

Models HSR45 to 65YR/XYR

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m [4]						Mass	
	Width		Height	Pitch		Length [3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15	24	15	60	4.5×7.5×5.3	3000 (1240)	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998		0.18	1.5
	20	31.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.25	2.3
	23	35	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.54	3.3
	28	43.5	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652		0.9	4.8
	34	51.5	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.5	6.6
	45	65	38	105	14×20×17	3090	82.2	101	1.5	8.37	1.5	8.37	1.94		2.6	11
	45	65	38	105	14×20×17	3090	82.2	101	1.5	8.37	1.5	8.37	1.94		2.6	11
	53	76	44	120	16×23×20	3060	121	146	2.6	14.1	2.6	14.1	3.43		4.3	15.1
	53	76	44	120	16×23×20	3060	121	146	2.6	14.1	2.6	14.1	3.43		4.3	15.1
	63	93	53	150	18×26×22	3000	195	228	5.08	25	5.08	25	6.2		7.3	22.5

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

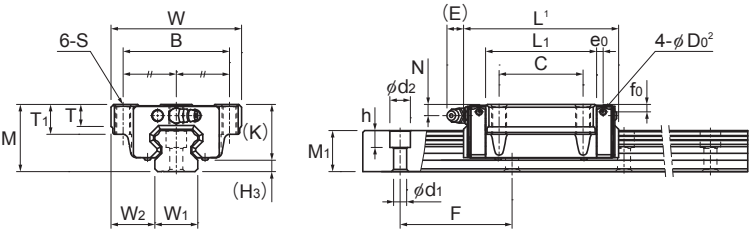
[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-210**.)

[4] 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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.
See **A1-517** or **A1-519** for how to install models HSR-YR/YRM.

Options⇒A1-541

Models HSR-CA, HSR-CAM, HSR-HA, HSR-HAM, HSR-XCA, and HSR-XHA



Models HSR20 to 35CA/HA/CAM/HAM

Model No.	Outer dimensions			LM block dimensions										Pilot hole for side nipple			
	Height	Width	Length[1]										Grease nipple				
	M	W	L	B	C	S	L_1	t	T	T_1	K	N	E	e_0	f_0	D_0^2	H_3
HSR 20CA HSR 20CAM	30	63	74	53	40	M6	50.8	—	9.5	10	26	5	12	B-M6F	3.1	3.4	3	4
HSR 20HA HSR 20HAM	30	63	90	53	40	M6	66.8	—	9.5	10	26	5	12	B-M6F	3.1	3.4	3	4
HSR 25CA HSR 25CAM	36	70	83.1	57	45	M8	59.5	—	11	16	30.5	6	12	B-M6F	3.5	4	3	5.5
HSR 25HA HSR 25HAM	36	70	102.2	57	45	M8	78.6	—	11	16	30.5	6	12	B-M6F	3.5	4	3	5.5
HSR 30CA HSR 30CAM	42	90	98	72	52	M10	70.4	—	9	18	35	7	12	B-M6F	5.2	6.2	5.2	7
HSR 30HA HSR 30HAM	42	90	120.6	72	52	M10	93	—	9	18	35	7	12	B-M6F	5.2	6.2	5.2	7
HSR 35CA HSR 35CAM	48	100	109.4	82	62	M10	80.4	—	12	21	40.5	8	12	B-M6F	5.5	5.6	5.2	7.5
HSR 35HA HSR 35HAM	48	100	134.8	82	62	M10	105.8	—	12	21	40.5	8	12	B-M6F	5.5	5.6	5.2	7.5
HSR 45CA HSR 45HA	60	120	138.9 170.7	100	80	M12	98 129.8	25	13	15	50	10	16	B-PT1/8	6.1	6.6	5.2	10
HSR 55CA HSR 55HA	70	140	162.9 201	116	95	M14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	5.6	7.7	5.2	13
HSR 65XCA HSR 65XHA	90	170	190.5 250	142	110	M16	138.5 198	37	21.5	23	76	19	16	B-PT1/8	6.8	14.6	5.2	14
HSR 85CA HSR 85HA	110	215	245.6 303	185	140	M20	178.6 236	55	28	30	94	23	16	B-PT1/8	—	—	—	16

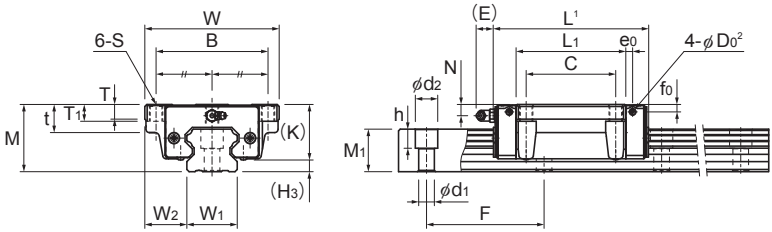
Model number coding

HSR25 HA 2 QZ KKHH C0 M +1300L P T M -II

- HSR25: Model number
- HA: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- M: Stainless steel LM block
- +1300L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol), High Accuracy grade (H), Precision grade (P), Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models HSR45 to 85CA/HA/XCA/XHA

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m [4]						Mass	
	Width		Height	Pitch		Length [3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.35	2.3
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307		0.47	2.3
	23	23.5	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.59	3.3
	23	23.5	22	60	7×11×9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518		0.75	3.3
	28	31	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652		1.1	4.8
	28	31	26	80	9×14×12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852		1.3	4.8
	34	33	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.6	6.6
	34	33	29	80	9×14×12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37		2	6.6
	45	37.5	38	105	14×20×17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6		2.8 3.3	11
	53	43.5	44	120	16×23×20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56		4.5 5.7	15.1
	63	53.5	53	150	18×26×22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79		8.5 10.7	22.5
	85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7		17 23	35.2

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

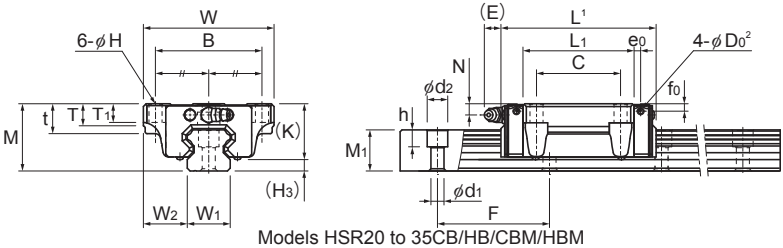
[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-210**.)

[4] 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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Models HSR-CB, HSR-CBM, HSR-HB, HSR-HBM, HSR-XCB, and HSR-XHB



Models HSR20 to 35CB/HB/CBM/HBM

Model No.	Outer dimensions			LM block dimensions										Grease nipple	Pilot hole for side nipple			
	Height	Width	Length[1]															
	M	W	L	B	C	H	L_1	t	T	T_1	K	N	E		e_0	f_0	D_0^2	H_3
HSR 20CB HSR 20CBM	30	63	74	53	40	6	50.8	10	9.5	10	26	5	12	B-M6F	3.1	3.4	3	4
HSR 20HB HSR 20HBM	30	63	90	53	40	6	66.8	10	9.5	10	26	5	12	B-M6F	3.1	3.4	3	4
HSR 25CB HSR 25CBM	36	70	83.1	57	45	7	59.5	16	11	10	30.5	6	12	B-M6F	3.5	4	3	5.5
HSR 25HB HSR 25HBM	36	70	102.2	57	45	7	78.6	16	11	10	30.5	6	12	B-M6F	3.5	4	3	5.5
HSR 30CB HSR 30CBM	42	90	98	72	52	9	70.4	18	9	10	35	7	12	B-M6F	5.2	6.2	5.2	7
HSR 30HB HSR 30HBM	42	90	120.6	72	52	9	93	18	9	10	35	7	12	B-M6F	5.2	6.2	5.2	7
HSR 35CB HSR 35CBM	48	100	109.4	82	62	9	80.4	21	12	13	40.5	8	12	B-M6F	5.5	5.6	5.2	7.5
HSR 35HB HSR 35HBM	48	100	134.8	82	62	9	105.8	21	12	13	40.5	8	12	B-M6F	5.5	5.6	5.2	7.5
HSR 45CB HSR 45HB	60	120	138.9 170.7	100	80	11	98 129.8	25	13	15	50	10	16	B-PT1/8	6.1	6.6	5.2	10
HSR 55CB HSR 55HB	70	140	162.9 201	116	95	14	118 156.1	29	13.5	17	57	11	16	B-PT1/8	5.6	7.7	5.2	13
HSR 65XCB HSR 65XHB	90	170	190.5 250	142	110	16	138.5 198	37	21.5	23	76	19	16	B-PT1/8	6.8	14.6	5.2	14
HSR 85CB HSR 85HB	110	215	245.6 303	185	140	18	178.6 236	55	28	30	94	23	16	B-PT1/8	—	—	—	16

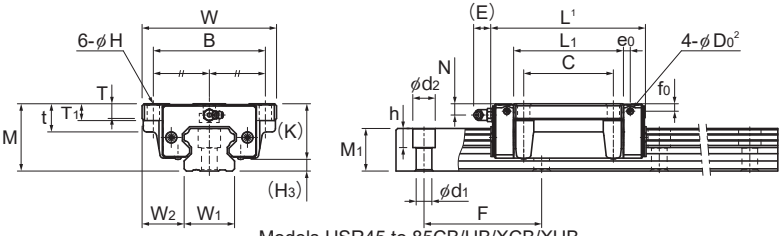
Model number coding

HSR35 CB 2 QZ ZZHH C0 M +1400L P T M -II

- HSR35: Model number
- CB: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- ZZHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- M: Stainless steel LM block
- +1400L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol), High Accuracy grade (H), Precision grade (P), Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models HSR45 to 85CB/HB/XCB/XHB

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m [4]						Mass	
	Width		Height	Pitch		Length [3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.35	2.3
	20	21.5	18	60	6×9.5×8.5	3000 (1480)	23.9	35.8	0.363	1.87	0.363	1.87	0.307		0.47	2.3
	23	23.5	22	60	7×11×9	3000 (2020)	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.59	3.3
	23	23.5	22	60	7×11×9	3000 (2020)	35.2	51.6	0.627	3.04	0.627	3.04	0.518		0.75	3.3
	28	31	26	80	9×14×12	3000 (2520)	40.5	53.7	0.599	3.1	0.599	3.1	0.652		1.1	4.8
	28	31	26	80	9×14×12	3000 (2520)	48.9	70.2	0.995	4.89	0.995	4.89	0.852		1.3	4.8
	34	33	29	80	9×14×12	3000 (2520)	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.6	6.6
	34	33	29	80	9×14×12	3000 (2520)	65	91.7	1.49	7.13	1.49	7.13	1.37		2	6.6
	45	37.5	38	105	14×20×17	3090	82.2 100	101 135	1.5 2.59	8.37 13.4	1.5 2.59	8.37 13.4	1.94 2.6		2.8 3.3	11
	53	43.5	44	120	16×23×20	3060	121 148	146 194	2.6 4.46	14.1 22.7	2.6 4.46	14.1 22.7	3.43 4.56		4.5 5.7	15.1
	63	53.5	53	150	18×26×22	3000	195 249	228 323	5.08 9.81	25 45.6	5.08 9.81	25 45.6	6.2 8.79		8.5 10.7	22.5
	85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7		17 23	35.2

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

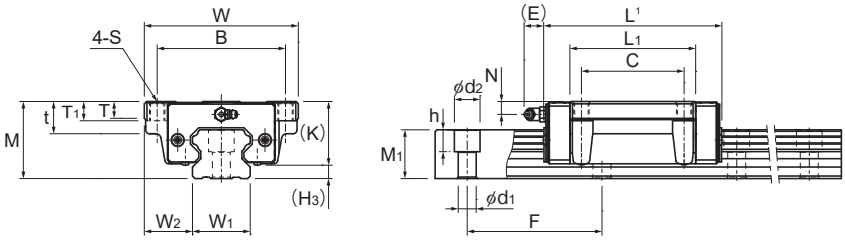
[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-210**.)

[4] 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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Models HSR85A, HSR85LA, HSR85B, and HSR85LB



Models HSR85A/LA

Model No.	Outer dimensions			LM block dimensions												H3
	Height M	Width W	Length[1] L	B	C	H	S	L1	t	T	T1	K	N	E	Grease nipple	
HSR 85A HSR 85LA	110	215	245.6 303	185	140	—	M20	178.6 236	55	28	30	94	23	16	B-PT1/8	16
HSR 85B HSR 85LB	110	215	245.6 303	185	140	18	—	178.6 236	55	28	30	94	23	16	B-PT1/8	16

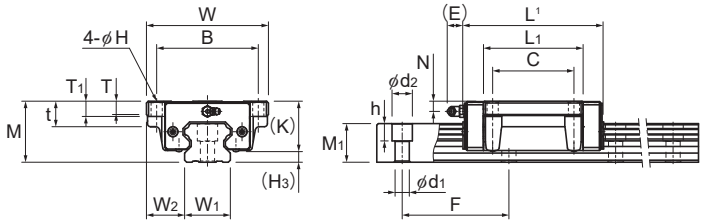
Model number coding

HSR85 A 2 UU C0 +2250L H T -II

- HSR85: Model number
- A: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +2250L: LM rail length (in mm)
- H: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models HSR85B/LB

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m [3]					Mass	
	Width		Height	Pitch		Length [2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	17 23	35.2
	85	65	65	180	24×35×28	3000	304 367	355 464	10.2 16.9	51.2 81	10.2 16.9	51.2 81	12.8 16.7	17 23	35.2

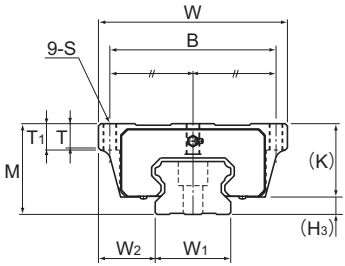
[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-210**.)

