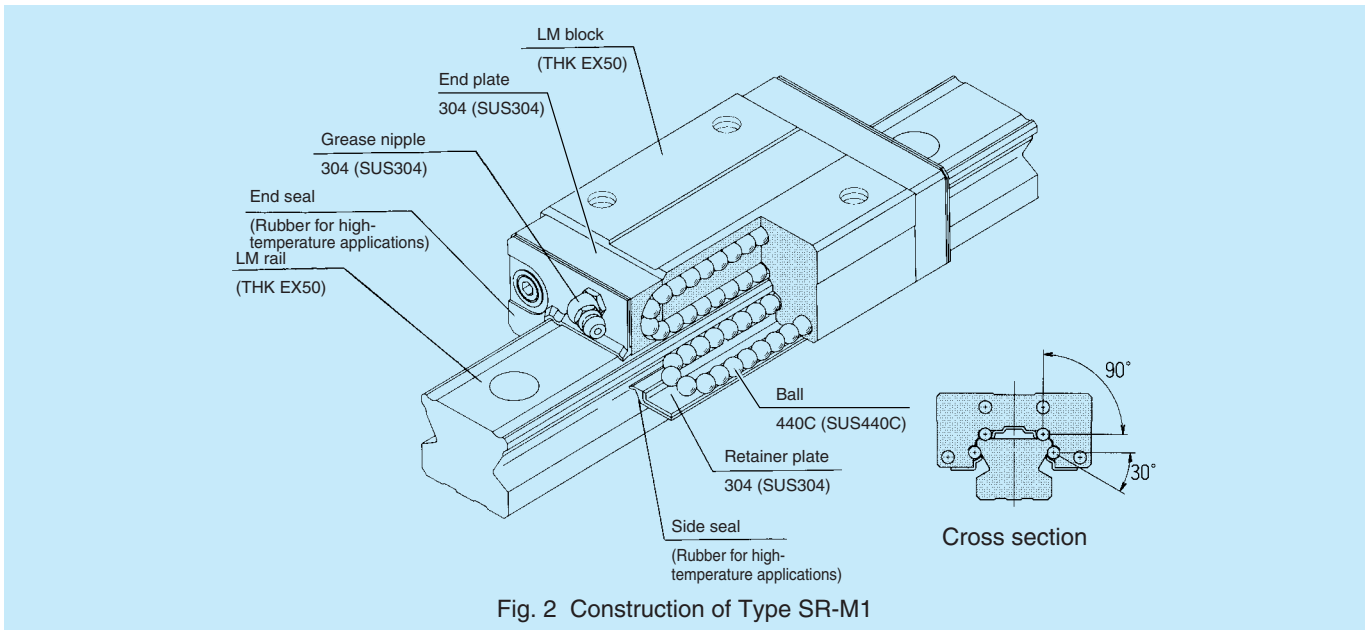
[Changes in Sliding Resistance Due to Grease and Seals]

The LM Guide sliding resistance due to high-temperature grease and seals tends to increase in proportion to the temperature rise.

[Lubrication of High-temperature LM Guide]

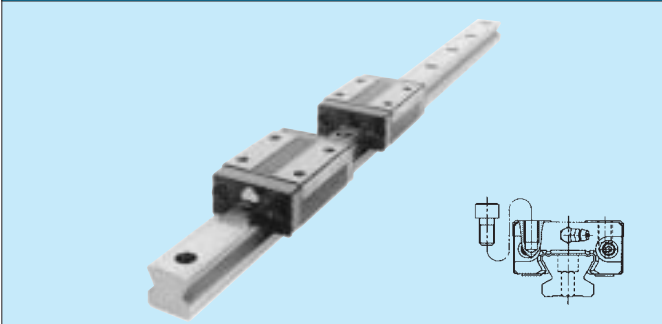
Feed grease to the Guide every 100 km of running distance, as a rule. The interval depends on the operating conditions, environment, atmosphere, and temperature. The greasing interval will therefore require adjustment according to the respective case.

LM Guide SR-M1 — High-rigidity Radial Type



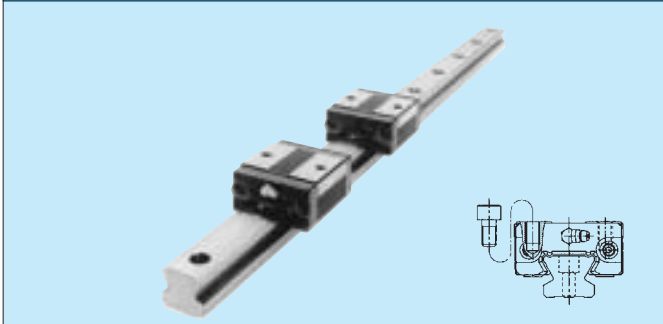
Types and Features

Type SR-M1W



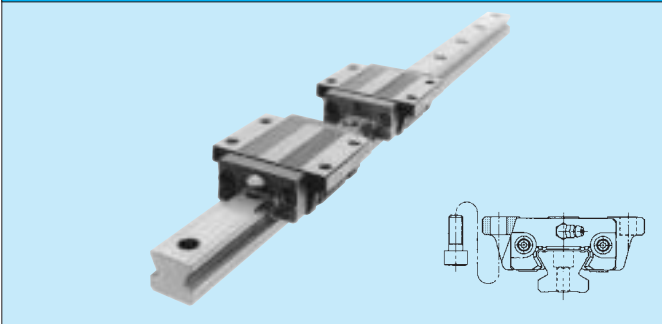
Low-profile, compact, and radial-load durable. One of the representative models of LM Guides.

Type SR-M1V



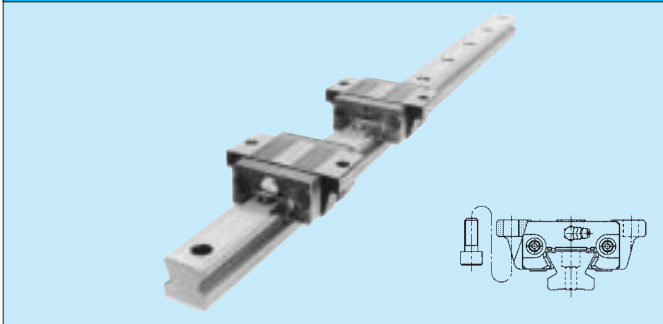
Modified SR-M1W with shortened LM blocks for space savings.

Type SR-M1TB



The height is the same as of type SR-M1W. The LM blocks can be attached to a table from below.

Type SR-M1SB



Modified SR-M1TB with shortened LM blocks for space savings.

• Actual product color may differ from the photograph.

LM Guide HSR-M1 — Four-way Equal-Load Type

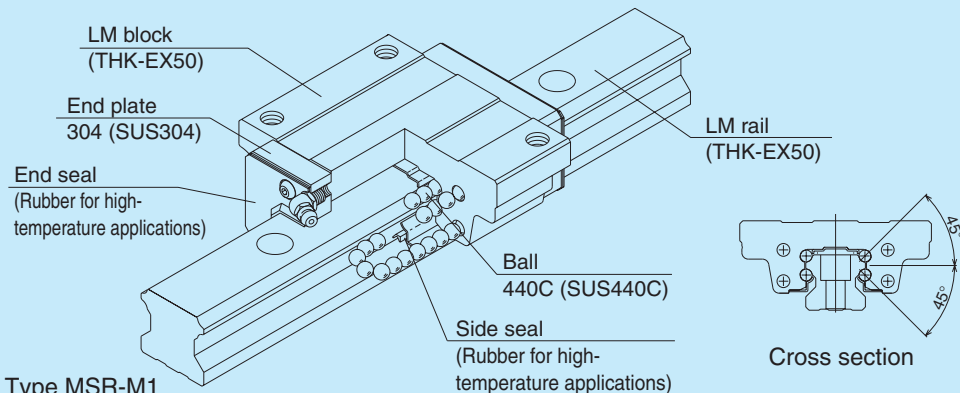
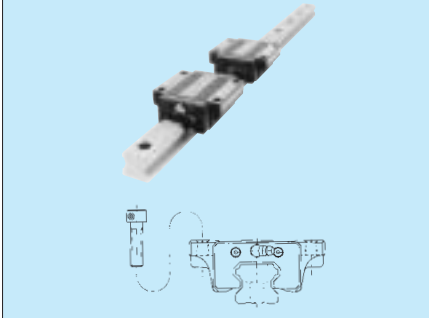


