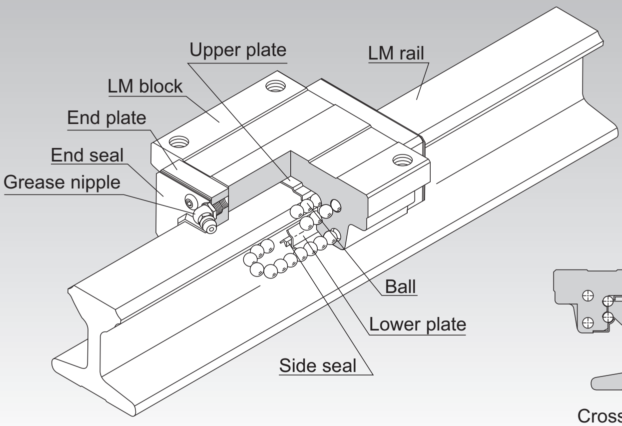
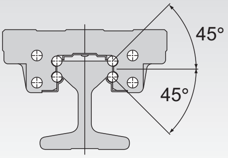
JR

Structural Beam LM Guide Model JR





Cross Section

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.

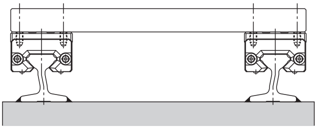


Fig. 1

Geometric Moment of Inertia of the LM Rail

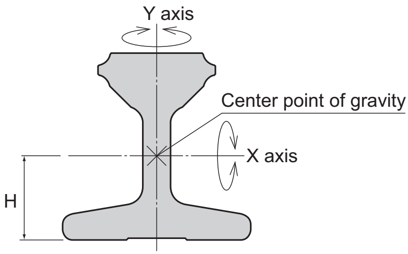


Fig. 2

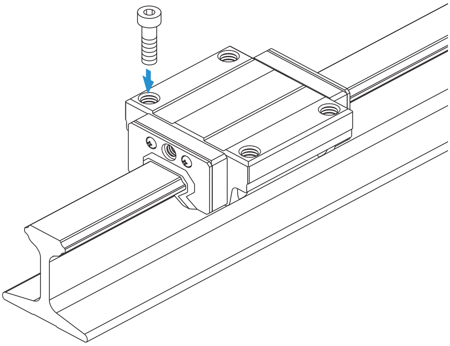
	Geometric moment of inertia I (×10^5 mm^4)		Section modulus Z (×10^4 mm^3)		Height of gravi-tational center H (mm)
	About X axis	About Y axis	About X axis	About Y axis	
JR 25	1.9	0.51	0.69	0.21	19.5
JR 35	4.26	1.32	1.43	0.49	24.3
JR 45	12.1	3.66	3.31	1.04	33.1
JR 55	27.6	6.54	5.89	1.4	43.3

Types and Features

Model JR-A

Dimensional Table⇒A1-330

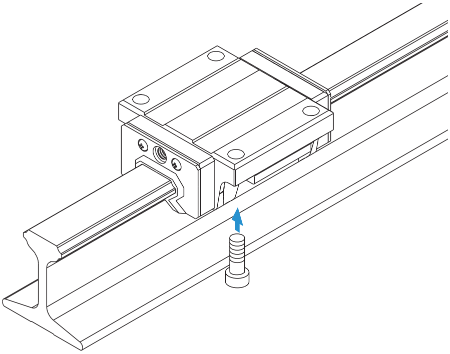
The flange of its LM block has tapped holes.



Model JR-B

Dimensional Table⇒A1-330

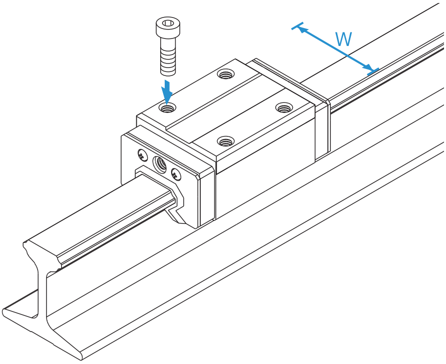
The flange of the LM block has through holes. It is used in places where the table cannot have through holes for mounting bolts.



