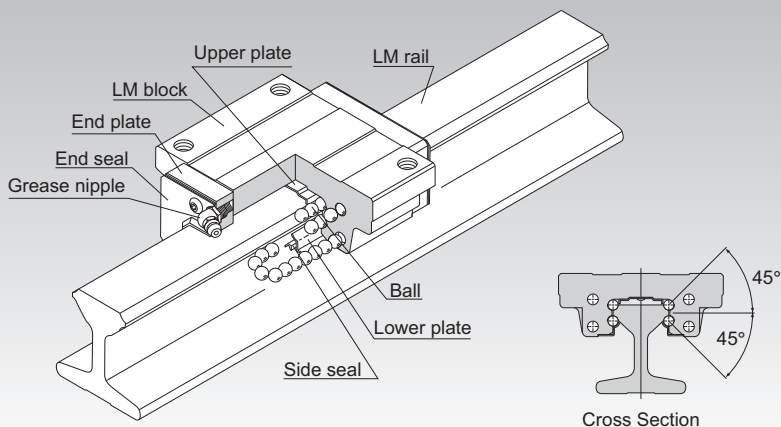


JR

Structural Beam LM Guide Model JR



Selection Criteria **A1-10**

Design Highlights **A1-482**

Options **A1-507**

Model No. **A1-577**

Handling Precautions **A1-583**

Accessories for Lubrication **A24-1**

Mounting Procedure **B1-89**

Equivalent Moment Factor **A1-43**

Rated Loads in All Directions **A1-61**

Equivalent Factor in Each Direction **A1-63**

Radial Clearance **A1-75**

Accuracy Standards **A1-81**

Shoulder Height of the Mounting Base and the Corner Radius **A1-491**

Reference Error Tolerance for the Mounting Surface **A1-498**

Dimensions of Each Model with Options Attached **A1-521**

Structure and Features

Balls roll in four rows of raceways precision-ground on an LM rail and an LM block, and end plates incorporated in the LM block allow the balls to circulate. Since retainer plates hold the balls, they will not fall out even if the LM block is removed from the LM rail.

The Model JR uses the same LM block as the Model HSR, which has a proven track record. The LM rail has a cross-sectional shape with high flexural rigidity, and therefore can be used as a structural component.

Unlike a conventional LM Guide, whose LM rail is secured to a mounting surface with bolts when installed, model JR's LM rail is integrated with the mounting base while retaining the same upper structure as LM Guide Model HSR. The lower part of the LM rail has a hardness of 25HRC or less, making it easy to cut and enabling the rail to be welded.

When welding the rail, we recommend using welding rods compliant with JIS D 5816 (suggested manufacturer and model number: Kobelco LB-52).

4-Way Equal Load

Each row of balls is placed at a contact angle of 45° so that the load ratings 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.

Can be Mounted Even Under Rough Conditions

Since the center of the cross-section of the LM rail is slightly thinner, even if the parallelism between two rails is not precise the LM rail is capable of absorbing the error by bending inward or outward.

Cross-Sectional Shape with High Flexural Rigidity

The LM rail has a cross-sectional shape with high flexural rigidity, and therefore can be used as a structural component in applications. In addition, even when the LM rail is partially fastened or supported in cantilever, the distortion is minimal.