Fig. 3 Construction of Type MSR-M1

Types and Features

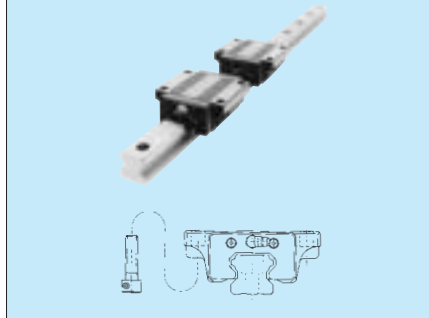
Standard heavy duty types

HSR-M1A



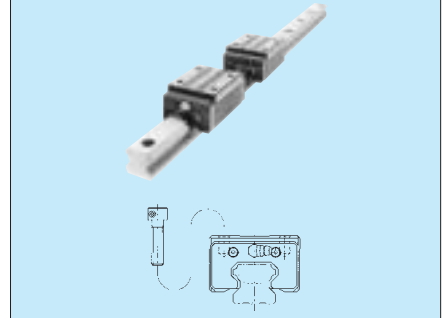
The flange of the LM block is provided with tapped holes for simplified assembly; suitable for build-up systems. Four-bolt type.

HSR-M1B



The LM blocks can be attached to a table from below. To be used for a table that does not permit drilling of through holes. Four-bolt type.

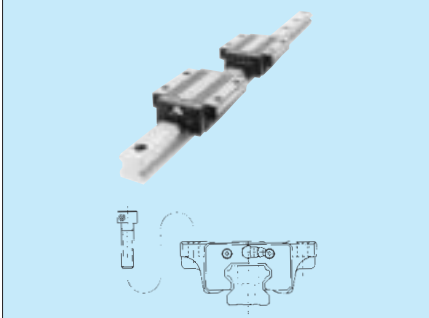
HSR-M1R



The narrowed flange of the LM block is provided with tapped holes making them convenient for build-up systems. Four-bolt type.

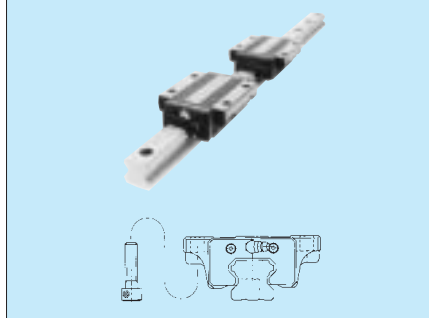
Standard ultra-heavy duty types

HSR-M1LA



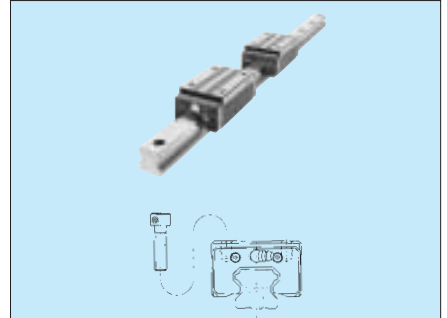
While the cross-sectional dimensions are the same as those of the HSR-M1A, the LM block is longer. The number of effective balls is therefore greater than in the HSR-M1A. Four-bolt type.

HSR-M1LB



While the cross-sectional dimensions are the same as those of the HSR-M1B, the LM block is longer. The number of effective balls is therefore greater than in the HSR-M1B. Four-bolt type.

HSR-M1LR



While the cross-sectional dimensions are the same as those of the HSR-M1R, the LM block is longer. The number of effective balls is therefore greater than in the HSR-M1R. Four-bolt type.

• Actual product color may differ from the photograph.

LM Guide HSR — M1YR

Four-way Equal Load, Sideways Installation Type

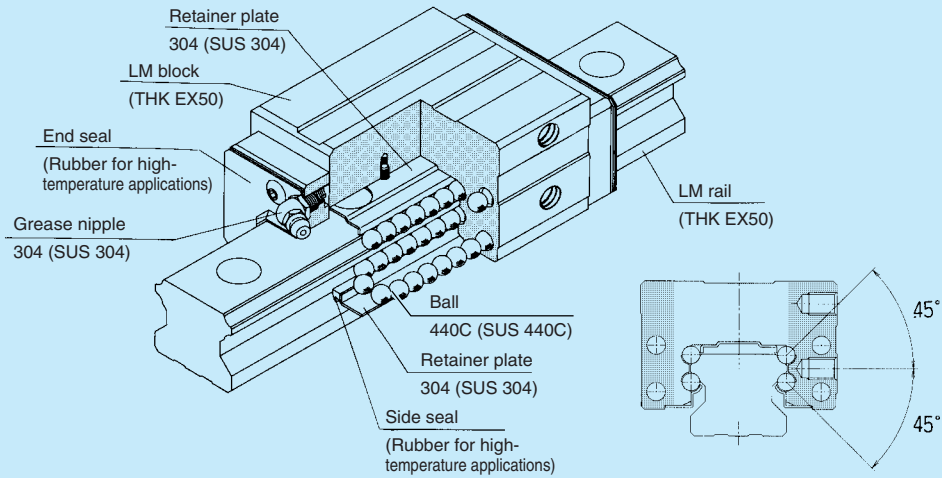


Fig. 4 Construction of Type HSR-M1YR

Simple installation in opposed position

Installing two LM Guides opposing to one another used to pose a number of problems: e.g., it is time-consuming and difficult to attain the required accuracy and to adjust clearance.

In the HSR-M1YR, however, tapped holes provided in the flange of the LM block to aid the mounting of a table has simplified assembly and construction. This contributes to substantial man-hour reduction and improved precision.

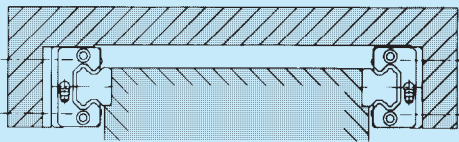


Fig. 5 Conventional Design

Low profile

Sideways installation reduces the mounting height or the spacing between the base and table when the LM Guide is installed. This style of installation is also useful when there is a need for a wide guide to obtain greater table rigidity.

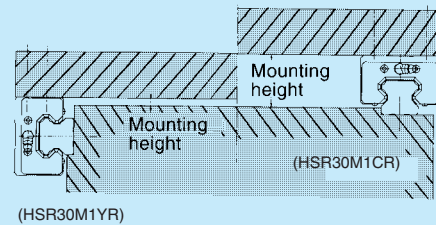


Fig. 7 HSR30YR and CR Installed (for comparison with other installation styles)

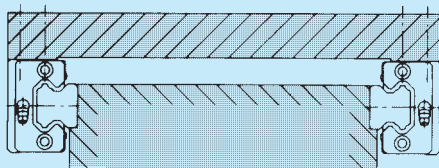


Fig. 6 Type YR Mounting Structure

Higher rigidity achieved against lateral load

HSR-M1YR is installed sideways. This means that the applied load is exerted on the center line of the train of balls, as shown below. Since the load does not act as a moment, a higher rigidity is obtained.