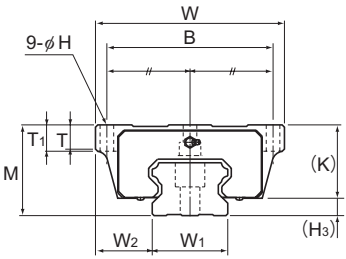
[3] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

Options⇒A1-541

Models HSR-HA, HSR-HB, and HSR-HR



Models HSR100 to 150HA



Models HSR100 to 150HB

Model No.	Outer dimensions			LM block dimensions											H_3
	Height M	Width W	Length[1] L	B	C	H	S×ℓ	L_1	T	T_1	K	N	E	Grease nipple	
HSR 100HA	120	250	334	220	200	—	M18 through	261	32	35	100	23	16	B-PT1/4	20
HSR 100HB		250		220		20	—		32	35					
HSR 100HR		200		130		—	M18×27		33	—					
HSR 120HA	130	290	365	250	210	—	M20 through	287	34	38	110	26.5	16	B-PT1/4	20
HSR 120HB		290		250		22	—		34	38					
HSR 120HR		220		146		—	M20×30		33.7	—					
HSR 150HA	145	350	396	300	230	—	M24 through	314	36	40	123	29	16	B-PT1/4	22
HSR 150HB		350		300		26	—		36	40					
HSR 150HR		266		180		—	M24×35		33	—					

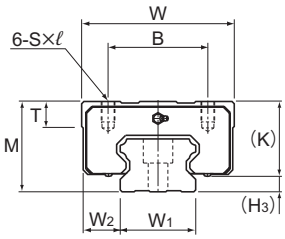
Model number coding

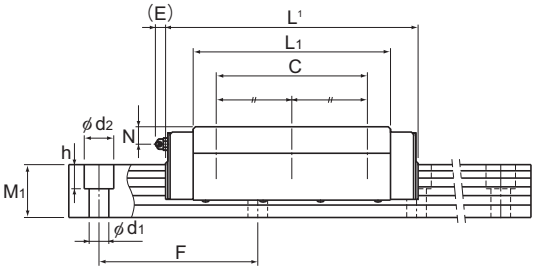
HSR150 HR 2 UU C1 +2350L H T -II

- HSR150: Model number
- HR: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +2350L: LM rail length (in mm)
- H: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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





Models HSR100 to 150HR

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m [3]					Mass	
	Width		Height	Pitch		Length [2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	100	75 75 50	70	210	26×39×32	3000	441	540	20.7	105	20.7	105	24.1	32	49
	114	88 88 53	75	230	33×48×43	3000	540	653	27.5	138	27.5	138	33.3	43	61
	144	103 103 61	85	250	39×58×46	3000	518	728	33.6	167	33.6	167	45.2	62	87

[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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-210**.)

[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⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model HSR variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

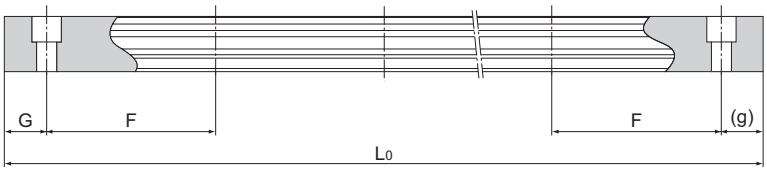


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model HSR

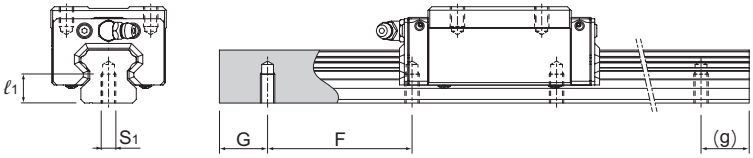
Unit: mm

Model No.	HSR 8	HSR 10	HSR 12	HSR 15	HSR 20	HSR 25	HSR 30	HSR 35	HSR 45	HSR 55	HSR 65	HSR 85	HSR 100	HSR 120	HSR 150
LM rail standard lengths (L_0)	35 55 75 95 115 135 155 175 195 215 235 255 275	45 70 95 120 145 170 195 220 245 270 295 320 345 370 395 420 445 470	70 110 150 190 230 270 310 350 390 430 470 510 550 590 630 670	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600 1720 1840 1960 2080 2200	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1720 1840 1960 2080 2200 2320 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985 3090	780 900 1020 1140 1260 1380 1500 1620 1740 1860 1980 2100 2220 2340 2460 2580 2700 2820 2940 3060	1270 1570 2020 2620	1530 1890 2250 2610	1340 1760 2180 2600	1470 1930 2390	1600 2100 2350
Standard pitch F	20	25	40	60	60	60	80	80	105	120	150	180	210	230	250
G, g	7.5	10	15	20	20	20	20	20	22.5	30	35	45	40	45	50
Max length	(1000)	(1000)	(1480)	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000 (2520)	3090	3060	3000	3000	3000	3000	3000

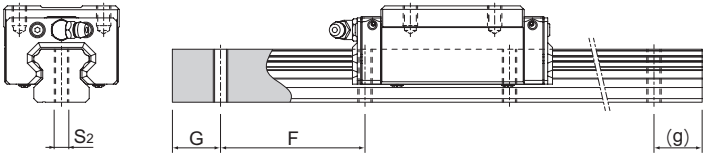
Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-Hole Type LM Rail

Model HSR rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



K Type



W Type

(1) A tapped-hole LM rail type is available only for Precision grade or lower grades.
(2) A tapped-hole LM rail type is also available for models HSR-YR and HSR-XYR.
(3) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-210.

Table 2: Dimensions of the LM Rail Tap

Unit: mm

Model No.	K Type		W Type
	S_1	Effective tap depth ℓ_1	S_2
HSR 8X	—	—	M2 through
HSR 10X	—	—	M3 through
HSR 12X	—	—	M3 through
HSR 15	M5	8	M5 through
HSR 20	M6	10	M6 through
HSR 25	M6	12	—
HSR 30	M8	15	—
HSR 35	M8	17	—
HSR 45	M12	24	—
HSR 55	M14	24	—
HSR 65	M20	30	—

Model number coding

HSR30R2UU+1000LH K

Symbol for
tapped-hole LM rail (K/W)

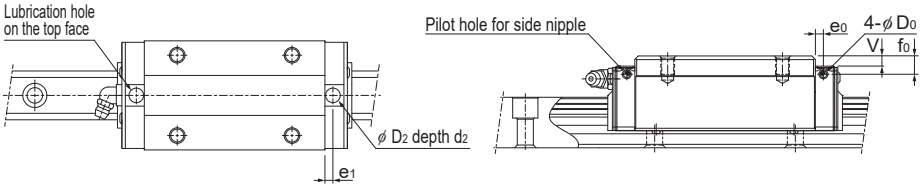
Preventing the LM Block from Falling off of the LM Rail

In miniature Model HSR, the balls fall out if the LM block comes off the LM rail.
For this reason, LM Guide assemblies are delivered with a part which prevents the LM block from coming off the rail. If you remove this part when using the product, please take precautions to avoid overrunning the blocks off of the rail.

Lubrication Hole

Lubrication Hole for Model HSR

The Model HSR LM block can be lubricated from the side or top surface. In order to prevent foreign material from entering the LM block, lubrication holes are not through holes in blocks with regular specifications. Contact THK if these will be used.
In addition, contact THK if you will use an upper surface greasing hole with a Model HSR-R/XR/LR/XLR/YR/XYR, as a lubrication adapter is required.
The lubricant may not reach the raceway if the LM Guide is not installed in a horizontal orientation. Be sure to let THK know the mounting orientation and the position where the grease nipple or plumbing fixture will be attached to each LM block.
See **A1-12** for the mounting orientation and **A24-2** for lubrication.



Notes: Upper surface lubrication is oil lubrication only. Contact THK if you are considering using the lubrication hole on the top face for grease lubrication.

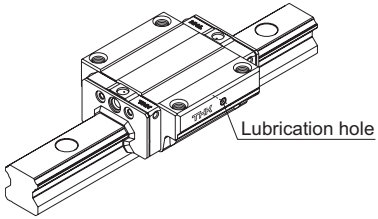
Unit: mm

Model No.		Pilot hole for side nipple			Applicable nipple	Lubrication hole on the top face				
		e_0	f_0	D_0		D_2	(O-ring)	V	e_1	d_2
HSR	15C 15LC 15CA 15HA 15CB 15HB	3.2	3.9	3	PB107	5.1	SS4	0.3	3.2	0.65
	15R 15LR 15YR	3.2	7.9	3				4.3		
	20C 20LC 20CA 20HA 20CB 20HB	3.1	3.4	3		6	SS5	0.2	4.3	0.6
	20R 20LR 20YR	3.1	3.4	3				0.2		

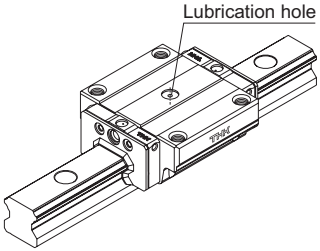
Model No.		Pilot hole for side nipple			Applicable nipple	Lubrication hole on the top face				
		e_0	f_0	D_0		D_2	(O-ring)	V	e_1	d_2
HSR	25C 25LC 25CA 25HA 25CB 25HB	3.5	4	3	PB107	6.2	P3	0.4	3.9	1
	25R 25LR 25YR	3.5	8	3				4.4		
	30C 30LC 30CA 30HA 30CB 30HB	5.2	6.2	5.2	M6F	6.2	P3	0.4	5.2	1
	30R 30LR 30YR	5.2	9.2	5.2				3.4		
	35C 35LC 35CA 35HA 35CB 35HB	5.5	5.6	5.2		6.2	P3	0.4	5.5	1
	35R 35LR 35YR	5.5	12.6	5.2				7.4		
	45C 45LC 45CA 45HA 45CB 45HB	6.1	6.6	5.2		10.2	P7	0.4	8.2	1
	45R 45LR 45XYR	6.1	16.6	5.2				10.4		
	55C 55LC 55CA 55HA 55CB 55HB	5.6	7.7	5.2		10.2	P7	0.4	9.1	1
	55R 55LR 55XYR	5.6	17.7	5.2				10.4		
	65XC 65XLC 65XCA 65XHA 65XCB 65XHB	6.8	14.6	5.2		10.2	P7	5.9	9.5	1
	65XR 65XLR 65XYR	6.8	14.6	5.2				5.9		

Semi-Standard Lubrication Hole for Model HSR

For model HSR, a semi-standard lubrication hole is available. Specify the appropriate model number according to the application.



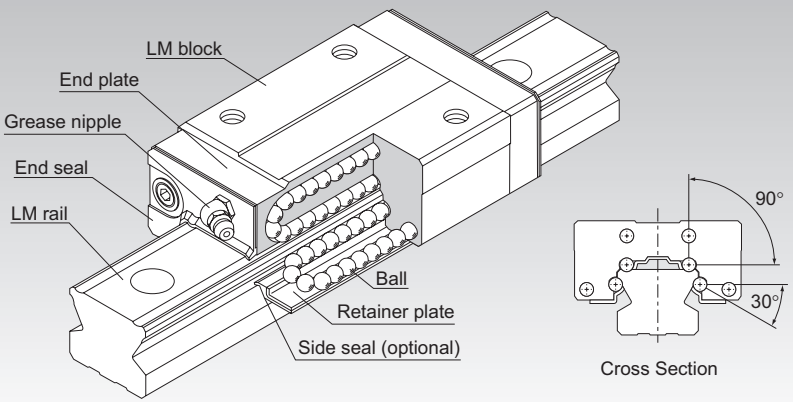
Type with a Lubrication Hole Drilled on the Side Surface



Type with a Lubrication Hole Drilled on the Top Face

SR

Radial Type LM Guide Model SR



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-76
Accuracy Standards A1-81
Shoulder Height of the Mounting Base and the Corner Radius A1-525
Reference Error Tolerance for the Mounting Surface A1-532
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in four rows of raceways precision-ground on an LM rail and an LM block, and endplates incorporated in the LM block allow the balls to circulate. Since a retainer plate holds the balls, they will not fall off even if the LM block is removed from the LM rail. The low height of the LM block makes it highly rigid, achieving stable, high-precision linear motion.

Compact with Large Load Capacity

Since it is a compactly designed model that has a low cross-sectional height and a ball contact structure that is suited to large loads in the radial direction, this model is optimal for horizontal guide units.

Mounting Accuracy can Easily be Achieved

Since this self-adjusting model is capable of easily absorbing accuracy error in parallelism and level between two rails, it achieves highly accurate and smooth motion.

Low Noise

The end plate installed at each end of the LM block is designed to ensure the smooth and quiet circulation of balls at the turning areas.

High Durability

Balls do not undergo differential slip even under a preload or excessive biased load. Due to the product's high wear resistance, it maintains long-term accuracy.

Stainless Steel Type also Available

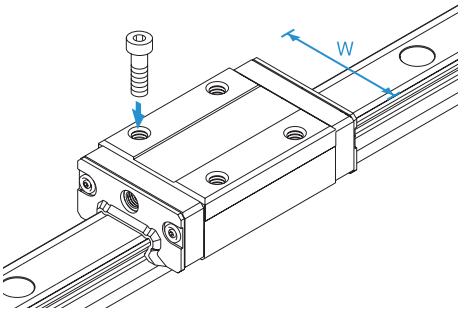
A special type whose LM block, LM rail, and balls are made of stainless steel is also available.

Types and Features

Models SR-W/T

Dimensional Table⇒A1-222

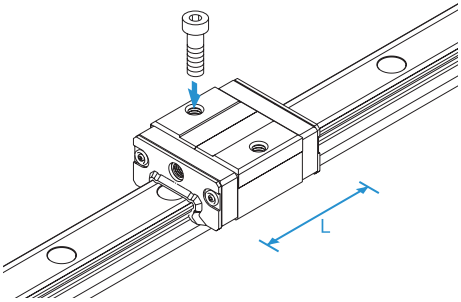
With this type, the LM block has a smaller width (W) and tapped holes.



Model SR-V

Dimensional Table⇒A1-222

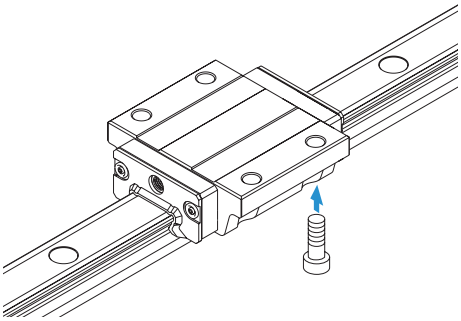
This is a space-saving type whose LM block has the same cross-sectional shape as the Model SR-W, but it has a smaller overall LM block length (L).



Model SR-TB

Dimensional Table⇒A1-224

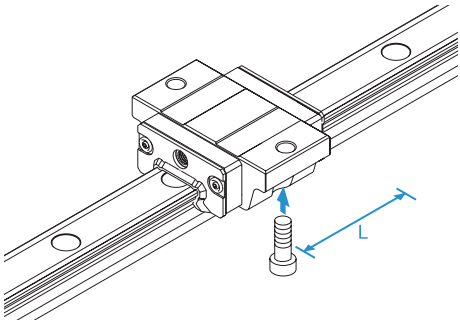
The LM block has the same height as the Model SR-W, and the flange of the LM block has through holes. It is used in places where the table cannot have through holes for mounting bolts.