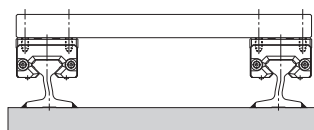


Fig. 1

Geometric Moment of Inertia of the LM Rail

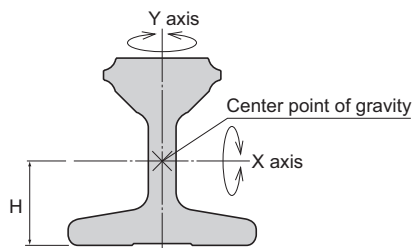


Fig. 2

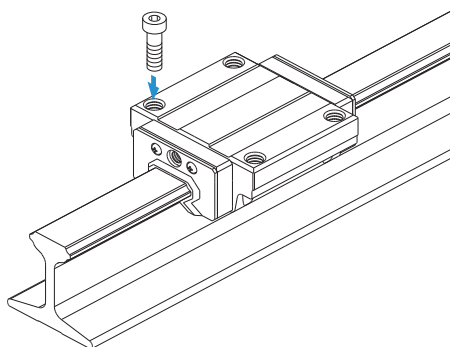
| | Geometric moment of inertia $I (\times 10^5 \text{ mm}^4)$ | | Section modulus $Z (\times 10^4 \text{ mm}^3)$ | | Height of gravitational center $H (\text{mm})$ |
|-------|---|--------------|---|--------------|---|
| | About X axis | About Y axis | About X axis | About Y axis | |
| JR 25 | 1.9 | 0.51 | 0.69 | 0.21 | 19.5 |
| JR 35 | 4.26 | 1.32 | 1.43 | 0.49 | 24.3 |
| JR 45 | 12.1 | 3.66 | 3.31 | 1.04 | 33.1 |
| JR 55 | 27.6 | 6.54 | 5.89 | 1.4 | 43.3 |

Types and Features

Model JR-A

The flange of its LM block has tapped holes.

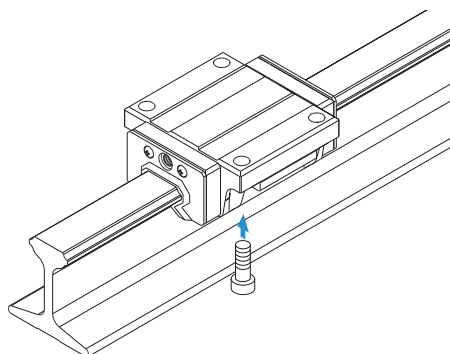
Dimensional Table → **A1-330**



Model JR-B

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

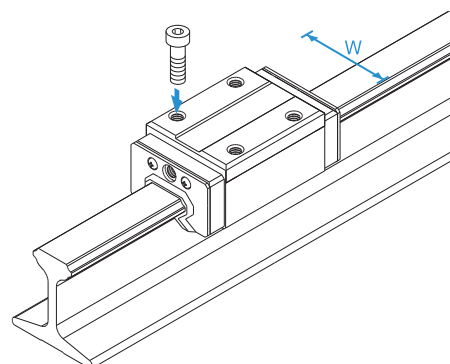
Dimensional Table → **A1-330**



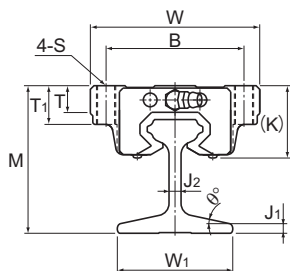
Model JR-R

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.