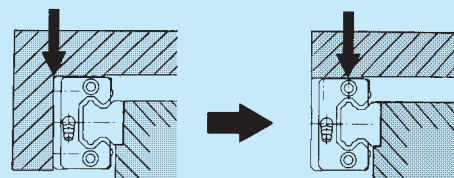


Fig. 8 Conventional Load Focus

Fig. 9 YR Load Focus

Miniature LM Guides RSR-M1 and RSR-M1W

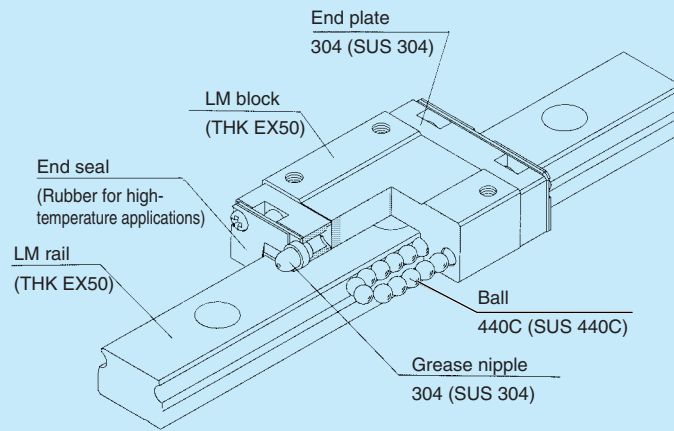
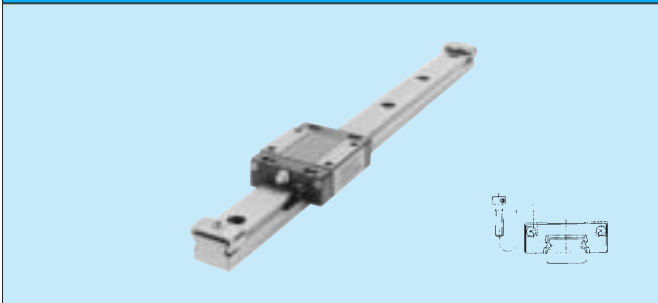


Fig. 10 Construction of Type RSR-M1M1V

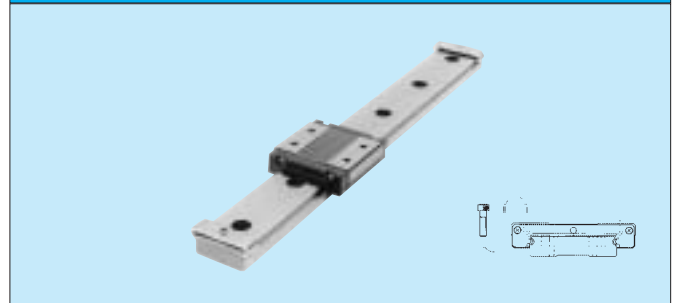
Types and Features

RSR-M1 and RSR-M1K/M1V



Standard types of Miniature LM Guide.

RSR-M1W/M1WV



Modified RSR-M1V with expanded LM block length and width for greater load ratings and permissible moments.

RSR-M1N



Compared to type RSR-M1V, this type has larger load rating provided by the longer overall length of LM block and increased number of effective balls.

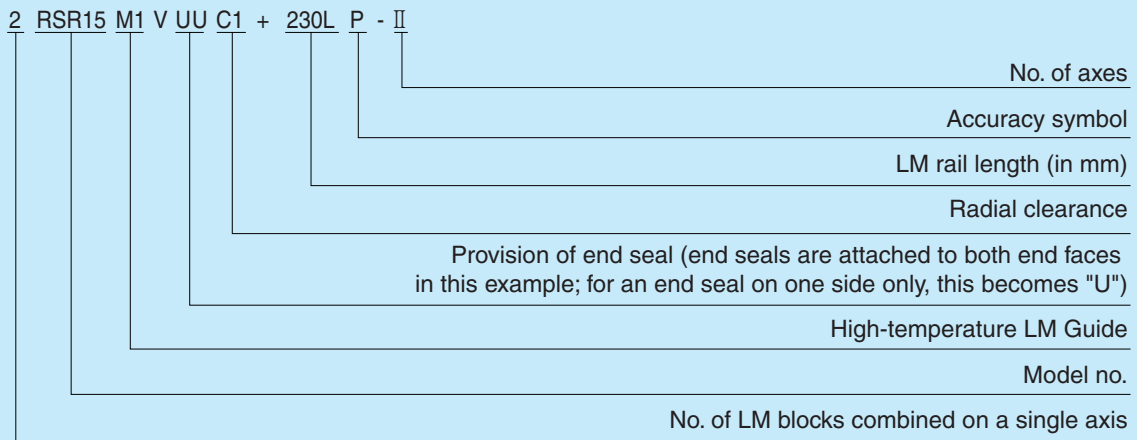
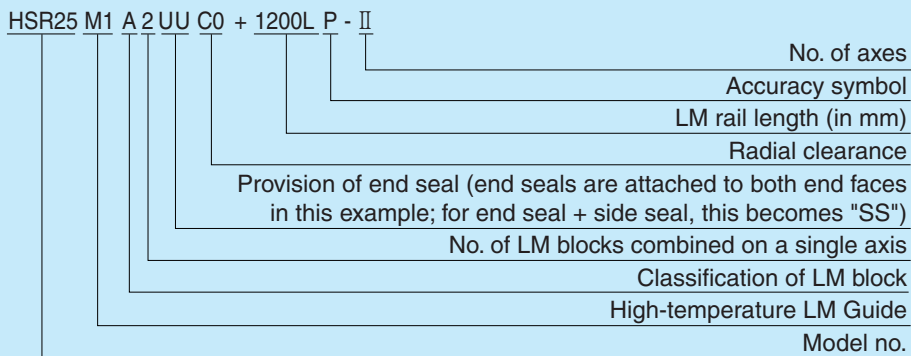
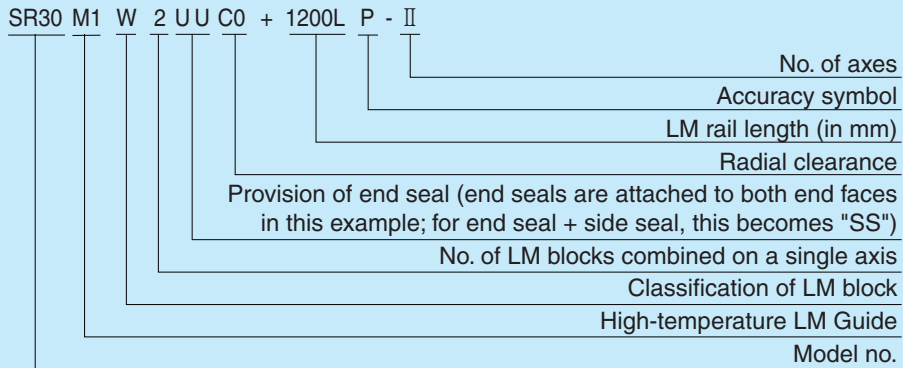
RSR-M1WN



Modified RSR-M1W with increased LM block length, number of effective balls, and load rating. Has the greatest load carrying capability of all Miniature LM Guide models.

• Actual product color may differ from the photograph.

Model Number Coding



Notes: A model number is allotted to a set comprising a one-axis unit. (A parallel two-axis configuration requires at least two sets.)

Contamination Protection

For the High-Temperature LM Guide, side seals to prevent contaminants from entering the Guide are available from THK.

End seal

A standard accessory.

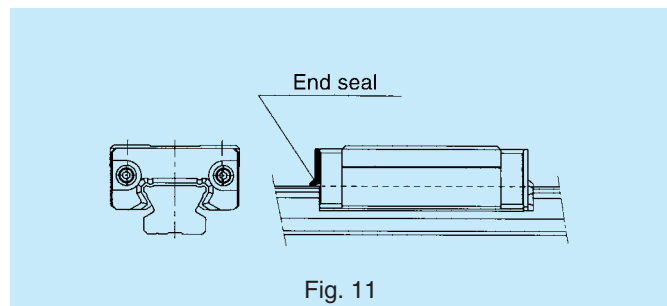


Fig. 11

Side seal

Prevents contaminants from entering an LM block from below.