Model SR-SB

Dimensional Table⇒A1-224

This is a space-saving type whose LM block has the same cross-sectional shape as model SR-TB, but has a smaller overall LM block length (L).



Characteristics of Model SR

When compared to models with a contact angle of 45°, model SR demonstrates the following excellent characteristics. By taking advantage of these characteristics, you will be able to design and manufacture highly accurate and highly rigid machines or equipment.

Difference in Load Rating and Service Life

Since SR has a contact angle of 90°, its rated load and service life are different from models with a contact angle of 45°. When comparing model SR with a model that has a contact angle of 45° and when the same radial load is applied to the two models with the same ball diameter as shown in the figure below, the load applied to SR is 70% of the other model. As a result, the service life of SR is more than twice that of the other model.

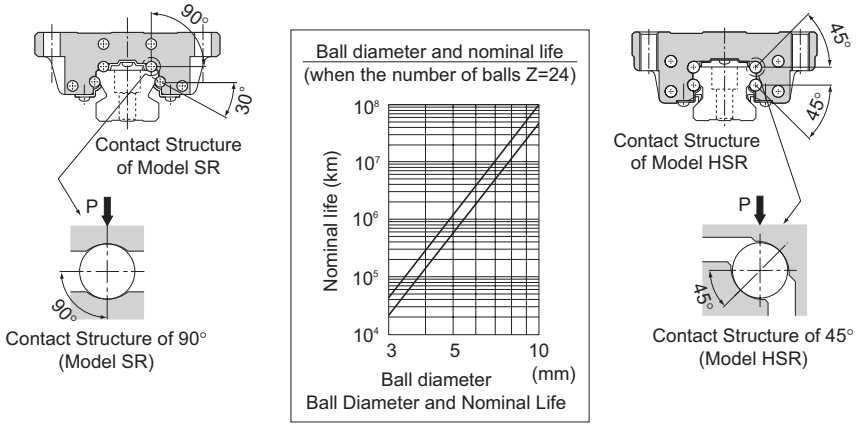


Fig. 1

Difference in Accuracy

If a machining error (grinding error) occurs in the LM rail or LM block, it will affect the running accuracy. Assuming that there is a machining error of Δ on the raceway, the error in the radial direction is 1.4 times greater in a model with a contact angle of 45° (model HSR) than in a model with a contact angle of 90° (model SR). For the horizontal direction, the error in a model with a contact angle of 45° is 1.22 times greater than that of a model with a contact angle of 30°.

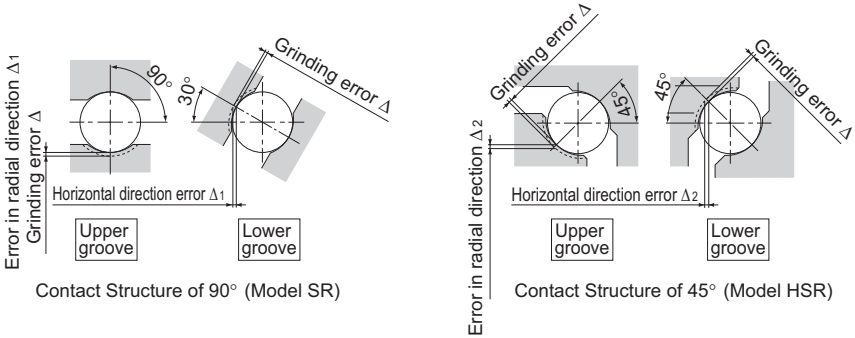


Fig. 2: Machining Error and Accuracy

Difference in Rigidity

The 90° contact angle adopted by Model SR is also different from the 45° contact angle in terms of rigidity. Accordingly, Model SR is better suited to applications that require high rigidity in the radial direction. The figure below shows the difference in radial load and displacement.

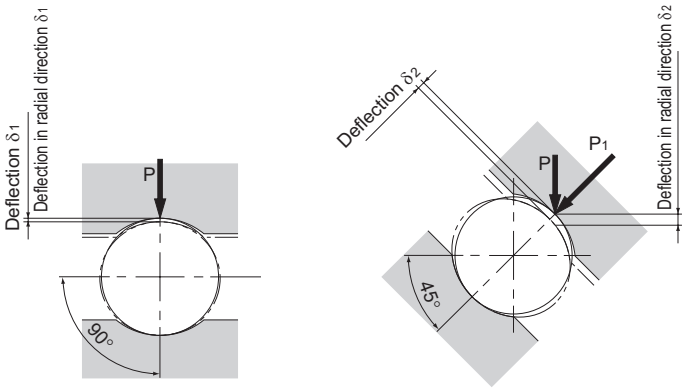


Fig. 3: Deflection Under a Radial Load

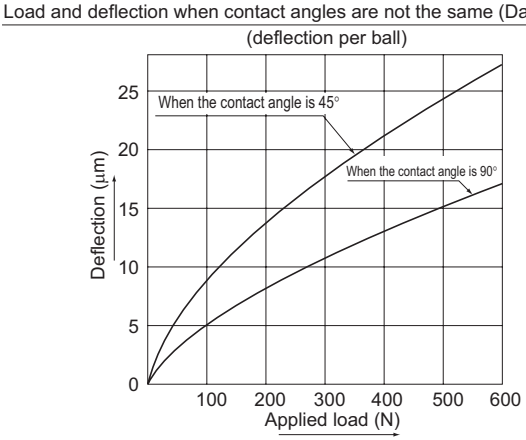
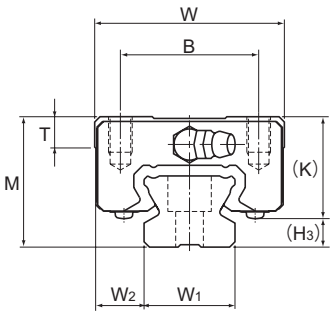


Fig. 4: Radial Load and Deflection

Conclusion

The 90° contact structure of the Model SR makes it ideal for locations where the load applied is mostly radial, locations where radial rigidity is required, and locations where accurate motion is demanded in the vertical and horizontal directions.
However, if the reverse-radial load, the lateral load, or the moment is large, we recommend Model HSR, which has a contact angle of 45° (4-way equal load).

Models SR-W, SR-WM, SR-V, SR-VM, and SR-T



Model No.	Outer dimensions			LM block dimensions									
	Height	Width	Length[1]									Grease nipple	
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E		H_3
SR 15V/VM SR 15W/WM	24	34	40.4 57	26	— 26	M4×7	22.9 39.5	5.7	18.2	6	5.5	PB1021B	5.8
SR 20V/VM SR 20W/WM	28	42	47.3 66.2	32	— 32	M5×8	27.8 46.7	7.2	22	6	12	B-M6F	6
SR 25V/VM SR 25W/WM	33	48	59.2 83	35	— 35	M6×9	35.2 59	7.7	26	7	12	B-M6F	7
SR 30V/VM SR 30W/WM	42	60	67.9 96.8	40	— 40	M8×12	40.4 69.3	8.5	32.5	8	12	B-M6F	9.5
SR 35V/VM SR 35W/WM	48	70	77.6 111	50	— 50	M8×12	45.7 79	12.5	36.5	8.5	12	B-M6F	11.5
SR 45W	60	86	126	60	60	M10×15	90.5	15	47.5	11.5	16	B-PT1/8	12.5
SR 55W	68	100	156	75	75	M12×20	117	16.7	54.5	12	16	B-PT1/8	13.5
SR 70T	85	126	194.6	90	90	M16×25	147.6	24.5	70	12	16	B-PT1/8	15
SR 85T	110	156	180	100	80	M18×30	130	25.5	91.5	27	12	A-PT1/8	18.5
SR 100T	120	178	200	120	100	M20×35	150	29.5	101	32	12	A-PT1/8	19
SR 120T	110	205	235	160	120	M20×35	180	24	95	14	13.5	B-PT1/4	15
SR 150T	135	250	280	200	160	M20×35	215	24	113	17	13.5	B-PT1/4	22

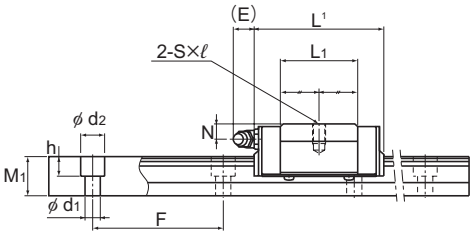
Model number coding

SR25 W 2 UU C0 M +1240L Y P T M -II

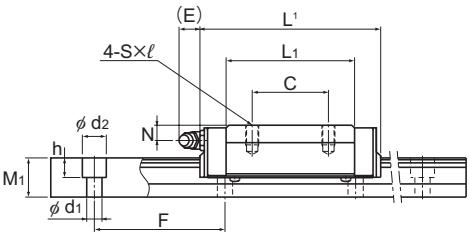
- SR25: Model number
- W: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- M: Stainless steel LM block
- +1240L: LM rail length (in mm)
- Y: Applied to only 15 and 25
- P: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Model SR-V



Models SR-W/T

Unit: mm

	LM rail dimensions						Basic load rating[3]		Static permissible moment kN·m [4]						Mass	
	Width		Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15	9.5	12.5	60	3.5×6×4.5	(1240) 3000	9.1 13.8	11.7 20.5	0.0344 0.0984	0.234 0.551	0.0215 0.0604	0.149 0.343	0.0694 0.122		0.12 0.2	1.2
	20	11	15.5	60	6×9.5×8.5	(1480) 3000	13.4 19.2	17.2 28.6	0.064 0.167	0.396 0.887	0.0397 0.102	0.25 0.55	0.135 0.224		0.2 0.3	2.1
	23	12.5	18	60	7×11×9	(2020) 3000	21.6 30.9	26.8 44.7	0.125 0.326	0.773 1.74	0.0774 0.2	0.488 1.08	0.245 0.408		0.3 0.4	2.7
	28	16	23	80	7×11×9	(2520) 3000	29.5 45.6	34.4 64.4	0.173 0.564	1.15 2.92	0.108 0.346	0.735 1.8	0.376 0.703		0.5 0.8	4.3
	34	18	27.5	80	9×14×12	(2520) 3000	40.9 60.4	46.7 81.8	0.275 0.785	1.79 4.27	0.171 0.482	1.14 2.65	0.615 1.08		0.8 1.2	6.4
	45	20.5	35.5	105	11×17.5×14	3000	80.4	107	1.17	6.34	0.721	3.94	1.89		2.2	11.3
	48	26	38	120	14×20×17	3000	136	179	2.61	13	1.6	8.05	3.33		3.6	12.8
	70	28	47	150	18×26×22	3000	226	282	5.03	25.7	3.09	15.9	7.47		7	22.8
	85	35.5	65.5	180	18×26×22	3000	120	224	2.54	15.1	1.25	7.47	5.74		10.1	34.9
	100	39	70.3	210	22×32×25	3000	148	283	3.95	20.9	1.95	10.3	8.55		14.1	46.4
	114	45.5	65	230	26×39×30	3000	279	377	5.83	32.9	2.87	16.2	13.7		—	—
	144	53	77	250	33×48×36	3000	411	537	9.98	55.8	4.92	27.5	24.3		—	—

[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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-226**.)

[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[4] 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

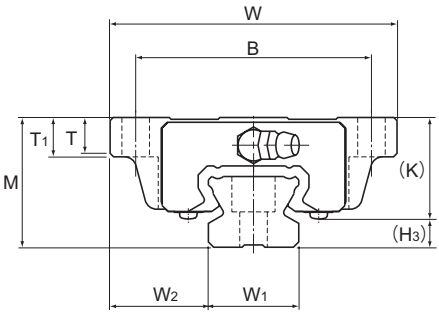
Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.
Models SR85T, 100T, 120T, and 150T are made to order.
Models SR85T and 100T include a grease nipple on the side face of the LM block.
For models SR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table 1).
When replacing this model with model SSR, pay attention to the mounting hole dimension of the LM rail.
Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SR 15	For M3 (no symbol)	For M4 (symbol Y)
SR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-541

Models SR-TB, SR-TBM, SR-SB, and SR-SBM



Model No.	Outer dimensions			LM block dimensions										H_3
	Height M	Width W	Length[1] L	B	C	H	L_1	T	T_1	K	N	E	Grease nipple	
SR 15SB/SBM SR 15TB/TBM	24	52	40.4 57	41	— 26	4.5	22.9 39.5	6.1	7	18.2	6	5.5	PB1021B	5.8
SR 20SB/SBM SR 20TB/TBM	28	59	47.3 66.2	49	— 32	5.5	27.8 46.7	8	9	22	6	12	B-M6F	6
SR 25SB/SBM SR 25TB/TBM	33	73	59.2 83	60	— 35	7	35.2 59	9.1	10	26	7	12	B-M6F	7
SR 30SB/SBM SR 30TB/TBM	42	90	67.9 96.8	72	— 40	9	40.4 69.3	8.7	10	32.5	8	12	B-M6F	9.5
SR 35SB/SBM SR 35TB/TBM	48	100	77.6 111	82	— 50	9	45.7 79	11.2	13	36.5	8.5	12	B-M6F	11.5
SR 45TB	60	120	126	100	60	11	90.5	12.8	15	47.5	11.5	16	B-PT1/8	12.5
SR 55TB	68	140	156	116	75	14	117	15.3	17	54.5	12	16	B-PT1/8	13.5

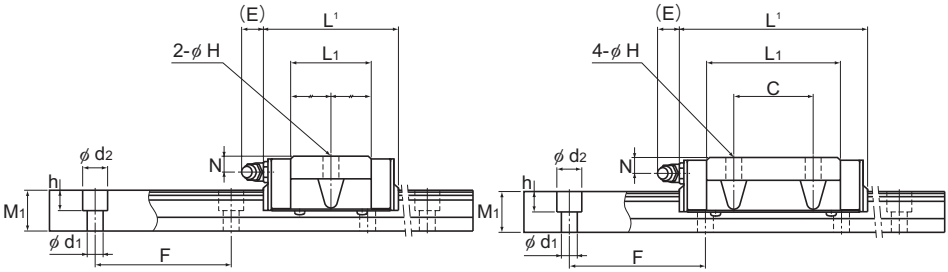
Model number coding

SR25 TB 2 UU C1 +1240L Y H T -II

- SR25: Model number
- TB: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1240L: LM rail length (in mm)
- Y: Applied to only 15 and 25
- H: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Unit: mm

	LM rail dimensions						Basic load rating[3]		Static permissible moment kN·m[4]					Mass	
	Width		Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	18.5	12.5	60	3.5×6×4.5	(1240) 3000	9.1 13.8	11.7 20.5	0.0344 0.0984	0.234 0.551	0.0215 0.0604	0.149 0.343	0.0694 0.122	0.15 0.2	1.2
	20	19.5	15.5	60	6×9.5×8.5	(1480) 3000	13.4 19.2	17.2 28.6	0.064 0.167	0.396 0.887	0.0397 0.102	0.25 0.55	0.135 0.224	0.3 0.4	2.1
	23	25	18	60	7×11×9	(2020) 3000	21.6 30.9	26.8 44.7	0.125 0.326	0.773 1.74	0.0774 0.2	0.488 1.08	0.245 0.408	0.4 0.6	2.7
	28	31	23	80	7×11×9	(2520) 3000	29.5 45.6	34.4 64.4	0.173 0.564	1.15 2.92	0.108 0.346	0.735 1.8	0.376 0.703	0.8 1.1	4.3
	34	33	27.5	80	9×14×12	(2520) 3000	40.9 60.4	46.7 81.8	0.275 0.785	1.79 4.27	0.171 0.482	1.14 2.65	0.615 1.08	1 1.5	6.4
	45	37.5	35.5	105	11×17.5×14	3000	80.4	107	1.17	6.34	0.721	3.94	1.89	2.5	11.3
	48	46	38	120	14×20×17	3000	136	179	2.61	13	1.6	8.05	3.33	4.2	12.8

[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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-226**.)