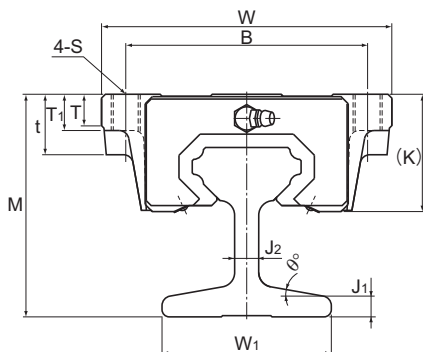
Dimensional Table → **A1-330**



Models JR-A, JR-B, and JR-R



Models JR25 and 35A



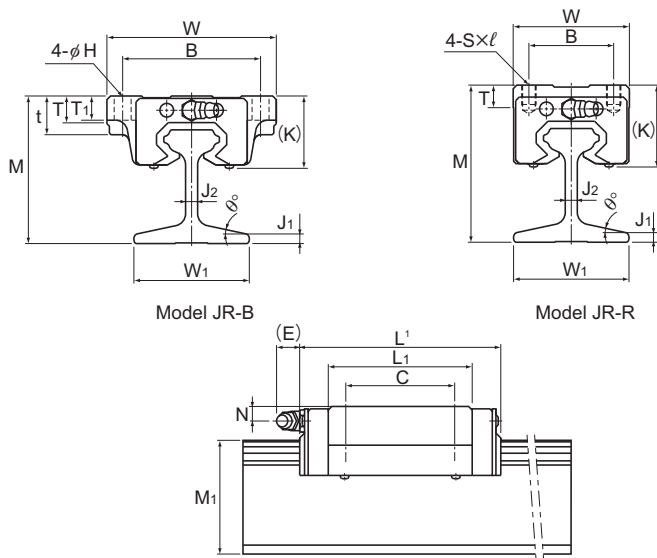
Models JR45 and 55A

| Model No. | Outer dimensions | | | LM block dimensions | | | | | | | | | | | | Grease nipple |
|----------------------------|-------------------|-------------------|---------------------|---------------------|----------------|--------------|------------------------------|----------------|---------------|----------------------|----------------|----------------------|----------------|----|---------|---------------|
| | Height | Width | Length ¹ | B | C | H | S × ℓ | L ₁ | t | T | T ₁ | K | N | E | | |
| | M | W | L | B | C | H | S × ℓ | L ₁ | t | T | T ₁ | K | N | E | | |
| JR 25A JR 25B JR 25R | 61 61 65 | 70 70 48 | 83.1 | 57 57 35 | 45 45 35 | — 7 — | M8 through — M6 × 8 | 59.5 | — 16 9 | 11 11 9 | 16 10 — | 30.5 30.5 34.5 | 6 6 10 | 12 | B-M6F | |
| JR 35A JR 35B JR 35R | 73 73 80 | 100 100 70 | 113.6 | 82 82 50 | 62 62 50 | — 9 — | M10 through — M8 × 12 | 80.4 | — 21 — | 12 12 11.7 | 21 13 — | 40 40 47.4 | 8 8 15 | 12 | B-M6F | |
| JR 45A JR 45B JR 45R | 92 92 102 | 120 120 86 | 145 | 100 100 60 | 80 80 60 | — 11 — | M12 through — M10 × 17 | 98 | 25 25 — | 13 13 15 | 15 15 — | 50 50 59.4 | 10 10 20 | 16 | B-PT1/8 | |
| JR 55A JR 55B JR 55R | 114 114 124 | 140 140 100 | 165 | 116 116 75 | 95 95 75 | — 14 — | M14 through — M12 × 18 | 118 | 29 29 — | 13.5 13.5 20.5 | 17 17 — | 57 57 67 | 11 11 21 | 16 | B-PT1/8 | |

Model number coding

| | | | | | |
|--------------|------------------|--|---|------------------------|--------------------------------|
| JR35 | R | 2 | UU | +1000L | T |
| Model number | Type of LM block | No. of LM blocks used on the same rail | Contamination protection accessory symbol | LM rail length (in mm) | Symbol for LM rail jointed use |

Note: See contamination protection accessory on **A1-547**.



Unit: mm

| LM rail dimensions | | | | | | | Basic load rating | | Static permissible moment $\text{kN}\cdot\text{m}^3$ | | | | | Mass | |
|--------------------|-------|-------|----------------|--------|---------------------|------|-------------------|---------|--|---------|----------|---------|----------------------|---------|----|
| Width | J_1 | J_2 | θ° | Height | Length ² | C | C_0 | M_A | | M_B | | M_C | LM block | LM rail | |
| | | | | | | | | 1 block | 2 blocks | 1 block | 2 blocks | 1 block | | | kg |
| 48 | 4 | 5 | 12 | 47 | 2000 | 27.6 | 36.4 | 0.324 | 1.8 | 0.324 | 1.8 | 0.366 | 0.59 0.59 0.54 | 4.2 | |
| 54 | 7 | 8 | 10 | 54 | 4000 | 53.9 | 70.2 | 0.895 | 4.51 | 0.895 | 4.51 | 1.05 | 1.6 1.6 1.5 | 8.6 | |
| 70 | 8 | 10 | 10 | 70 | 4000 | 82.2 | 101 | 1.5 | 8.37 | 1.5 | 8.37 | 1.94 | 2.8 2.8 2.6 | 15.2 | |
| 93 | 4.8 | 11.6 | 12 | 90 | 4000 | 121 | 146 | 2.6 | 14.1 | 2.6 | 14.1 | 3.43 | 4.5 4.5 4.3 | 18.3 | |

¹ Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See [A1-521](#) or [A1-543](#))

² The maximum length indicates the standard maximum length of an LM rail. (See [A1-332](#).)