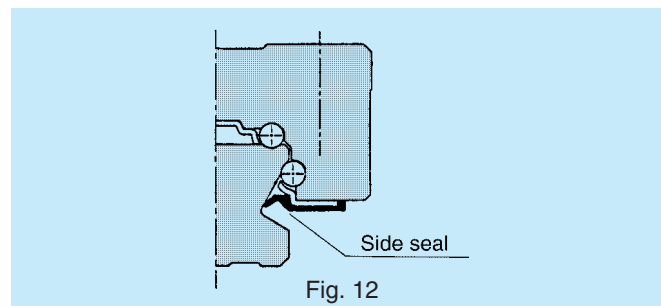


Fig. 12

Contamination protection accessory symbol

If a contamination protection accessory is required, please specify this using the symbols shown below. Some models do not accept a contamination protection accessory. Check which parts are applicable, referring to Table 2. Attaching a contamination protection accessory to an LM block changes the block overall length. Add the increment to dimension L provided in the corresponding dimension table.

Table 2

| Contamination protection accessory | Symbol |
|------------------------------------|--------|
| End seal (on both end faces) | UU |
| End seal + side seal | SS |

Table 3

Unit : mm

| Model no. | No symbol | | U U | | S S | |
|-----------|-----------|------|-----|---|-----|---|
| HSR 15M1 | ○ | -8.0 | ○ | — | ○ | — |
| HSR 20M1 | ○ | -8.0 | ○ | — | ○ | — |
| HSR 25M1 | ○ | -7.8 | ○ | — | ○ | — |
| HSR 30M1 | ○ | -7.8 | ○ | — | ○ | — |
| HSR 35M1 | ○ | -9.6 | ○ | — | ○ | — |
| SR 15M1 | ○ | -5.0 | ○ | — | ○ | — |
| SR 20M1 | ○ | -6.3 | ○ | — | ○ | — |
| SR 25M1 | ○ | -7.0 | ○ | — | ○ | — |
| SR 30M1 | ○ | -7.0 | ○ | — | ○ | — |
| SR 35M1 | ○ | -7.0 | ○ | — | ○ | — |
| RSR 9M1 | ○ | -3.0 | ○ | — | × | — |
| RSR 12M1 | ○ | -4.0 | ○ | — | × | — |
| RSR 15M1 | ○ | -4.0 | ○ | — | × | — |
| RSR 20M1 | ○ | -5.0 | ○ | — | × | — |
| RSR 9M1W | ○ | -3.0 | ○ | — | × | — |
| RSR 12M1W | ○ | -3.2 | ○ | — | × | — |
| RSR 15M1W | ○ | -4.0 | ○ | — | × | — |

Seal resistance

With regard to end seals for the type UU High-Temperature LM Guide, Tables 4 through 6 show the maximum values of seal resistance per LM block with a lubricant applied.

Table 4

| Model no. | Seal resistance (N) |
|-----------|---------------------|
| SR 15M1 | 2.5 |
| SR 20M1 | 3.4 |
| SR 25M1 | 4.4 |
| SR 30M1 | 8.8 |
| SR 35M1 | 11.8 |

Table 5

| Model no. | Seal resistance (N) |
|-----------|---------------------|
| HSR 15M1 | 2.0 |
| HSR 20M1 | 2.5 |
| HSR 25M1 | 3.9 |
| HSR 30M1 | 7.8 |
| HSR 35M1 | 11.8 |

Table 6

| Model no. | Seal resistance (N) |
|-----------|---------------------|
| RSR 9M1 | 0.1 |
| RSR 12M1 | 0.4 |
| RSR 15M1 | 0.8 |
| RSR 20M1 | 1.0 |
| RSR 9M1W | 0.8 |
| RSR 12M1W | 1.1 |
| RSR 15M1W | 1.3 |

- Notes:
- These seal resistance values are measurements at normal temperature.
 - The data for type HSR-M1 apply to type HSR-M1YR as well.

LM Rail Standard and Maximum Lengths

The LM rail standard and maximum lengths of the High-Temperature LM Guide are as shown in Tables 7 through 9. If the maximum length for your application is not within the range found in the tables, we can produce special LM rails intended for connected use.

For dimension G, if you specify a special length, we recommend the values listed in the above tables. A longer dimension G tends to reduce the stability of the rail at the rail ends after installation, possibly reducing accuracy.

For connected use, we produce LM rails with no level difference at the joints. Accordingly, when placing an order, please specify the overall length.

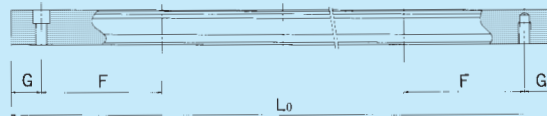


Table 7

Unit: mm

| Model no. | SR 15M1 | SR 20M1 | SR 25M1 | SR 30M1 | SR 35M1 |
|-----------------------------------|---------|---------|---------|---------|---------|
| 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 | | |
| 1240 | 1300 | 1360 | | | |
| | 1360 | 1360 | | | |
| | 1420 | 1420 | | | |
| | | 1480 | | | |
| Standard pitch F | 60 | 60 | 60 | 80 | 80 |
| G | 20 | 20 | 20 | 20 | 20 |
| Max. length | 1240 | 1500 | 1500 | 1500 | 1500 |

Table 8

Unit: mm



| Model no. | HSR 15M1 | HSR 20M1 | HSR 25M1 | HSR 30M1 | HSR 35M1 |
|---|----------|----------|----------|----------|----------|
| 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 | 1180 | 1480 | 1480 |
| | 1180 | 1240 | 1240 | | |
| 1240 | 1360 | 1300 | | | |
| | 1480 | 1360 | | | |
| | | 1420 | | | |
| | | 1480 | | | |
| Standard pitch F | 60 | 60 | 60 | 80 | 80 |
| G | 20 | 20 | 20 | 20 | 20 |
| Max. length | 1240 | 1500 | 1500 | 1500 | 1500 |

Notes: The data for type HSR-M1 apply to type HSR-M1YR as well.

Table 9

Unit

| Model no. | RSR 9M1 | RSR 12M1 | RSR 15M1 | RSR 20M1 | RSR 9M1W | RSR 12M1W | RSR 15M1W | |
|---|------------------|----------|----------|----------|----------|-----------|-----------|------|
| LM rail standard length (L ₀) | 55 | 70 | 70 | 220 | 50 | 70 | 110 | |
| | 75 | 95 | 110 | 280 | 80 | 110 | 150 | |
| | 95 | 120 | 150 | 340 | 110 | 150 | 190 | |
| | 115 | 145 | 190 | 460 | 140 | 190 | 230 | |
| | 135 | 170 | 230 | 640 | 170 | 230 | 270 | |
| | 155 | 195 | 270 | 880 | 200 | 270 | 310 | |
| | 175 | 220 | 310 | 1000 | 260 | 310 | 430 | |
| | 195 | 245 | 350 | | 290 | 390 | 550 | |
| | 275 | 270 | 390 | | 320 | 470 | 670 | |
| | 375 | 320 | 430 | | | 550 | 790 | |
| | | 370 | 470 | | | | | |
| | | 470 | 550 | | | | | |
| | | 570 | 670 | | | | | |
| | | | 870 | | | | | |
| | Standard pitch F | 20 | 25 | 40 | 60 | 30 | 40 | 40 |
| | G | 7.5 | 10 | 15 | 20 | 10 | 15 | 15 |
| | Max. length | 1000 | 1340 | 1430 | 1800 | 1000 | 1430 | 1800 |

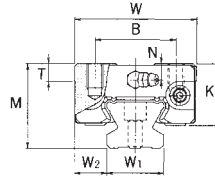
Notes: • If connected use is impossible, but you need a rail longer than the maximum lengths in the table, please contact .
 • The maximum length varies with the accuracy grade. Regarding the maximum length, please contact .