[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[4] 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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.
For models SR15 and 25, two types of rails with different mounting hole dimensions are offered (see Table 1).
When replacing this model with model SSR, pay attention to the mounting hole dimension of the LM rail.
Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SR 15	For M3 (no symbol)	For M4 (symbol Y)
SR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model SR variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details. For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

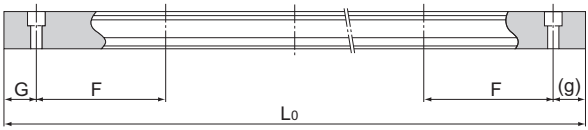


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model SR

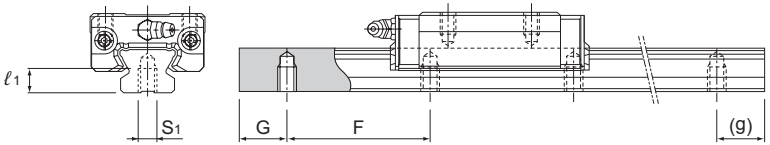
Unit: mm

Model No.	SR 15	SR 20	SR 25	SR 30	SR 35	SR 45	SR 55	SR 70	SR 85	SR 100	SR 120	SR 150
LM rail standard lengths (L_o)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1660 1720 1780 1840 1900 1960 2020 2080 2140	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1660 1720 1780 1840 1900 1960 2020 2080 2140 2200 2260 2320 2380 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1640 1720 1800 1880 1960 2040 2120 2200 2280 2360 2440 2520 2600 2680 2760 2840 2920	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1640 1720 1800 1880 1960 2040 2120 2200 2280 2360 2440 2520 2600 2680 2760 2840 2920	570 675 780 885 990 1095 1200 1305 1410 1515 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985	780 900 1020 1140 1260 1380 1500 1740 1860 1980 2100 2220 2340 2460 2580 2700 2820 2940	1270 1570 2020 2620	1520 2060 2600	1550 1970 2600	1700 2390	1600 2100
Standard pitch F	60	60	60	80	80	105	120	150	180	210	230	250
G, g	20	20	20	20	20	22.5	30	35	40	40	45	50
Max length	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000 (2520)	3000	3000	3000	3000	3000	3000	3000

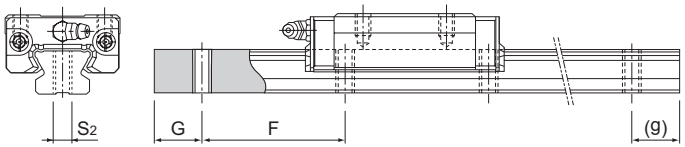
Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
Those model numbers including and greater than SR85T are semi-standard models. If desiring these models, contact THK.
The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-Hole Type LM Rail

Model SR rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



K Type



W Type

(1) A tapped-hole LM rail is available only for Precision or lower grades.
(2) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-226.

Table 2: Dimensions of the LM Rail Tap

Unit: mm

Model No.	K Type		W Type
	S_1	Effective tap depth ℓ_1	S_2
SR 15	M5	7	M5 through
SR 20	M6	9	M6 through
SR 25	M6	10	—
SR 30	M8	14	—
SR 35	M8	16	—
SR 45	M12	20	—
SR 55	M14	22	—

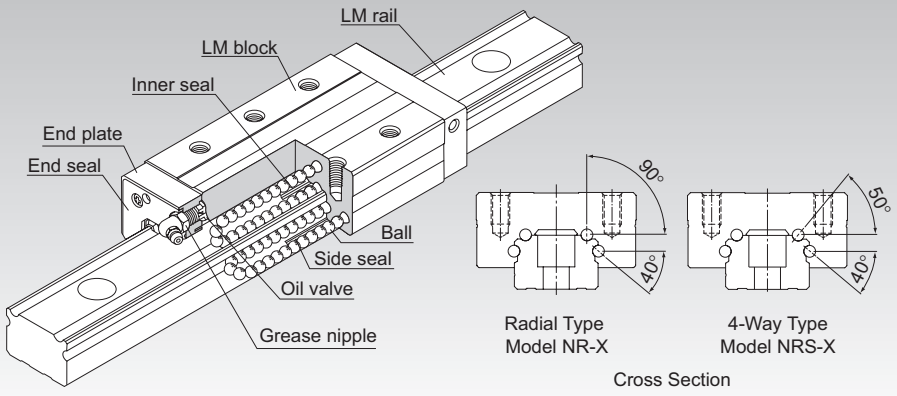
Model number coding

SR30W2UU+1000LH K

Symbol for
tapped-hole LM rail (K/W)

NR-X/NRS-X

Super-Heavy Load LM Guide Model NR-X/NRS-X for Machine Tools



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-75
Accuracy Standards A1-81
Shoulder Height of the Mounting Base and the Corner Radius A1-526
Reference Error Tolerance for the Mounting Surface A1-532
Dimensions of Each Model with Options Attached A1-555

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. The raceways are cut into deep grooves that have a radius closer to that of the balls than in the conventional design, using special equipment and an extremely precise cutting technique. This design allows high rigidity, high vibration and impact resistance, and high damping capacity, all of which are required for machine tools, thus making these models capable of bearing super-heavy loads.

Notes: Due to the extremely high rigidity of LM Guide units of models NR-X and NRS-X, the construction does not easily absorb the effects of mounting surface misalignment and installation errors. Where such effects arise, there is a risk of reduced operating life and/or malfunction. Contact THK when considering the use of these products.

Improved Damping Capacity

While not performing cutting operations, the LM Guide travels normally and smoothly. While cutting a workpiece, the cutting force is applied to the LM Guide and increases the contact area between the balls and the raceway, allowing an appropriate mixture of rolling and sliding motion to be achieved. Accordingly, the friction resistance is increased and the damping capacity is improved.
Since the absolute slip during the rolling and sliding motion is insignificant, it causes little wear and does not affect the service life.

Highly Practical LM Guide

The excessively large differential slip occurring in a Gothic-arch groove does not happen with these models. They smoothly travel and achieve high positioning accuracy during fast feeding. NR and NRS are extremely practical models of LM Guide that generate differential slip appropriate to the cutting load, increase rolling resistance and damping, and improve cutting performance.

High Rigidity

To increase the rigidity of the LM block and the LM rail, which may impact the overall rigidity of the LM Guide in the reverse-radial and lateral directions, THK made full use of FEM to achieve optimal design within the limited dimensional range.
THK offers two identically sized models with different characteristics, namely the radial type Model NR-X and 4-way type Model NRS-X. Users can select the model that best suits their specifications.

Super-Heavy Load

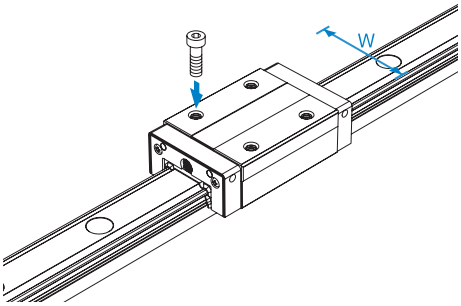
Since the curvature of the raceway is matched to the ball diameter, the ball contact area under a load is increased and the LM Guide is capable of receiving a super-heavy load.

Types and Features

Models NR-RX/NRS-RX

Dimensional Table⇒A1-234/A1-236

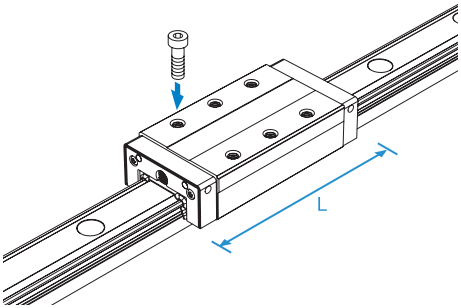
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



Models NR-LRX/NRS-LRX

Dimensional Table⇒A1-234/A1-236

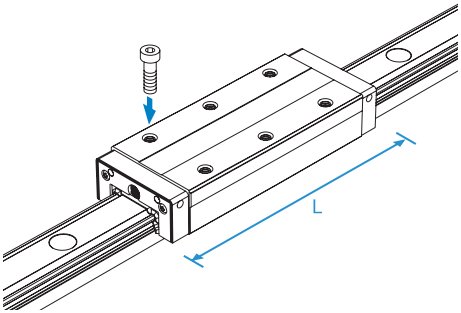
The LM block has the same cross-sectional shape as models NR-RX/NRS-RX, but has a longer overall LM block length (L) and a greater load rating.



Models NR-SLRX/NRS-SLRX

Dimensional Table⇒A1-234/A1-236

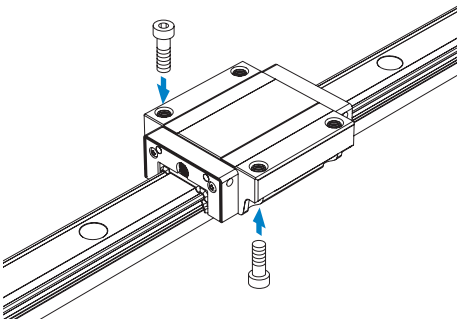
The LM block has the same cross-sectional shape as models NR-LRX/NRS-LRX, but has a longer overall LM block length (L) and a greater load rating.



Models NR-CX/NRS-CX

Dimensional Table⇒A1-240/A1-242

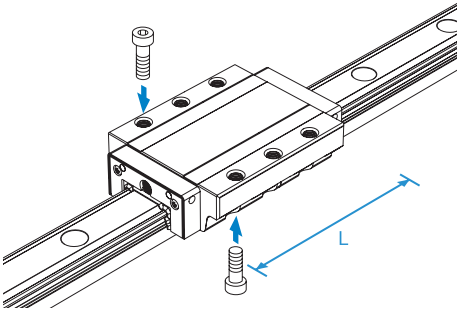
The flange of the LM block has tapped holes. It can be mounted from the top or the bottom. It can also be used in places where the table cannot have through holes for mounting bolts.



Models NR-LCX/NRS-LCX

Dimensional Table⇒A1-240/A1-242

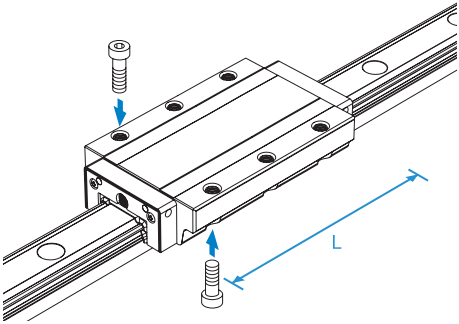
The LM block has the same cross-sectional shape as models NR-CX/NRS-CX, but has a longer overall LM block length (L) and a greater load rating.



Models NR-SLCX/NRS-SLCX

Dimensional Table⇒A1-240/A1-242

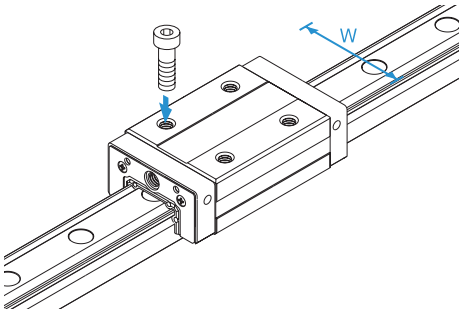
The LM block has the same cross-sectional shape as models NR-LCX/NRS-LCX, but has a longer overall LM block length (L) and a greater load rating.



Models NR-R/NRS-R

Dimensional Table⇒A1-238

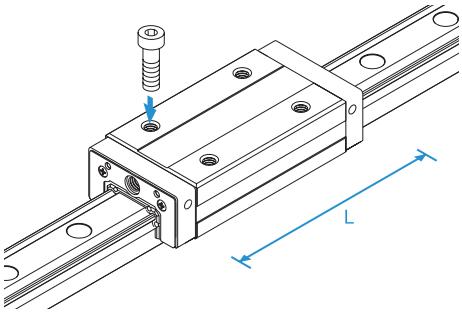
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



Models NR-LR/NRS-LR

Dimensional Table⇒A1-238

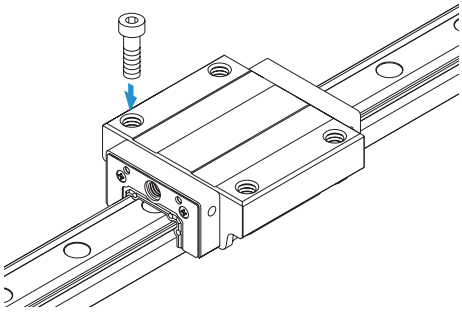
The LM block has the same cross-sectional shape as models NR-R/NRS-R, but has a longer overall LM block length (L) and a greater load rating.



Models NR-A/NRS-A

Dimensional Table⇒A1-244

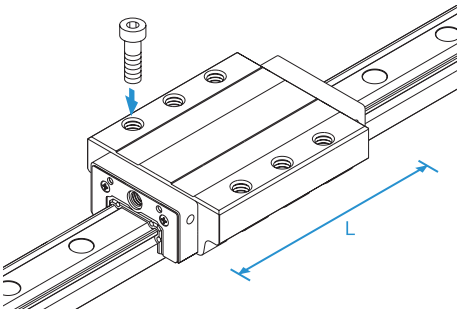
The flange of its LM block has tapped holes.