³ Static permissible moment 1 block: the static permissible moment with one LM block
 2 blocks: the static permissible moment with two LM blocks in close contact with each other

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model JR variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.

Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model JR

Unit: mm

| Model No. | JR 25 | JR 35 | JR 45 | JR 55 |
|------------------------------------|-------|-------|-------|-------|
| LM rail standard lengths (L_0) | 1000 | 1000 | 1000 | 1000 |
| | 1500 | 2000 | 2000 | 2000 |
| | 2000 | 4000 | 4000 | 4000 |
| Max length | 2000 | 4000 | 4000 | 4000 |

Notes: If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
For jointing two or more rails, a metal fitting like the one shown in Fig. 3 is available. For the mounting method, see [A1-99](#).

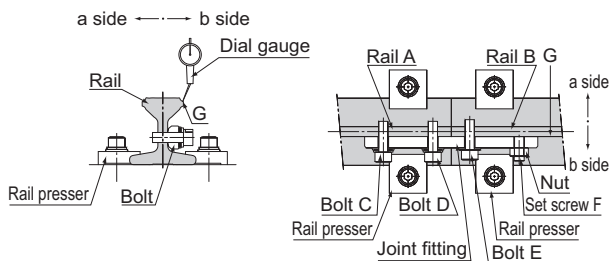
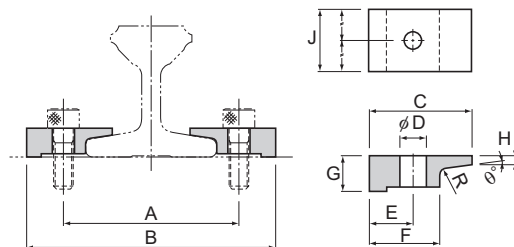


Fig. 3

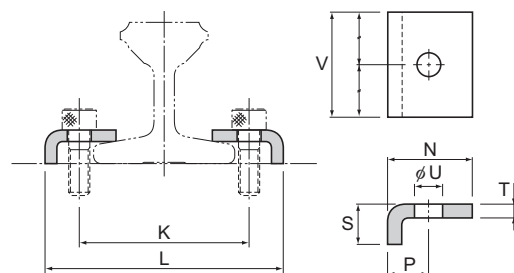
Model JB Frame for LM Rail Clamps



Unit: mm

| Model No. | Mounting dimensions | | Clamper dimensions | | | | | | | | | Bolt used |
|-----------|---------------------|-----|--------------------|----|------|----|----|-----|----|----|----------------|-----------|
| | A | B | C | D | E | F | G | H | R | J | θ° | |
| JB 25 | 57 | 78 | 25 | 7 | 10.5 | 15 | 10 | 3.8 | R2 | 25 | 10 | M6 |
| JB 35 | 72 | 102 | 35 | 9 | 15 | 24 | 12 | 3.1 | R2 | 32 | 8 | M8 |
| JB 45 | 90 | 130 | 45 | 11 | 20 | 30 | 16 | 5.4 | R2 | 40 | 8 | M10 |
| JB 55 | 115 | 155 | 50 | 14 | 20 | 30 | 17 | 8.2 | R2 | 50 | 10 | M12 |

Model JT Steel Plate for LM Rail Clamps



Unit: mm

| Model No. | Mounting dimensions | | Clamper dimensions | | | | | | Bolt used |
|-----------|---------------------|-----|--------------------|----|----|-----|----|----|-----------|
| | K | L | N | P | S | T | U | V | |
| JT 25 | 57 | 79 | 25 | 11 | 10 | 4 | 7 | 25 | M6 |
| JT 35 | 65 | 91 | 27 | 13 | 13 | 4.5 | 9 | 40 | M8 |
| JT 45 | 84 | 114 | 33 | 15 | 16 | 6 | 11 | 50 | M10 |
| JT 55 | 110 | 148 | 50 | 19 | 15 | 6 | 14 | 50 | M12 |