Other Information on the High-Temperature LM Guide

- Permissible load and moment in all four directions
- Radial clearance
- Accuracy standards
- Mounting surface height and fillet profile

For these aspects, see the sections on SR, HSR, HSR-YR, and RSR in the General Catalog.

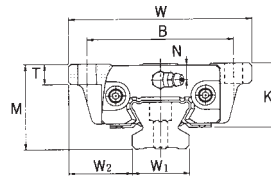
SR-M1W SR-M1V



Unit: mm

| Model no. | External dimensions | | | LM block dimensions | | | | | | | |
|------------------------|---------------------|------------|-------------|---------------------|---------|-------|----------------|-----|------|-----|-----|
| | Height M | Width W | Length L | B | C | S×ℓ | L ₁ | T | K | N | E |
| SR 15 M1W SR 15 M1V | 24 | 34 | 57 41 | 26 | 26 — | M4×7 | 39.5 22.9 | 6 | 19.5 | 6 | 5.5 |
| SR 20 M1W SR 20 M1V | 28 | 42 | 66.5 48 | 32 | 32 — | M5×8 | 46.7 27.8 | 7.5 | 22 | 6 | 12 |
| SR 25 M1W SR 25 M1V | 33 | 48 | 83 60 | 35 | 35 — | M6×9 | 59 35.2 | 8 | 26 | 7 | 12 |
| SR 30 M1W SR 30 M1V | 42 | 60 | 97 68 | 40 | 40 — | M8×12 | 69.3 40.4 | 9 | 32.5 | 8 | 12 |
| SR 35 M1W SR 35 M1V | 48 | 70 | 111 78 | 50 | 50 — | M8×12 | 79 45.7 | 13 | 36.5 | 8.5 | 12 |

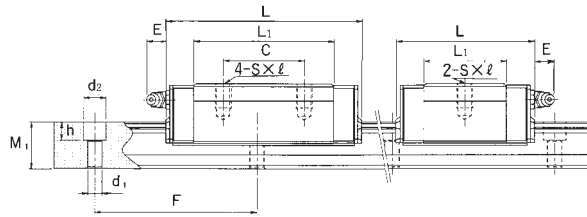
SR-M1TB SR-M1SB



Unit: mm

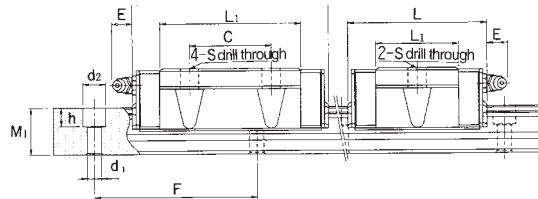
| Model no. | External dimensions | | | LM block dimensions | | | | | | | |
|--------------------------|---------------------|------------|-------------|---------------------|---------|-----|----------------|----|------|-----|-----|
| | Height M | Width W | Length L | B | C | S | L ₁ | T | K | N | E |
| SR 15 M1TB SR 15 M1SB | 24 | 52 | 57 41 | 41 | 26 — | 4.5 | 39.5 22.9 | 7 | 19.5 | 6 | 5.5 |
| SR 20 M1TB SR 20 M1SB | 28 | 59 | 66.5 48 | 49 | 32 — | 5.5 | 46.7 27.8 | 9 | 22 | 6 | 12 |
| SR 25 M1TB SR 25 M1SB | 33 | 73 | 83 60 | 60 | 35 — | 7 | 59 35.2 | 10 | 26 | 7 | 12 |
| SR 30 M1TB SR 30 M1SB | 42 | 90 | 97 68 | 72 | 40 — | 9 | 69.3 40.4 | 10 | 32.5 | 8 | 12 |
| SR 35 M1TB SR 35 M1SB | 48 | 100 | 111 78 | 82 | 50 — | 9 | 79 45.7 | 13 | 36.5 | 8.5 | 12 |

• For the load rating in the respective direction, see the pages on type SR in the General Catalog.



SR-M1W (heavy-duty type) SR-M1V (intermediate-duty type) Unit: mm

| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|---------------------------|-------|--------------|-----------|---------------------------|-------------------|--------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | 9.5 | 12.5 | 60 | 3.5×6×4.5 | 9.51 5.39 | 19.3 11.1 | 0.2 0.12 | 1.2 |
| B-M6F | 20 | 11 | 15.5 | 60 | 6×9.5×8.5 | 12.5 7.16 | 25.2 14.4 | 0.3 0.2 | 2.1 |
| B-M6F | 23 | 12.5 | 18 | 60 | 7×11×9 | 20.3 11.7 | 39.5 22.5 | 0.4 0.3 | 2.7 |
| B-M6F | 28 | 16 | 23 | 80 | 7×11×9 | 30 17.2 | 56.8 32.5 | 0.8 0.5 | 4.3 |
| B-M6F | 34 | 18 | 27.5 | 80 | 9×14×12 | 41.7 23.8 | 77.2 44.1 | 1.2 0.8 | 6.4 |



SR-M1TB (heavy-duty type) SR-M1SB (intermediate-duty type) Unit: mm

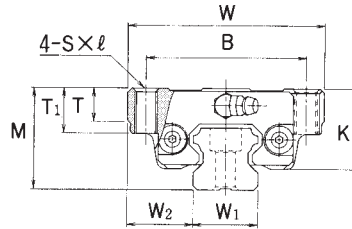
| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|---------------------------|-------|--------------|-----------|---------------------------|-------------------|--------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | | | 60 | 3.5×6×4.5 | 9.51 5.39 | 19.3 11.1 | 0.2 0.15 | 1.2 |
| B-M6F | 20 | 18.5 | 12.5 | 60 | 6×9.5×8.5 | 12.5 7.16 | 25.2 14.4 | 0.4 0.3 | 2.1 |
| B-M6F | 23 | 19.5 | | 60 | 7×11×9 | 20.3 11.7 | 39.5 22.5 | 0.6 0.4 | 2.7 |
| B-M6F | 28 | 25 | 15.5 | 80 | 7×11×9 | 30 17.2 | 56.8 32.5 | 1.1 0.8 | 4.3 |
| B-M6F | 34 | 31 | 18 | 80 | 9×14×12 | 41.7 23.8 | 77.2 44.1 | 1.5 1.0 | 6.4 |

- For the LM rail standard length, see page 11.
- For the model number coding, see page 9.