Models NR-LA/NRS-LA

Dimensional Table⇒A1-244

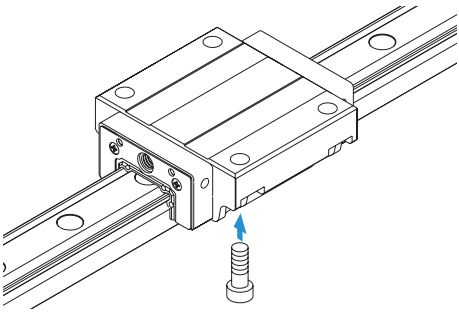
The LM block has the same cross-sectional shape as models NR-A/NRS-A, but has a longer overall LM block length (L) and a greater load rating.



Models NR-B/NRS-B

Dimensional Table⇒A1-246

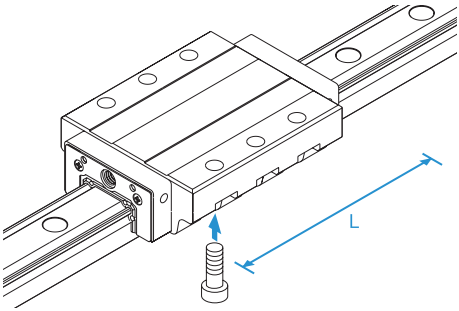
The flange of the LM block has through holes. It is used in places where the table cannot have through holes for mounting bolts.



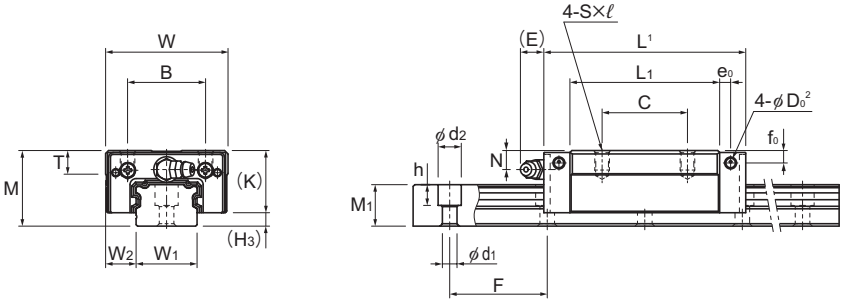
Models NR-LB/NRS-LB

Dimensional Table⇒A1-246

The LM block has the same cross-sectional shape as models NR-B/NRS-B, but has a longer overall LM block length (L) and a greater load rating.



Models NR-RX, NR-LRX, and NR-SLRX



Model NR-RX

Model No.	Outer dimensions			LM block dimensions									Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E	Grease nipple	e_0	f_0	D_0^2	H_3
NR 25RX NR 25LRX NR 25SLRX	31	50	82.8 102 170.3	32	35 50 100	M6×8	61.4 80.6 148.9	9.7	25.5	7.8	12	B-M6F	4.5	5.1	3.9	5.5
NR 30RX NR 30LRX NR 30SLRX	38	60	98 120.5 204.6	40	40 60 120	M8×10	72.1 94.6 178.7	9.7	31	10.3	12	B-M6F	6.5	7	3.9	7
NR 35RX NR 35LRX NR 35SLRX	44	70	109.5 135 238.9	50	50 72 140	M8×12	79 104.5 208.4	11.7	35	12.1	12	B-M6F	6	8	5.2	9
NR 45RX NR 45LRX NR 45SLRX	52	86	138.2 171 271.4	60	60 80 160	M10×17	105 137.8 238.2	14.7	40.4	13.9	16	B-PT1/8	8.5	8	5.2	11.6
NR 55RX NR 55LRX NR 55SLRX	63	100	163.3 200.5 400.5	65	75 95 206	M12×18	123.6 160.8 360.8	17.7	49	16.6	16	B-PT1/8	10	10	5.2	14
NR 65RX NR 65LRX NR 65SLRX	75	126	186 246 422.2	76	70 110 250	M16×20	143.6 203.6 379.8	21.6	60	19	16	B-PT1/8	8.7	15	8.2	15

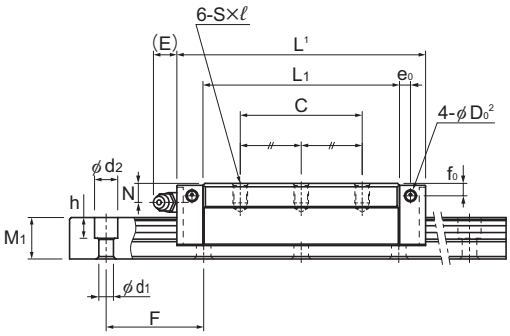
Model number coding

NR35 LRX 2 QZ KKHH C0 +1240L P T -II

- NR35: Model number
- LRX: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol
  - Normal grade (No Symbol)/High Accuracy grade (H)
  - Precision grade (P)/Super Precision grade (SP)
  - Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models NR-LRX/SLRX

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC		LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	25	12.5	17	40	6×9.5×8.5	3000	37.1 45.4 71	68.1 90.8 172.6	0.57 0.989 3.37	3.04 4.91 15.3	0.346 0.597 2.02	1.84 2.95 9.15	0.703 0.937 1.8		0.4 0.5 0.9	2.9
	28	16	21	80	7×11×9	3000	54.7 66.9 104.8	98.1 130.8 248.6	0.986 1.71 5.82	5.17 8.34 26.4	0.599 1.03 3.49	3.13 5.02 15.8	1.15 1.53 2.95		0.7 0.9 1.7	4.2
	34	18	24.5	80	9×14×12	3000	72.4 89.6 145.6	124.6 169.1 338.2	1.37 2.46 9.23	7.38 12.1 42	0.835 1.49 5.54	4.48 7.3 25.2	1.74 2.36 4.78		1 1.3 2.6	6
	45	20.5	29	105	14×20×17	3090	110.2 132 193.5	197.6 255.8 441.8	2.81 4.87 13.8	14.7 23 62.3	1.72 2.94 8.27	8.95 13.8 37.3	3.72 4.81 8.32		1.8 2.3 4	9.5
	53	23.5	36.5	120	16×23×20	3060	141.9 175.1 305.8	250.2 338.4 750.5	4.22 7.27 35.2	21.8 35.9 155	2.56 4.4 21.1	13.2 21.7 92.7	5.37 7.27 16.2		3.3 4.3 9.6	14
	63	31.5	43	150	18×26×22	3000	208.7 268.9 423.1	351.7 505.5 967.1	6.87 13.8 47.9	35 65.4 211	4.16 8.31 28.7	21.2 39.3 126	8.94 12.9 24.8		6 8.5 15.9	19.6

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-248**.)

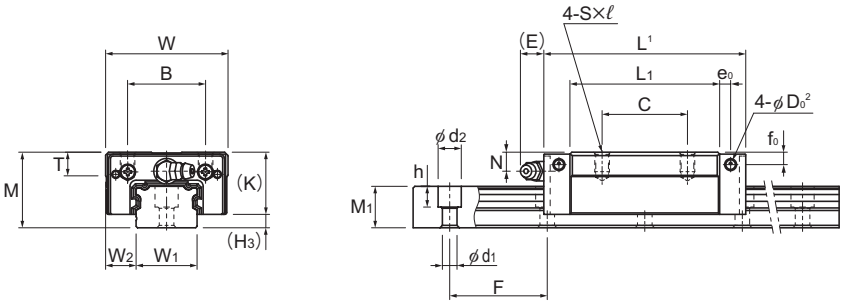
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Models NRS-RX, NRS-LRX, and NRS-SLRX



Model NRS-RX

Model No.	Outer dimensions			LM block dimensions									Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E	Grease nipple	e_0	f_0	D_0^2	H_3
NRS 25RX NRS 25LRX NRS 25SLRX	31	50	82.8 102 170.3	32	35 50 100	M6×8	61.4 80.6 148.9	9.7	25.5	7.8	12	B-M6F	4.5	5.1	3.9	5.5
NRS 30RX NRS 30LRX NRS 30SLRX	38	60	98 120.5 204.6	40	40 60 120	M8×10	72.1 94.6 178.7	9.7	31	10.3	12	B-M6F	6.5	7	3.9	7
NRS 35RX NRS 35LRX NRS 35SLRX	44	70	109.5 135 238.9	50	50 72 140	M8×12	79 104.5 208.4	11.7	35	12.1	12	B-M6F	6	8	5.2	9
NRS 45RX NRS 45LRX NRS 45SLRX	52	86	138.2 171 271.4	60	60 80 160	M10×17	105 137.8 238.2	14.7	40.4	13.9	16	B-PT1/8	8.5	8	5.2	11.6
NRS 55RX NRS 55LRX NRS 55SLRX	63	100	163.3 200.5 400.5	65	75 95 206	M12×18	123.6 160.8 360.8	17.7	49	16.6	16	B-PT1/8	10	10	5.2	14
NRS 65RX NRS 65LRX NRS 65SLRX	75	126	186 246 422.2	76	70 110 250	M16×20	143.6 203.6 379.8	21.6	60	19	16	B-PT1/8	8.7	15	8.2	15

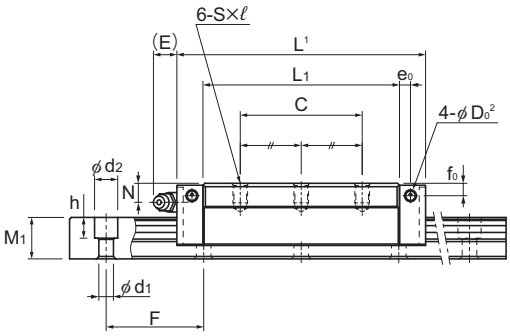
Model number coding

NRS45 LRX 2 QZ ZZHH C0 +1200L P T -II

- NRS45: Model number
- LRX: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- ZZHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol)/Light preload (C1)/Medium preload (C0)
- +1200L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H)/Precision grade (P)/Super Precision grade (SP)/Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models NRS-LRX/SLRX

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC		LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	25	12.5	17	40	6×9.5×8.5	3000	28.4 34.7 54.4	52.2 69.6 132.2	0.457 0.786 2.66	2.43 3.9 12.1	0.422 0.727 2.46	2.25 3.61 11.2	0.552 0.732 1.33		0.4 0.5 0.9	2.9
	28	16	21	80	7×11×9	3000	41.9 51.2 80.3	75.2 100.2 190.4	0.785 1.36 4.6	4.12 6.62 20.9	0.726 1.26 4.25	3.82 6.13 19.3	0.896 1.19 2.17		0.7 0.9 1.7	4.2
	34	18	24.5	80	9×14×12	3000	55.5 68.6 111.5	95.5 129.5 259.1	1.09 1.95 7.3	5.88 9.61 33.2	1.01 1.81 6.75	5.45 8.9 30.7	1.36 1.84 3.53		1 1.3 2.6	6
	45	20.5	29	105	14×20×17	3090	84.4 101.1 148.3	151.4 195.9 338.4	2.23 3.87 10.9	11.7 18.3 49.2	2.07 3.57 10.1	10.8 16.9 45.5	2.9 3.75 6.22		1.8 2.3 4	9.5
	53	23.5	36.5	120	16×23×20	3060	108.7 134.1 234.3	191.6 259.3 574.9	3.36 5.76 27.8	17.4 28.4 123	3.1 5.32 25.7	16.1 26.3 113	4.19 5.67 12		3.3 4.3 9.6	14
	63	31.5	43	150	18×26×22	3000	159.8 206 324.1	269.4 387.2 740.8	5.46 10.9 37.9	27.8 51.9 167	5.05 10.1 35	25.8 48 154	6.97 10.02 18.4		6 8.5 15.9	19.6

[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 A**1-555** or A**1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See A**1-248**.)

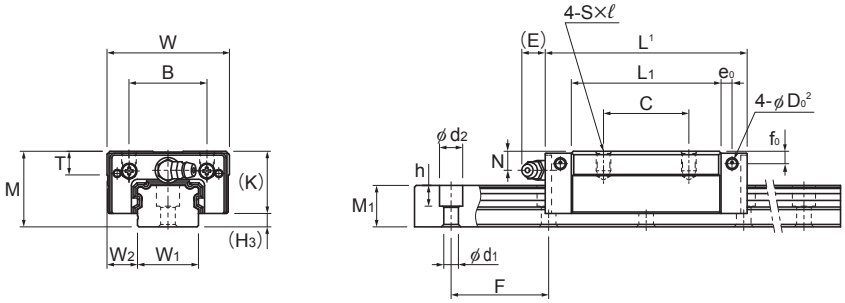
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on A**1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A**1-12**, Lubricant: see A**24-2**)

Options⇒A1-541

Models NR-R, NR-LR, NRS-R, and NRS-LR



Models NR-R and NRS-R

Model No.	Outer dimensions			LM block dimensions								Grease nipple	Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L1	T	K	N	E		e0	f0	D0[2]	H3
NR 75R NR 75LR	83	145	218 274	95	80 130	M18×25	170.2 226.2	25.3	68	18	16	B-PT1/8	9	17	8.2	15
NR 85R NR 85LR	90	156	246.7 302.8	100	80 140	M18×25	194.9 251	27.3	73	20	16	B-PT1/8	10	20	8.2	17
NR 100R NR 100LR	105	200	286.2 326.2	130	150 200	M18×27	223.4 263.4	34.3	85	23	10	B-PT1/4	12	23	8.2	20
NRS 75R NRS 75LR	83	145	218 274	95	80 130	M18×25	170.2 226.2	25.3	68	18	16	B-PT1/8	9	17	8.2	15
NRS 85R NRS 85LR	90	156	246.7 302.8	100	80 140	M18×25	194.9 251	27.3	73	20	16	B-PT1/8	10	20	8.2	17
NRS 100R NRS 100LR	105	200	286.2 326.2	130	150 200	M18×27	223.4 263.4	34.3	85	23	10	B-PT1/4	12	23	8.2	20

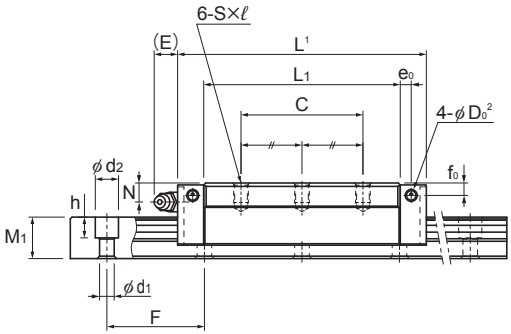
Model number coding

NR75 R 2 QZ KKHH C0 +1580L P Z T -II

- NR75: Model number
- R: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +1580L: LM rail length (in mm)
- P: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- Z: With plate cover or steel tape
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol, specify either plate cover or steel tape. See **A1-13** for number of rails used on the same plane.