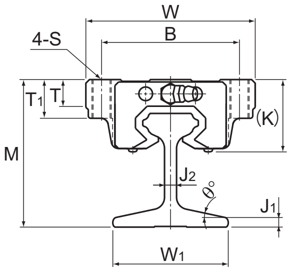
Model JR-R

Dimensional Table⇒A1-330

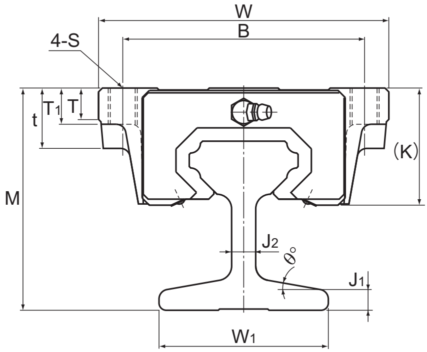
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



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



Models JR25 and 35A



Models JR45 and 55A

Model No.	Outer dimensions			LM block dimensions											
	Height M	Width W	Length[1] L	B	C	H	S×ℓ	L₁	t	T	T₁	K	N	E	Grease nipple
JR 25A	61	70	83.1	57	45	—	M8 through	59.5	—	11	16	30.5	6	12	B-M6F
JR 25B	61	70		57	45	7	—		16	11	10	30.5	6		
JR 25R	65	48		35	35	—	M6×8		—	9	—	34.5	10		
JR 35A	73	100	113.6	82	62	—	M10 through	80.4	—	12	21	40	8	12	B-M6F
JR 35B	73	100		82	62	9	—		21	12	13	40	8		
JR 35R	80	70		50	50	—	M8×12		—	11.7	—	47.4	15		
JR 45A	92	120	145	100	80	—	M12 through	98	25	13	15	50	10	16	B-PT1/8
JR 45B	92	120		100	80	11	—		25	13	15	50	10		
JR 45R	102	86		60	60	—	M10×17		—	15	—	59.4	20		
JR 55A	114	140	165	116	95	—	M14 through	118	29	13.5	17	57	11	16	B-PT1/8
JR 55B	114	140		116	95	14	—		29	13.5	17	57	11		
JR 55R	124	100		75	75	—	M12×18		—	20.5	—	67	21		

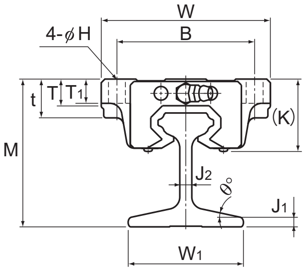
Model number coding

JR35 R 2 UU +1000L T

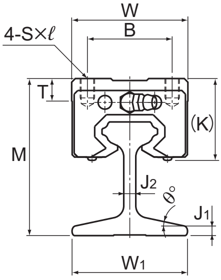
- JR35: Model number
- R: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- +1000L: LM rail length (in mm)
- T: Symbol for LM rail jointed use

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

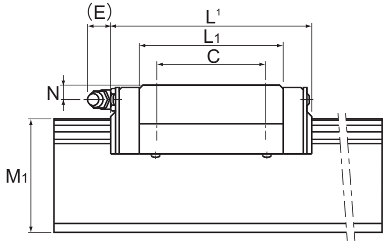
Download data from the THK Online Services website. https://www.thk.com/



Model JR-B



Model JR-R



Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[3]					Mass	
	Width				Height	Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1	J_1	J_2	θ°	M_1	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	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

Options⇒A1-507

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 1500 2000	1000 2000 4000	1000 2000 4000	1000 2000 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 B**1-99**.

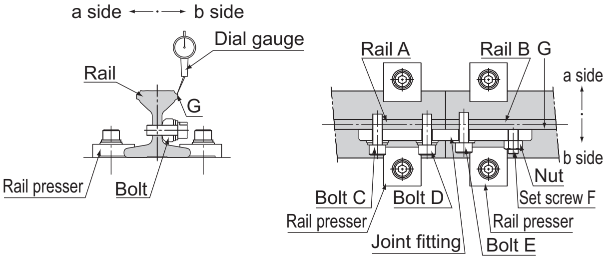
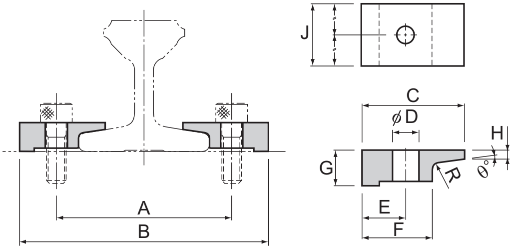


Fig. 3

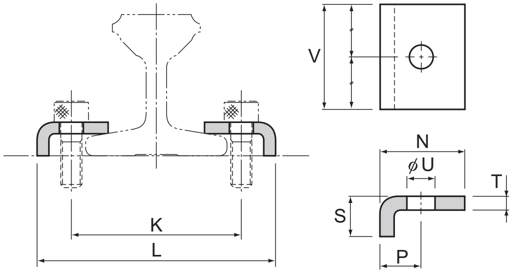
Model JB Frame for LM Rail Clamps



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