1kN \approx 102kgf

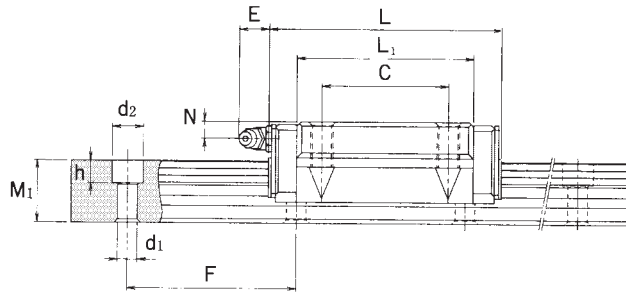
HSR-M1A

HSR-M1LA



| Model no. | External dimensions | | | LM block dimensions | | | | | | | | |
|-------------|---------------------|------------|-------------|---------------------|----|-----------|----------------|----|----------------|------|-----|-----|
| | Height M | Width W | Length L | B | C | S×ℓ | L ₁ | T | T ₁ | K | N | E |
| HSR 15 M1A | 24 | 47 | 59.6 | 38 | 30 | M5×0.8×11 | 38.8 | 7 | 11 | 19.3 | 4.3 | 5.5 |
| HSR 20 M1A | 30 | 63 | 76 | 53 | 40 | M6×10 | 50.8 | 10 | 10 | 26 | 5 | 12 |
| HSR 20 M1LA | 30 | 63 | 92 | 53 | 40 | M6×10 | 66.8 | 10 | 10 | 26 | 5 | 12 |
| HSR 25 M1A | 36 | 70 | 83.9 | 57 | 45 | M8×16 | 59.5 | 10 | 16 | 30.5 | 6 | 12 |
| HSR 25 M1LA | 36 | 70 | 103 | 57 | 45 | M8×16 | 78.6 | 10 | 16 | 30.5 | 6 | 12 |
| HSR 30 M1A | 42 | 90 | 98.8 | 72 | 52 | M10×18 | 70.4 | 10 | 18 | 35 | 7 | 12 |
| HSR 30 M1LA | 42 | 90 | 121.4 | 72 | 52 | M10×18 | 93 | 10 | 18 | 35 | 7 | 12 |
| HSR 35 M1A | 48 | 100 | 112 | 82 | 62 | M10×21 | 80.4 | 13 | 21 | 40.5 | 8 | 12 |
| HSR 35 M1LA | 48 | 100 | 137.4 | 82 | 62 | M10×21 | 105.8 | 13 | 21 | 40.5 | 8 | 12 |

• In high-temperature type HSR, length L is longer than in normal type HSR (L₁ is the same).



Unit: mm

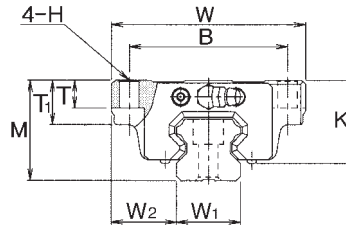
| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|------------------------------|-------|-----------------|--------------|---------------------------|-------------------|-------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | 16 | 15 | 60 | 4.5×7.5×5.3 | 8.33 | 13.5 | 0.2 | 1.5 |
| B-M6F | 20 | 21.5 | 18 | 60 | 6×9.5×8.5 | 13.8 | 23.8 | 0.35 | 2.3 |
| B-M6F | 20 | 21.5 | 18 | 60 | 6×9.5×8.5 | 21.3 | 31.8 | 0.47 | 2.3 |
| B-M6F | 23 | 23.5 | 22 | 60 | 7×11×9 | 19.9 | 34.4 | 0.59 | 3.3 |
| B-M6F | 23 | 23.5 | 22 | 60 | 7×11×9 | 27.2 | 45.9 | 0.75 | 3.3 |
| B-M6F | 28 | 31 | 26 | 80 | 9×14×12 | 28 | 46.8 | 1.1 | 4.8 |
| B-M6F | 28 | 31 | 26 | 80 | 9×14×12 | 37.3 | 62.5 | 1.3 | 4.8 |
| B-M6F | 34 | 33 | 29 | 80 | 9×14×12 | 37.3 | 61.1 | 1.6 | 6.6 |
| B-M6F | 34 | 33 | 29 | 80 | 9×14×12 | 50.2 | 81.5 | 2.0 | 6.6 |

- For the LM rail standard length, see page 12.
- For the model number coding, see page 9.

1kN ≙ 102kgf

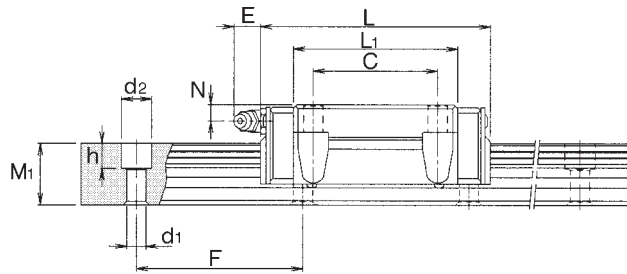
HSR-M1B

HSR-M1LB



| Model no. | External dimensions | | | LM block dimensions | | | | | | | | |
|-------------|---------------------|------------|-------------|---------------------|----|-----|----------------|----|----------------|------|-----|-----|
| | Height M | Width W | Length L | B | C | H | L ₁ | T | T ₁ | K | N | E |
| HSR 15 M1B | 24 | 47 | 59.6 | 38 | 30 | 4.5 | 38.8 | 7 | 11 | 19.3 | 4.3 | 5.5 |
| HSR 20 M1B | 30 | 63 | 76 | 53 | 40 | 6 | 50.8 | 10 | 10 | 26 | 5 | 12 |
| HSR 20 M1LB | 30 | 63 | 92 | 53 | 40 | 6 | 66.8 | 10 | 10 | 26 | 5 | 12 |
| HSR 25 M1B | 36 | 70 | 83.9 | 57 | 45 | 7 | 59.5 | 10 | 16 | 30.5 | 6 | 12 |
| HSR 25 M1LB | 36 | 70 | 103 | 57 | 45 | 7 | 78.6 | 10 | 16 | 30.5 | 6 | 12 |
| HSR 30 M1B | 42 | 90 | 98.8 | 72 | 52 | 9 | 70.4 | 10 | 18 | 35 | 7 | 12 |
| HSR 30 M1LB | 42 | 90 | 121.4 | 72 | 52 | 9 | 93 | 10 | 18 | 35 | 7 | 12 |
| HSR 35 M1B | 48 | 100 | 112 | 82 | 62 | 9 | 80.4 | 13 | 21 | 40.5 | 8 | 12 |
| HSR 35 M1LB | 48 | 100 | 137.4 | 82 | 62 | 9 | 105.8 | 13 | 21 | 40.5 | 8 | 12 |

• In high-temperature type HSR, length L is longer than in normal type HSR (L₁ is the same).



Unit: mm

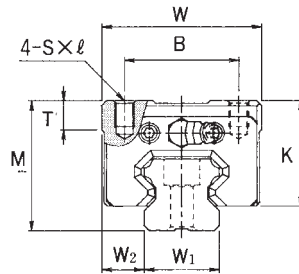
| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|------------------------------|-------|-----------------|--------------|---------------------------|-------------------|-------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | 16 | 15 | 60 | 4.5×7.5×5.3 | 8.33 | 13.5 | 0.2 | 1.5 |
| B-M6F | 20 | 21.5 | 18 | 60 | 6×9.5×8.5 | 13.8 | 23.8 | 0.35 | 2.3 |
| B-M6F | 20 | 21.5 | 18 | 60 | 6×9.5×8.5 | 21.3 | 31.8 | 0.47 | 2.3 |
| B-M6F | 23 | 23.5 | 22 | 60 | 7×11×9 | 19.9 | 34.4 | 0.59 | 3.3 |
| B-M6F | 23 | 23.5 | 22 | 60 | 7×11×9 | 27.2 | 45.9 | 0.75 | 3.3 |
| B-M6F | 28 | 31 | 26 | 80 | 9×14×12 | 28 | 46.8 | 1.1 | 4.8 |
| B-M6F | 28 | 31 | 26 | 80 | 9×14×12 | 37.3 | 62.5 | 1.3 | 4.8 |
| B-M6F | 34 | 33 | 29 | 80 | 9×14×12 | 37.3 | 61.1 | 1.6 | 6.6 |
| B-M6F | 34 | 33 | 29 | 80 | 9×14×12 | 50.2 | 81.5 | 2.0 | 6.6 |

- For the LM rail standard length, see page 12.
- For the model number coding, see page 9.