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



Models NR-LR and NRS-LR

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC		LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	75	35	44	150	22×32×26	3000	271 355	610 800	14.4 25.4	73.3 118	8.91 15.4	44.7 71.4	19.3 25.2		8.7 11.6	24.6
	85	35.5	48	180	24×35×28	3000	336 435	751 972	20.3 34.7	102 160	12.4 21	62.6 96.2	26.8 34.6		12.3 15.8	30.5
	100	50	57	210	26×39×32	3000	479 599	1040 1300	34 47.3	167 238	20.7 29.2	101 146	43.4 54.6		21.8 26.1	42.6
	75	35	44	150	22×32×26	3000	212 278	431 566	10.6 18.6	53.8 87	10.6 18.6	53.8 87	13.4 17.6		8.7 11.6	24.6
	85	35.5	48	180	24×35×28	3000	264 342	531 687	14.9 25.4	75.3 117	14.9 25.4	75.3 117	18.7 24.2		12.3 15.8	30.5
	100	50	57	210	26×39×32	3000	376 470	737 920	25.1 34.6	123 174	25.1 34.6	123 174	30.4 38.1		21.8 26.1	42.6

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-248**.)

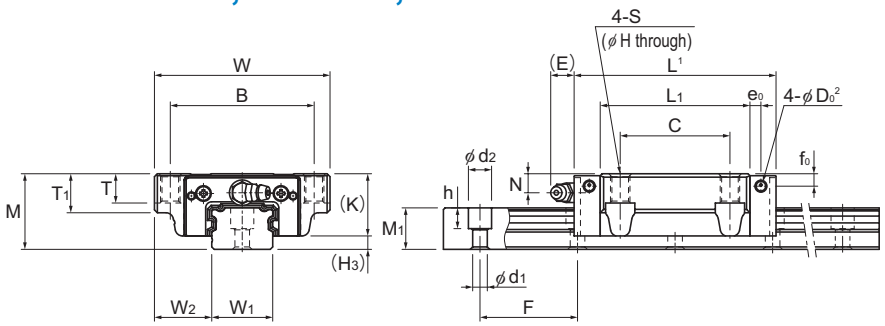
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Models NR-CX, NR-LCX, and NR-SLCX



Model NR-CX

Model No.	Outer dimensions			LM block dimensions											Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S	H	L_1	T	T_1	K	N	E	Grease nipple	e_0	f_0	D_0^2	H_3
NR 25CX NR 25LCX NR 25SLCX	31	72	82.8 102 170.3	59	45 45 100	M8	6.8	61.4 80.6 148.9	14.8	16	25.5	7.8	12	B-M6F	4.5	5.1	3.9	5.5
NR 30CX NR 30LCX NR 30SLCX	38	90	98 120.5 204.6	72	52 52 120	M10	8.5	72.1 94.6 178.7	16.9	18.1	31	10.3	12	B-M6F	6.5	7	3.9	7
NR 35CX NR 35LCX NR 35SLCX	44	100	109.5 135 238.9	82	62 62 140	M10	8.5	79 104.5 208.4	18.9	20.1	35	12.1	12	B-M6F	6	8	5.2	9
NR 45CX NR 45LCX NR 45SLCX	52	120	138.2 171 271.4	100	80 80 160	M12	10.5	105 137.8 238.2	20.6	22.1	40.4	13.9	16	B-PT1/8	8.5	8	5.2	11.6
NR 55CX NR 55LCX NR 55SLCX	63	140	163.3 200.5 400.5	116	95 95 206	M14	12.5	123.6 160.8 360.8	22.5	24	49	16.6	16	B-PT1/8	10	10	5.2	14
NR 65CX NR 65LCX NR 65SLCX	75	170	186 246 422.2	142	110 110 250	M16	14.5	143.6 203.6 379.8	26	28	60	19	16	B-PT1/8	8.7	15	8.2	15

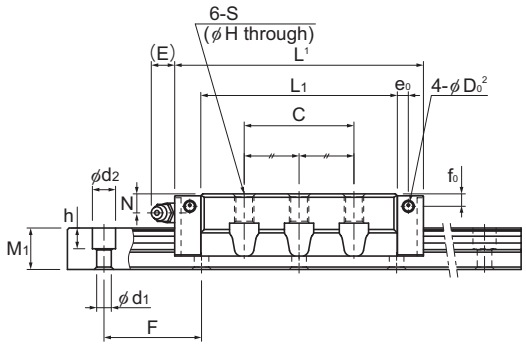
Model number coding

NR35 CX 2 QZ KKHH C0 +1400L P T -II

- NR35: Model number
- CX: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +1400L: LM rail length (in mm)
- P: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models NR-LCX/SLCX

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC		LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	25	23.5	17	40	6×9.5×8.5	3000	37.1 45.4 71	68.1 90.8 172.6	0.57 0.989 3.37	3.04 4.91 15.3	0.346 0.597 2.02	1.84 2.95 9.15	0.703 0.937 1.8		0.6 0.8 1.5	2.9
	28	31	21	80	7×11×9	3000	54.7 66.9 104.8	98.1 130.8 248.6	0.986 1.71 5.82	5.17 8.34 26.4	0.599 1.03 3.49	3.13 5.02 15.8	1.15 1.53 2.95		1.1 1.5 2.8	4.2
	34	33	24.5	80	9×14×12	3000	72.4 89.6 145.6	124.6 169.1 338.2	1.37 2.46 9.23	7.38 12.1 42	0.835 1.49 5.54	4.48 7.3 25.2	1.74 2.36 4.78		1.6 2 4	6
	45	37.5	29	105	14×20×17	3090	110.2 132 193.5	197.6 255.8 441.8	2.81 4.87 13.8	14.7 23 62.3	1.72 2.94 8.27	8.95 13.8 37.3	3.72 4.81 8.32		2.7 3.6 6.2	9.5
	53	43.5	36.5	120	16×23×20	3060	141.9 175.1 305.8	250.2 338.4 750.5	4.22 7.27 35.2	21.8 35.9 155	2.56 4.4 21.1	13.2 21.7 92.7	5.37 7.27 16.2		4.5 5.9 13.2	14
	63	53.5	43	150	18×26×22	3000	208.7 268.9 423.1	351.7 505.5 967.1	6.87 13.8 47.9	35 65.4 211	4.16 8.31 28.7	21.2 39.3 126	8.94 12.9 24.8		7.8 11 20.5	19.6

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-248**.)

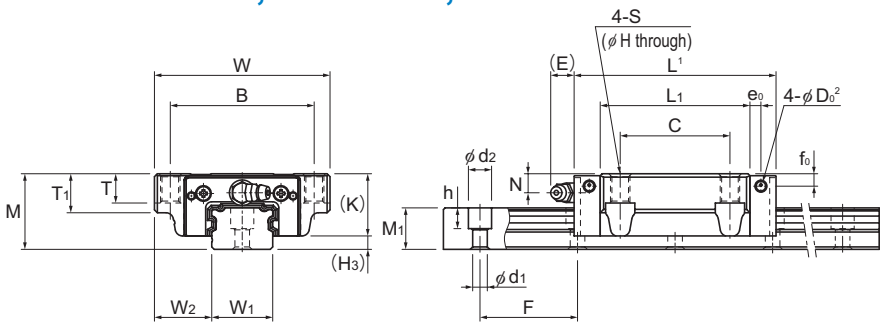
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Models NRS-CX, NRS-LCX, and NRS-SLCX



Model NRS-CX

Model No.	Outer dimensions			LM block dimensions											Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S	H	L_1	T	T_1	K	N	E	Grease nipple	e_0	f_0	D_0^2	H_3
NRS 25CX NRS 25LCX NRS 25SLCX	31	72	82.8 102 170.3	59	45 45 100	M8	6.8	61.4 80.6 148.9	14.8	16	25.5	7.8	12	B-M6F	4.5	5.1	3.9	5.5
NRS 30CX NRS 30LCX NRS 30SLCX	38	90	98 120.5 204.6	72	52 52 120	M10	8.5	72.1 94.6 178.7	16.9	18.1	31	10.3	12	B-M6F	6.5	7	3.9	7
NRS 35CX NRS 35LCX NRS 35SLCX	44	100	109.5 135 238.9	82	62 62 140	M10	8.5	79 104.5 208.4	18.9	20.1	35	12.1	12	B-M6F	6	8	5.2	9
NRS 45CX NRS 45LCX NRS 45SLCX	52	120	138.2 171 271.4	100	80 80 160	M12	10.5	105 137.8 238.2	20.6	22.1	40.4	13.9	16	B-PT1/8	8.5	8	5.2	11.6
NRS 55CX NRS 55LCX NRS 55SLCX	63	140	163.3 200.5 400.5	116	95 95 206	M14	12.5	123.6 160.8 360.8	22.5	24	49	16.6	16	B-PT1/8	10	10	5.2	14
NRS 65CX NRS 65LCX NRS 65SLCX	75	170	186 246 422.2	142	110 110 250	M16	14.5	143.6 203.6 379.8	26	28	60	19	16	B-PT1/8	8.7	15	8.2	15

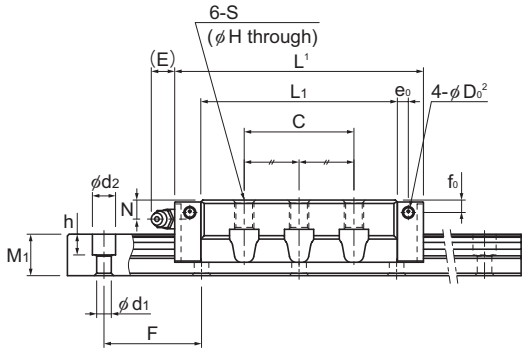
Model number coding

NRS45 LCX 2 QZ SSHH C0 +2040L P T -II

- NRS45: Model number
- LCX: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- SSHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +2040L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Models NRS-LCX/SLCX

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	25	23.5	17	40	6×9.5×8.5	3000	28.4 34.7 54.4	52.2 69.6 132.2	0.457 0.786 2.66	2.43 3.9 12.1	0.422 0.727 2.46	2.25 3.61 11.2	0.552 0.732 1.33		0.6 0.8 1.5	2.9
	28	31	21	80	7×11×9	3000	41.9 51.2 80.3	75.2 100.2 190.4	0.785 1.36 4.6	4.12 6.62 20.9	0.726 1.26 4.25	3.82 6.13 19.3	0.896 1.19 2.17		1.1 1.5 2.8	4.2
	34	33	24.5	80	9×14×12	3000	55.5 68.6 111.5	95.5 129.5 259.1	1.09 1.95 7.3	5.88 9.61 33.2	1.01 1.81 6.75	5.45 8.9 30.7	1.36 1.84 3.53		1.6 2 4	6
	45	37.5	29	105	14×20×17	3000	84.4 101.1 148.3	151.4 195.9 338.4	2.23 3.87 10.9	11.7 18.3 49.2	2.07 3.57 10.1	10.8 16.9 45.5	2.9 3.75 6.22		2.7 3.6 6.2	9.5
	53	43.5	36.5	120	16×23×20	3000	108.7 134.1 234.3	191.6 259.3 574.9	3.36 5.76 27.8	17.4 28.4 123	3.1 5.32 25.7	16.1 26.3 113	4.19 5.67 12		4.5 5.9 13.2	14
	63	53.5	43	150	18×26×22	3000	159.8 206 324.1	269.4 387.2 740.8	5.46 10.9 37.9	27.8 51.9 167	5.05 10.1 35	25.8 48 154	6.97 10.02 18.4		7.8 11 20.5	19.6

[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 A1-555 or A1-578)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See A1-248.)

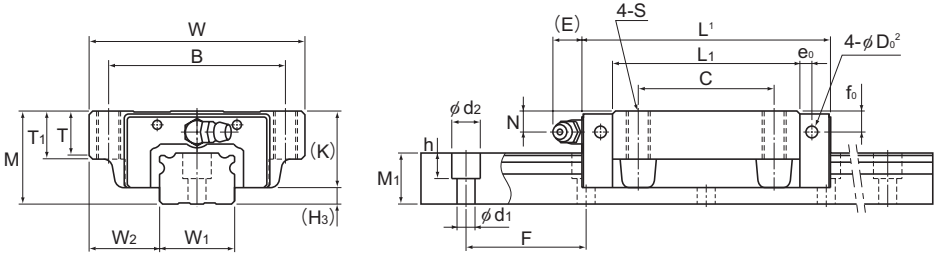
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on A1-63 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A1-12, Lubricant: see A24-2)

Options⇒A1-541

Models NR-A, NR-LA, NRS-A, and NRS-LA



Models NR-A and NRS-A

Model No.	Outer dimensions			LM block dimensions										Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L1	T	T1	K	N	E	Grease nipple	e0	f0	D0²[2]	H3
NR 75A NR 75LA	83	195	218 274	165	130	M18×30	170.2 226.2	28	30	68	18	16	B-PT1/8	9	17	8.2	15
NR 85A NR 85LA	90	215	246.7 302.8	185	140	M20×34	194.9 251	32	34	73	20	16	B-PT1/8	10	20	8.2	17
NR 100A NR 100LA	105	260	286.2 326.2	220	150 200	M20×38	223.4 263.4	35	38	85	23	10	B-PT1/4	12	23	8.2	20
NRS 75A NRS 75LA	83	195	218 274	165	130	M18×30	170.2 226.2	28	30	68	18	16	B-PT1/8	9	17	8.2	15
NRS 85A NRS 85LA	90	215	246.7 302.8	185	140	M20×34	194.9 251	32	34	73	20	16	B-PT1/8	10	20	8.2	17
NRS 100A NRS 100LA	105	260	286.2 326.2	220	150 200	M20×38	223.4 263.4	35	38	85	23	10	B-PT1/4	12	23	8.2	20

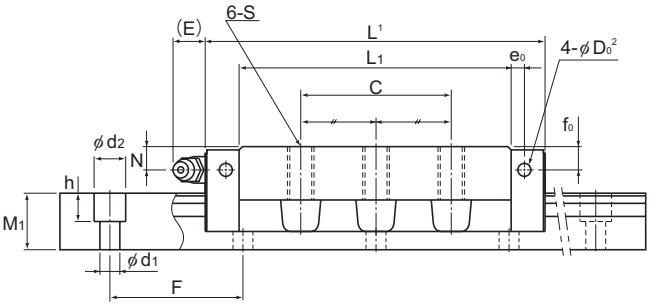
Model number coding

NR75 A 2 QZ KKHH C0 +1580L P Z T -II

- NR75: Model number
- A: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +1580L: LM rail length (in mm)
- P: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- Z: With plate cover or steel tape
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol, specify either plate cover or steel tape. See **A1-13** for number of rails used on the same plane.