1kN ≙ 102kgf

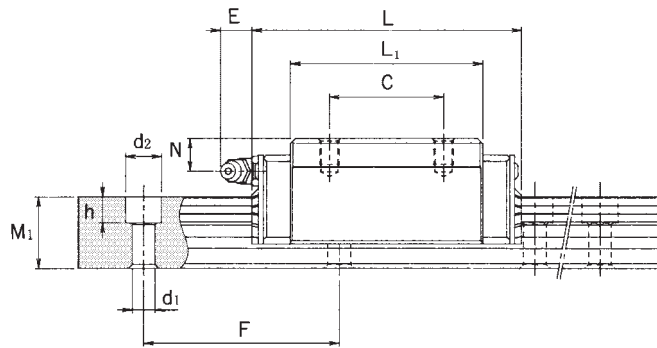
HSR-M1R

HSR-M1LR



| Model no. | External dimensions | | | LM block dimensions | | | | | | | |
|-------------|---------------------|------------|-------------|---------------------|----|----------|----------------|----|------|-----|-----|
| | Height M | Width W | Length L | B | C | S×l | L ₁ | T | K | N | E |
| HSR 15 M1R | 28 | 34 | 59.6 | 26 | 26 | M4×0.7×5 | 38.8 | 6 | 23.3 | 8.3 | 5.5 |
| HSR 20 M1R | 30 | 44 | 76 | 32 | 36 | M5×0.8×6 | 50.8 | 8 | 26 | 5 | 12 |
| HSR 20 M1LR | 30 | 44 | 92 | 32 | 50 | M5×0.8×6 | 66.8 | 8 | 26 | 5 | 12 |
| HSR 25 M1R | 40 | 48 | 83.9 | 35 | 35 | M6×8 | 59.5 | 8 | 34.5 | 10 | 12 |
| HSR 25 M1LR | 40 | 48 | 103 | 35 | 50 | M6×8 | 78.6 | 8 | 34.5 | 10 | 12 |
| HSR 30 M1R | 45 | 60 | 98.8 | 40 | 40 | M8×10 | 70.4 | 8 | 38 | 10 | 12 |
| HSR 30 M1LR | 45 | 60 | 121.4 | 40 | 60 | M8×10 | 93 | 8 | 38 | 10 | 12 |
| HSR 35 M1R | 55 | 70 | 112 | 50 | 50 | M8×12 | 80.4 | 10 | 47.5 | 15 | 12 |
| HSR 35 M1LR | 55 | 70 | 137.4 | 50 | 72 | M8×12 | 105.8 | 10 | 47.5 | 15 | 12 |

• In high-temperature type HSR, length L is longer than in normal type HSR (L₁ is the same).



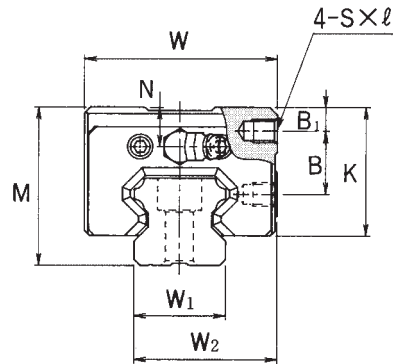
Unit: mm

| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|------------------------------|-------|-----------------|--------------|---------------------------|-------------------|-------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | 9.5 | 15 | 60 | 4.5×7.5×5.3 | 8.33 | 13.5 | 0.18 | 1.5 |
| B – M6F | 20 | 12 | 18 | 60 | 6×9.5×8.5 | 13.8 | 23.8 | 0.25 | 2.3 |
| B – M6F | 20 | 12 | 18 | 60 | 6×9.5×8.5 | 21.3 | 31.8 | 0.35 | 2.3 |
| B – M6F | 23 | 12.5 | 22 | 60 | 7×11×9 | 19.9 | 34.4 | 0.54 | 3.3 |
| B – M6F | 23 | 12.5 | 22 | 60 | 7×11×9 | 27.2 | 45.9 | 0.67 | 3.3 |
| B – M6F | 28 | 16 | 26 | 80 | 9×14×12 | 28 | 46.8 | 0.9 | 4.8 |
| B – M6F | 28 | 16 | 26 | 80 | 9×14×12 | 37.3 | 62.5 | 1.1 | 4.8 |
| B – M6F | 34 | 18 | 29 | 80 | 9×14×12 | 37.3 | 61.1 | 1.5 | 6.6 |
| B – M6F | 34 | 18 | 29 | 80 | 9×14×12 | 50.2 | 81.5 | 2.0 | 6.6 |

- For the LM rail standard length, see page 12.
- For the model number coding, see page 9.

1kN ≙ 102kgf

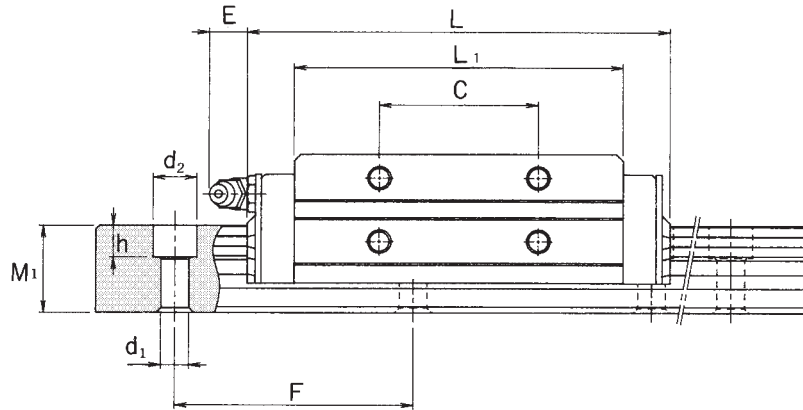
HSR-M1YR



Unit: mm

| Model no. | External dimensions | | | LM block dimensions | | | | | | | |
|------------|---------------------|------------|-------------|---------------------|------|----|----------|----------------|------|-----|-----|
| | Height M | Width W | Length L | B ₁ | B | C | S×l | L ₁ | K | N | E |
| HSR 15M1YR | 28 | 33.5 | 59.6 | 4.3 | 11.5 | 18 | M4×0.7×5 | 38.8 | 23.3 | 8.3 | 5.5 |
| HSR 20M1YR | 30 | 43.5 | 76 | 4 | 11.5 | 25 | M5×0.8×6 | 50.8 | 26 | 5 | 12 |
| HSR 25M1YR | 40 | 47.5 | 83.9 | 6 | 16 | 30 | M6×6 | 59.5 | 34.5 | 10 | 12 |
| HSR 30M1YR | 45 | 59.5 | 98.8 | 8 | 16 | 40 | M6×9 | 70.4 | 38 | 10 | 12 |
| HSR 35M1YR | 55 | 69.5 | 112 | 8 | 23 | 43 | M8×10 | 80.4 | 47 | 15 | 12 |

- In high-temperature type HSR, length L is longer than in normal type HSR (L₁ is the same).

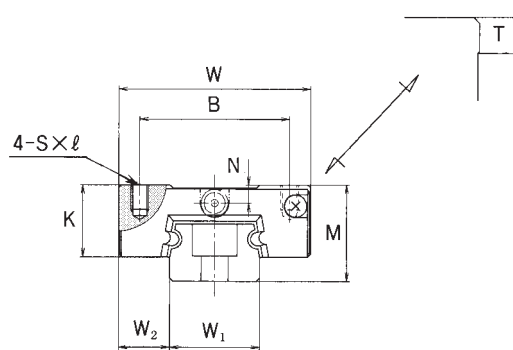


Unit: mm

| Grease nipple | LM rail dimensions | | | | | Basic load rating | | Mass | |
|---------------|------------------------------|-------|-----------------|--------------|---------------------------|-------------------|-------------|----------------|-----------------|
| | Width W_1 ± 0.05 | W_2 | Height M_1 | Pitch F | $d_1 \times d_2 \times h$ | C kN | C_0 kN | LM block kg | LM rail kg/m |
| PB1021B | 15 | 24 | 15 | 60 | 4.5×7.5×5.3 | 8.33 | 13.5 | 0.18 | 1.5 |
| B – M6F | 20 | 31.5 | 18 | 60 | 6×9.5×8.5 | 13.8 | 23.8 | 0.25 | 2.3 |
| B – M6F | 23 | 35 | 22 | 60 | 7×11×9 | 19.9 | 34.4 | 0.54 | 3.3 |
| B – M6F | 28 | 43.5 | 26 | 80 | 9×14×12 | 28 | 46.8 | 0.9 | 4.8 |
| B – M6F | 34 | 51.5 | 29 | 80 | 9×14×12 | 37.3 | 61.1 | 1.5 | 6.6 |

• For the LM rail standard length, see “LM Rail Standard and Maximum Lengths” for type HSR-M1 on page 12.