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



Models NR-LA and NRS-LA

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	75	60	44	150	22×32×26	3000	271 355	610 800	14.4 25.4	73.3 118	8.91 15.4	44.7 71.4	19.3 25.2		11.3 15	24.6
	85	65	48	180	24×35×28	3000	336 435	751 972	20.3 34.7	102 160	12.4 21	62.6 96.2	26.8 34.6		16.2 20.7	30.5
	100	80	57	210	26×39×32	3000	479 599	1040 1300	34 47.3	167 238	20.7 29.2	101 146	43.4 54.6		26.7 31.2	42.6
	75	60	44	150	22×32×26	3000	212 278	431 566	10.6 18.6	53.8 87	10.6 18.6	53.8 87	13.4 17.6		11.3 15	24.6
	85	65	48	180	24×35×28	3000	264 342	531 687	14.9 25.4	75.3 117	14.9 25.4	75.3 117	18.7 24.2		16.2 20.7	30.5
	100	80	57	210	26×39×32	3000	376 470	737 920	25.1 34.6	123 174	25.1 34.6	123 174	30.4 38.1		26.7 31.2	42.6

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-248**.)

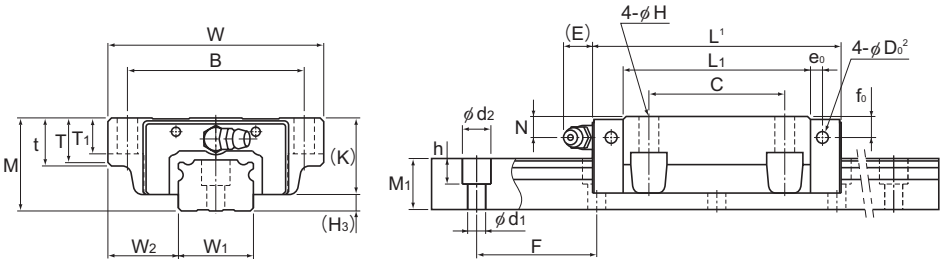
[4] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Models NR-B, NR-LB, NRS-B, and NRS-LB



Models NR-B and NRS-B

Model No.	Outer dimensions			LM block dimensions										Grease nipple	Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	H	L_1	t	T	T_1	K	N	E		e_0	f_0	D_0[2]	H_3
NR 75B NR 75LB	83	195	218 274	165	130	18	170.2 226.2	30	28	26	68	18	16	B-PT1/8	9	17	8.2	15
NR 85B NR 85LB	90	215	246.7 302.8	185	140	18	194.9 251	34	32	28	73	20	16	B-PT1/8	10	20	8.2	17
NR 100B NR 100LB	105	260	286.2 326.2	220	150 200	20	223.4 263.4	38	35	32	85	23	10	B-PT1/4	12	23	8.2	20
NRS 75B NRS 75LB	83	195	218 274	165	130	18	170.2 226.2	30	28	26	68	18	16	B-PT1/8	9	17	8.2	15
NRS 85B NRS 85LB	90	215	246.7 302.8	185	140	18	194.9 251	34	32	28	73	20	16	B-PT1/8	10	20	8.2	17
NRS 100B NRS 100LB	105	260	286.2 326.2	220	150 200	20	223.4 263.4	38	35	32	85	23	10	B-PT1/4	12	23	8.2	20

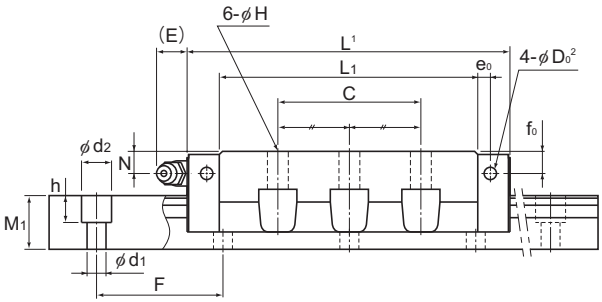
Model number coding

NR75 B 2 QZ DDHH C0 +1580L P Z T -II

- NR75: Model number
- B: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- DDHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +1580L: LM rail length (in mm)
- P: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- Z: With plate cover or steel tape
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-81** for accuracy symbol, specify either plate cover or steel tape. See **A1-13** for number of rails used on the same plane.

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



Models NR-LB and NRS-LB

Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	75	60	44	150	22×32×26	3000	271 355	610 800	14.4 25.4	73.3 118	8.91 15.4	44.7 71.4	19.3 25.2		11.3 15	24.6
	85	65	48	180	24×35×28	3000	336 435	751 972	20.3 34.7	102 160	12.4 21	62.6 96.2	26.8 34.6		16.2 20.7	30.5
	100	80	57	210	26×39×32	3000	479 599	1040 1300	34 47.3	167 238	20.7 29.2	101 146	43.4 54.6		26.7 31.2	42.6
	75	60	44	150	22×32×26	3000	212 278	431 566	10.6 18.6	53.8 87	10.6 18.6	53.8 87	13.4 17.6		11.3 15	24.6
	85	65	48	180	24×35×28	3000	264 342	531 687	14.9 25.4	75.3 117	14.9 25.4	75.3 117	18.7 24.2		16.2 20.7	30.5
	100	80	57	210	26×39×32	3000	376 470	737 920	25.1 34.6	123 174	25.1 34.6	123 174	30.4 38.1		26.7 31.2	42.6

[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 **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-248**.)

[4] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of models NR-X/NRS-X variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.

For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

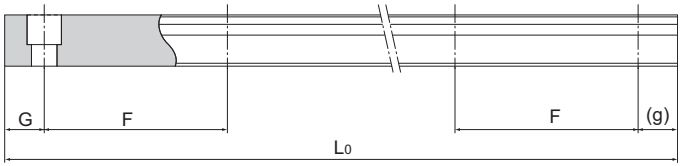


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Models NR-X/NRS-X

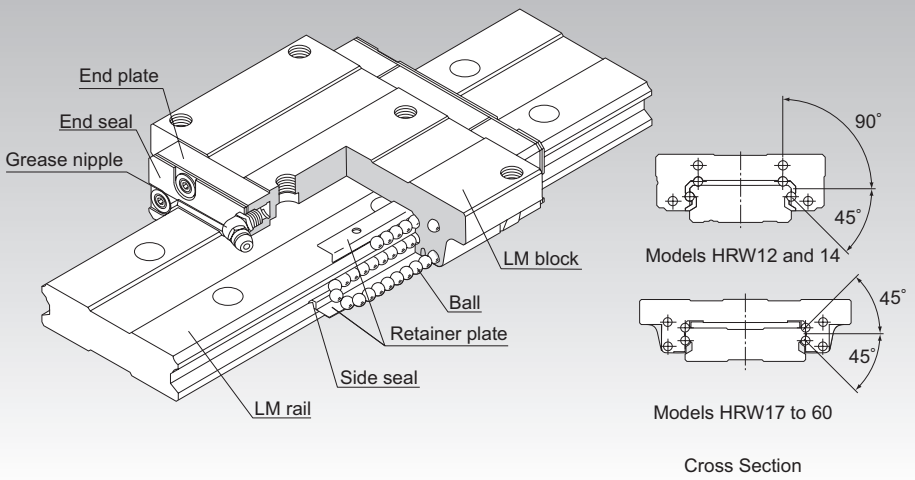
Unit: mm

Model No.	NR/NRS25X	NR/NRS30X	NR/NRS35X	NR/NRS45X	NR/NRS55X	NR/NRS65X	NR/NRS75	NR/NRS85	NR/NRS100
LM rail standard lengths (L_0)	230	280	280	570	780	1270	1280	1530	1340
	270	360	360	675	900	1570	1580	1890	1760
	350	440	440	780	1020	2020	2030	2250	2180
	390	520	520	885	1140	2620	2630	2610	2600
	470	600	600	990	1260				
	510	680	680	1095	1380				
	590	760	760	1200	1500				
	630	840	840	1305	1620				
	710	920	920	1410	1740				
	750	1000	1000	1515	1860				
	830	1080	1080	1620	1980				
	950	1160	1160	1725	2100				
	990	1240	1240	1830	2220				
	1070	1320	1320	1935	2340				
	1110	1400	1400	2040	2460				
	1190	1480	1480	2145	2580				
	1230	1560	1560	2250	2700				
	1310	1640	1640	2355	2820				
	1350	1720	1720	2460	2940				
	1430	1800	1800	2565	3060				
	1470	1880	1880	2670					
	1550	1960	1960	2775					
	1590	2040	2040	2880					
	1710	2200	2200	2985					
	1830	2360	2360	3090					
	1950	2520	2520						
	2070	2680	2680						
	2190	2840	2840						
	2310	3000	3000						
	2430								
	2470								
Standard pitch F	40	80	80	105	120	150	150	180	210
G, g	15	20	20	22.5	30	35	40	45	40
Max length	3000	3000	3000	3090	3060	3000	3000	3000	3000

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

HRW

Wide-Rail LM Guide Model HRW



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-76
Accuracy Standards A1-81
Shoulder Height of the Mounting Base and the Corner Radius A1-529
Reference Error Tolerance for the Mounting Surface A1-533
Dimensions of Each Model with Options Attached A1-555

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 (except models HRW 12 and 14LR).
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. In addition, the LM block can receive a well-balanced preload, increasing the rigidity in the four directions while maintaining a constantly low friction coefficient. The LM rail is wide and has a low center of gravity with a low overall height, so it can be used as a single axis in locations where space is limited or where high rigidity is required due to moment loads.

Compact with Large Load Capacity

Because of the large number of load-bearing balls, this model is highly rigid in all directions. The LM rail is wide and sufficient to receive a moment load even in a single rail configuration.
Additionally, since the secondary cross-sectional moment of inertia of the LM rail is large, the rigidity in the lateral directions is also high. Accordingly, it does not need reinforcement such as a side support.

Self-Adjustment Capability

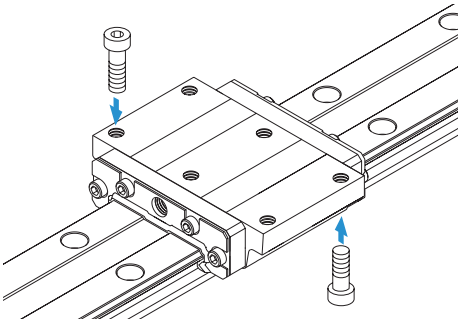
The self-adjustment capability of the front-to-front configuration of THK's unique circular-arc grooves (DF set) enables mounting error to be absorbed even under a preload, thus achieving highly accurate and smooth linear motion.

Types and Features

Model HRW-CA

Dimensional Table⇒A1-254

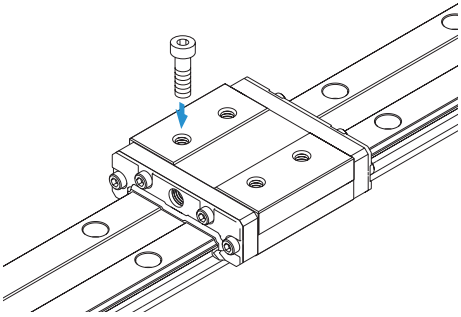
The flange of the LM block has tapped holes.
It can be mounted from the top or the bottom.



Model HRW-CR

Dimensional Table⇒A1-256

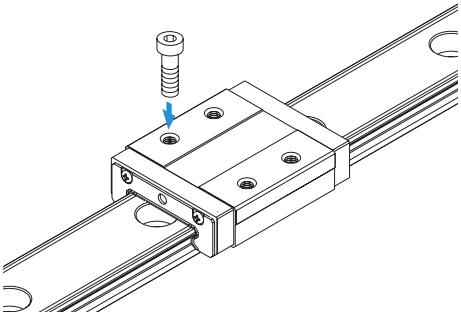
Models HRW17/21CR have four tapped holes in the LM block. Models HRW27/35/50CR have six tapped holes in the LM block.



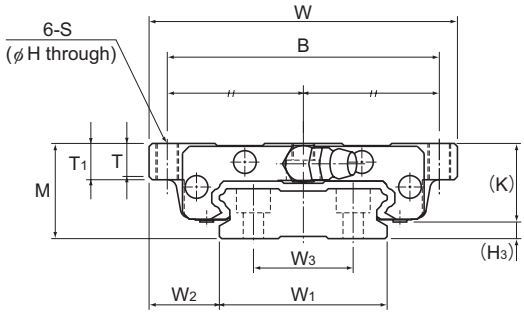
Miniature Model HRW-LRM

Dimensional Table⇒A1-256

The LM block has tapped holes.



Models HRW-CA and HRW-CAM



Model No.	Outer dimensions			LM block dimensions										Grease nipple	H_3
	Height M	Width W	Length[1] L	B	C	H	S	L_1	T	T_1	K	N	E		
HRW 17CA HRW 17CAM	17	60	50.8	53	26	3.3	M4	33.6	5.5	6	14.5	4	2	PB107	2.5
HRW 21CA HRW 21CAM	21	68	58.8	60	29	4.4	M5	40	7.3	8	18	4.5	12	B-M6F	3
HRW 27CA HRW 27CAM	27	80	72.8	70	40	5.3	M6	51.8	9.5	10	24	6	12	B-M6F	3
HRW 35CA HRW 35CAM	35	120	106.6	107	60	6.8	M8	77.6	13	14	31	8	12	B-M6F	4
HRW 50CA	50	162	140.5	144	80	8.6	M10	103.5	16.5	18	46.6	14	16	B-PT1/8	3.4
HRW 60CA	60	200	158.9	180	80	10.5	M12	117.5	23.5	25	53.5	15	16	B-PT1/8	6.5

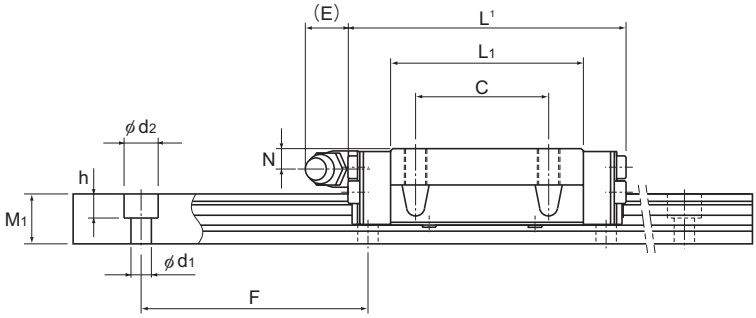
Model number coding

HRW35 CA 2 UU C1 M +1000L P T M

- HRW35: Model number
- CA: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- M: Stainless steel LM block
- +1000L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail

Notes: See contamination protection accessories on A1-584. See A1-76 for radial clearance symbol. See A1-81 for accuracy symbol.