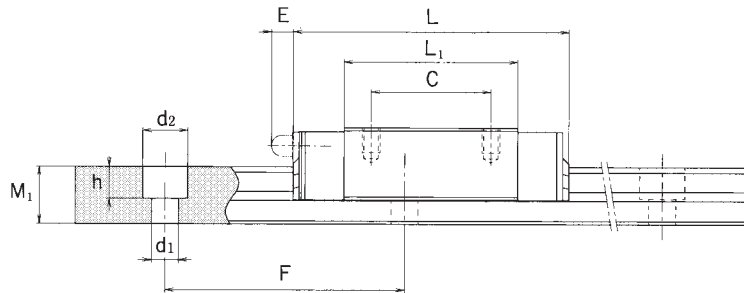
RSR-M1V/RSR-M1N



Unit: mm

| Model no. | External dimensions | | | LM block dimensions | | | | | | | | | Grease nipple (Oil hole) |
|--------------------------|---------------------|---------|--------------|---------------------|----------|--------|----------------|---|------|---|----------|------------------|--------------------------|
| | Height M | Width W | Length L | B | C | S×l | L ₁ | T | K | N | E | | |
| RSR 9 M1K RSR 9 M1N | 10 | 20 | 31 41 | 15 | 10 16 | M3×3.0 | 19.8 29.8 | – | 7.8 | – | – | – | |
| RSR 12 M1V RSR 12 M1N | 13 | 27 | 35 47.5 | 20 | 15 20 | M3×3.5 | 20.6 33.3 | – | 10 | 3 | – | ∅ 2 drilled hole | |
| RSR 15 M1V RSR 15 M1N | 16 | 32 | 43 61 | 25 | 20 25 | M3×4 | 25.7 43.5 | – | 12 | 3 | 3.6 3 | PB107 | |
| RSR 20 M1V RSR 20 M1N | 25 | 46 | 66.5 86.5 | 38 | 38 38 | M4×6 | 45.2 65 | 6 | 17.5 | 5 | 6.4 | A-M6F | |

- Notes:
- For the model number coding, see page 9.
 - For the load rating in the respective direction, see the pages on type RSR in the General Catalog.

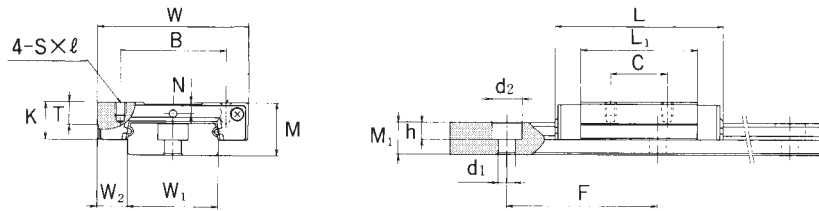


Unit: mm

| LM rail dimensions | | | | | Basic load rating | | Mass | |
|-----------------------------------|-------|-------|----|---------------------------|-------------------|----------------|----------------|-----------------|
| W_1 | W_2 | M_1 | F | $d_1 \times d_2 \times h$ | C N | C_0 N | LM block kg | LM rail kg/m |
| 9 ⁰ _{-0.02} | 5.5 | 5.5 | 20 | 3.5 × 6 × 3.3 | 1470 2600 | 2250 3960 | 0.018 0.027 | 0.32 |
| 12 ⁰ _{-0.025} | 7.5 | 7.5 | 25 | 3.5 × 6 × 4.5 | 2650 4300 | 4020 6650 | 0.037 0.055 | 0.58 |
| 15 ⁰ _{-0.025} | 8.5 | 9.5 | 40 | 3.5 × 6 × 4.5 | 4410 7160 | 6570 10700 | 0.069 0.093 | 0.925 |
| 20 ⁰ _{-0.03} | 13 | 15 | 60 | 6 × 9.5 × 8.5 | 8820 14200 | 12700 20600 | 0.245 0.337 | 1.95 |

- For permissible moments M_A , M_B , and M_C , see the section on type RSR in the General Catalog.
- For the LM rail standard length, see page 12.

RSR-M1W (WV) /RSR-M1WN

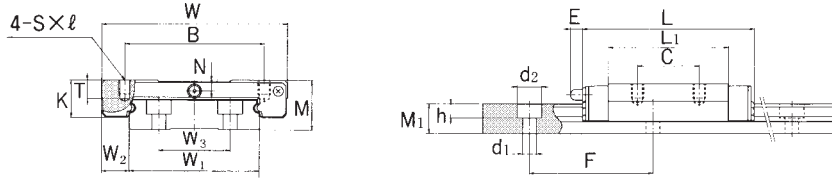


RSR9M1WV, 9M1WN
RSR12M1WV, 12M1WN

Unit: mm

| Model no. | External dimensions | | | LM block dimensions | | | | | | | | | Grease nipple (Oil hole) |
|----------------------------|---------------------|---------|--------------|---------------------|----------|----------------|----------------|---|-----|-----|---|--------------------|--------------------------|
| | Height M | Width W | Length L | B | C | S×ℓ | L ₁ | T | K | N | E | | |
| RSR 9 M1K RSR 9 M1WN | 12 | 30 | 39 51 | 21 23 | 12 24 | M2.6×3 M3×3 | 27 38.7 | - | 7.8 | 2 | - | ∅ 1.6 drilled hole | |
| RSR 9 M1K RSR 12 M1WN | 14 | 40 | 44.5 59.5 | 28 28 | 15 28 | M3×3.5 | 30.9 45.9 | 6 | 10 | 3 | - | ∅ 2 drilled hole | |
| RSR 15 M1WV RSR 15 M1WN | 16 | 60 | 55.5 74.5 | 45 45 | 20 35 | M4×4.5 | 38.9 57.9 | 6 | 12 | 3.5 | 3 | PB 107 | |

- Notes:
- For the model number coding, see page 9.
 - For the load rating in the respective direction, see the pages on type RSR in the General Catalog.
 - For permissible moments M_A , M_B , and M_C , see the section on type RSR in the General Catalog.



RSR15M1WV, 15M1WN

Unit: mm

| LM rail dimensions | | | | | | Basic load rating | | Mass | |
|---|-------|-------|-------|----|---------------------------|-------------------|---------------|----------------|-----------------|
| W_1 | W_2 | W_3 | M_1 | F | $d_1 \times d_2 \times h$ | C N | C_0 N | LM block kg | LM rail kg/m |
| $18 \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$ | 6 | — | 7.5 | 30 | $3.5 \times 6 \times 4.5$ | 2450 3520 | 3920 5370 | 0.035 0.051 | 1.08 |
| $24 \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$ | 8 | — | 8.5 | 40 | $4.5 \times 8 \times 4.5$ | 4020 5960 | 6080 9210 | 0.075 0.101 | 1.5 |
| $42 \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$ | 9 | 23 | 9.5 | 40 | $4.5 \times 8 \times 4.5$ | 6660 9910 | 9800 14900 | 0.17 0.210 | 3.0 |

• For the LM rail standard length, see page 12.