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



Unit: mm

	LM rail dimensions							Basic load rating		Static permissible moment kN·m[3]					Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	W_3	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	33	13.5	18	9	40	4.5×7.5×5.3	1900 (800)	5.53	9.1	0.0464	0.272	0.0464	0.272	0.144	0.15	2.1
	37	15.5	22	11	50	4.5×7.5×5.3	3000 (1000)	8.02	12.9	0.0784	0.445	0.0784	0.445	0.219	0.25	2.9
	42	19	24	15	60	4.5×7.5×5.3	3000 (1200)	14.2	21.6	0.166	0.923	0.166	0.923	0.423	0.5	4.3
	69	25.5	40	19	80	7×11×9	3000 (2120)	33.8	48.6	0.559	3.03	0.559	3.03	1.59	1.4	9.9
	90	36	60	24	80	9×14×12	3000	62.4	86.3	1.32	7.08	1.32	7.08	3.67	4	14.6
	120	40	80	31	105	11×17.5×14	3000	80.3	109	1.88	10.1	1.88	10.1	6.17	5.7	27.8

[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 **A1-555** or **A1-578**)

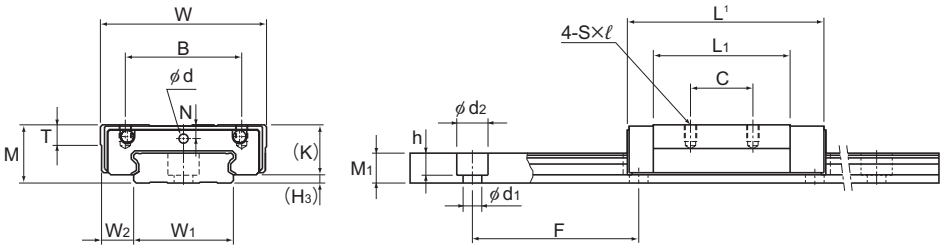
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-258**.)

[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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel. The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Models HRW-CR, HRW-CRM, and HRW-LRM



Models HRW12 and 14LRM

Model No.	Outer dimensions			LM block dimensions											
	Height	Width	Length[1]									Lubrication hole	Grease nipple	
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E	d		H_3
HRW 12LRM	12	30	37	21	12	M3×3.5	27	4	10	2.8	—	2.2	—	2
HRW 14LRM	14	40	45.5	28	15	M3×4	32.9	5	12	3.3	—	2.2	—	2
HRW 17CR HRW 17CRM	17	50	50.8	29	15	M4×5	33.6	6	14.5	4	2	—	PB107	2.5
HRW 21CR HRW 21CRM	21	54	58.8	31	19	M5×6	40	8	18	4.5	12	—	B-M6F	3
HRW 27CR HRW 27CRM	27	62	72.8	46	32	M6×6	51.8	10	24	6	12	—	B-M6F	3
HRW 35CR HRW 35CRM	35	100	106.6	76	50	M8×8	77.6	14	31	8	12	—	B-M6F	4
HRW 50 CR	50	130	140.5	100	65	M10×15	103.5	18	46.6	14	16	—	B-PT1/8	3.4

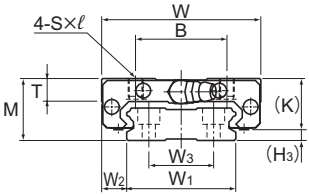
Model number coding

HRW27 CR 2 UU C1 M +820L P T M

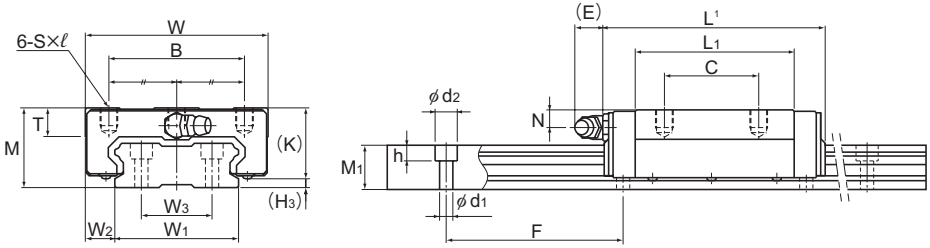
- HRW27: Model number
- CR: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- M: Stainless steel LM block
- +820L: LM rail length (in mm)
- P: Symbol for LM rail jointed use
- T: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- M: Stainless steel LM rail

Notes: See contamination protection accessories on **A1-584**. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol.

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



Models HRW17 and 21CR/CRM



Models HRW27, 35CR/CRM, and HRW50CR

Unit: mm

	LM rail dimensions							Basic load rating[3]		Static permissible moment kN·m [4]					Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	W_3	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	18	6	—	6.5	40	4.5×8×4.5	(1000)	3.29	7.16	0.0262	0.138	0.013	0.069	0.051	0.045	0.79
	24	8	—	7.2	40	4.5×7.5×5.3	(1430)	5.38	11.4	0.0499	0.273	0.025	0.137	0.112	0.08	1.2
	33	8.5	18	9	40	4.5×7.5×5.3	1900 (800)	5.53	9.1	0.0464	0.272	0.0464	0.272	0.144	0.12	2.1
	37	8.5	22	11	50	4.5×7.5×5.3	3000 (1000)	8.02	12.9	0.0784	0.445	0.0784	0.445	0.219	0.19	2.9
	42	10	24	15	60	4.5×7.5×5.3	3000 (1200)	14.2	21.6	0.166	0.923	0.166	0.923	0.423	0.37	4.3
	69	15.5	40	19	80	7×11×9	3000 (2120)	33.8	48.6	0.559	3.03	0.559	3.03	1.59	1.2	9.9
	90	20	60	24	80	9×14×12	3000	62.4	86.3	1.32	7.08	1.32	7.08	3.67	3.2	14.6

[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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-258**.)

[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[4] 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

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard and maximum lengths of the HRW model rail. If a rail length longer than the listed max length is required, rails may be jointed to meet the overall length. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

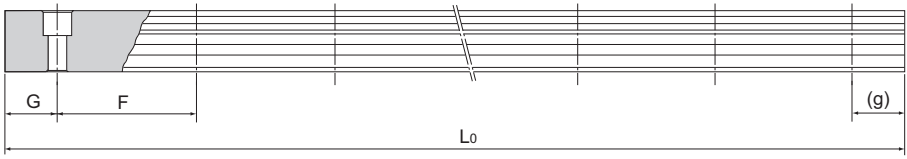


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model HRW

Unit: mm

Model No.	HRW 12	HRW 14	HRW 17	HRW 21	HRW 27	HRW 35	HRW 50	HRW 60
LM rail standard lengths (L_0)	70 110 150 190 230 270 310 390 470	70 110 150 190 230 270 310 390 470 550 670	110 190 310 470 550	130 230 380 480 580 780	160 280 340 460 640 820	280 440 760 1000 1240 1560	280 440 760 1000 1240 1640 2040	570 885 1200 1620 2040 2460
Standard pitch F	40	40	40	50	60	80	80	105
G, g	15	15	15	15	20	20	20	22.5
Max length	(1000)	(1430)	1900 (800)	3000 (1000)	3000 (1200)	3000 (2120)	3000	3000

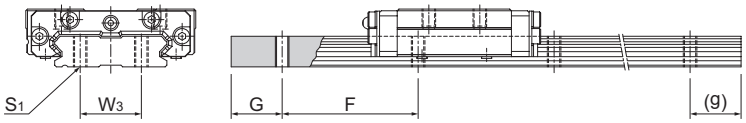
Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Preventing the LM Block from Falling off of the LM Rail

In miniature model HRW, the balls fall out if the LM block comes off the LM rail.
For this reason, LM Guide assemblies are delivered with a part which prevents the LM block from coming off the rail. If you remove this part when using the product, please take precautions to avoid overrunning the blocks off of the rail.

Tapped-Hole Type LM Rail

Model HRW rails also include a type where the LM rail is tapped. This type is useful when mounting from the bottom of the base.



(1) A tapped-hole LM rail type is available only for Precision grade or lower grades.
(2) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-258.

Table 2: Dimensions of the LM Rail Tap

Unit: mm

Model No.	W_3	S_1
HRW 12	—	M4 through
HRW 14	—	M4 through
HRW 17	18	M4 through
HRW 21	22	M4 through

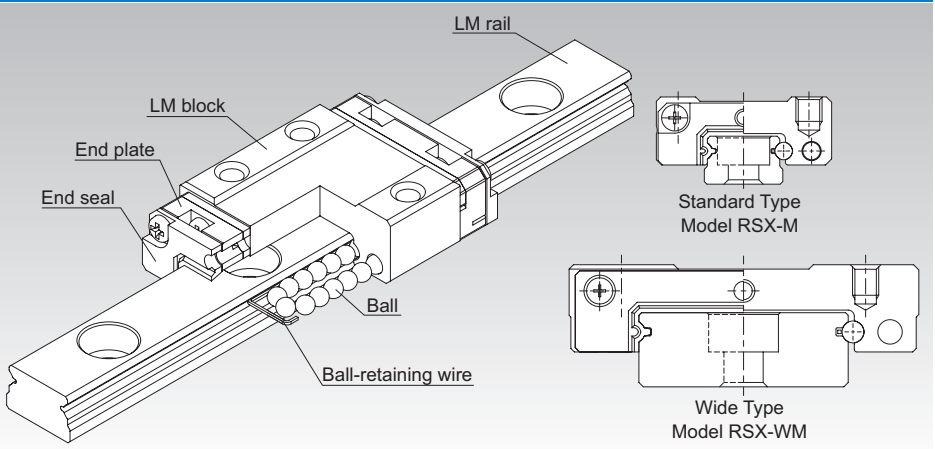
Model number coding

HRW17CA2UU+550LH W

Symbol for tapped-hole LM rail

RSX

Miniature LM Guide Model RSX



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-75
Accuracy Standards A1-87
Shoulder Height of the Mounting Base and the Corner Radius A1-531
Reference Error Tolerance for the Mounting Surface A1-533
Flatness of the Mounting Surface A1-534
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in two 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 recirculate. The Model RSX uses two rows of raceways, and it can help reduce the size of a device because it has more compact outer dimensions than models with four raceways. In addition, despite its compact size, the ball contact structure can take loads in each direction, so it can be used with a single axis in locations where moments are applied.

Super Compact

The LM rail has one raceway on each side, and its compact design with low cross-sectional height allows it to be installed in locations with limited space.

Corrosion Prevention

The LM rail, LM block, and balls are made of stainless steel, which has high corrosion resistance.

Retains Balls

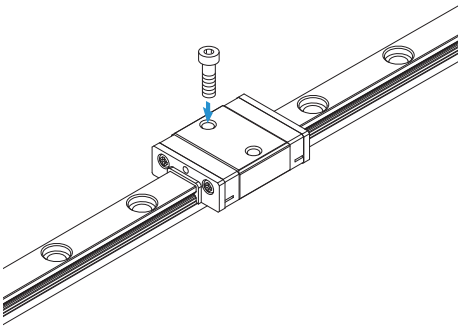
This model incorporates a ball-retaining wire that prevents balls from falling out when the LM block is removed from and inserted onto the LM rail, making mounting easy.

Types and Features

Model RSX5M

Dimensional Table⇒A1-266

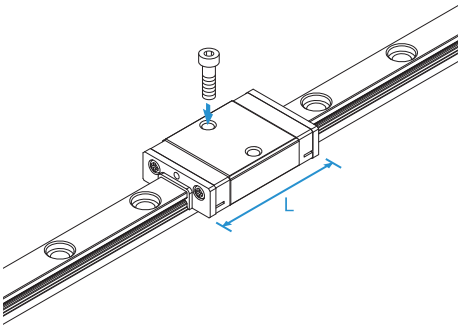
This is the smallest model of RSX.



Model RSX5NM

Dimensional Table⇒A1-266

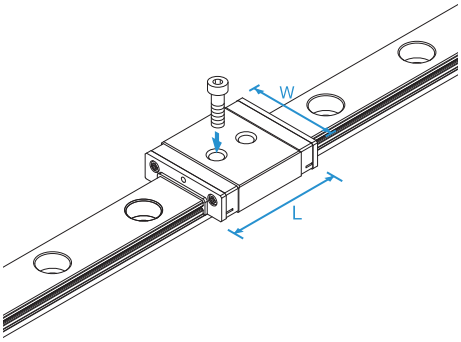
This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX5M.



Model RSX5WM

Dimensional Table⇒A1-270

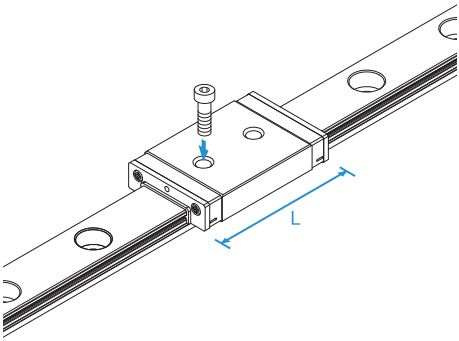
This type has a longer overall LM block length (L), a greater width, and a larger load rating and permissible moment than the Model RSX5M.



Model RSX5WNM

Dimensional Table⇒A1-270

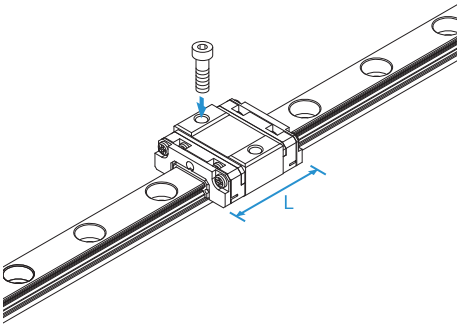
This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX5WM.



Model RSX-SM

Dimensional Table⇒A1-266

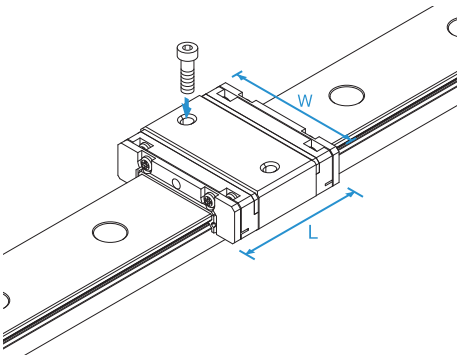
This type has a shorter overall LM block length (L) than the Model RSX-M.



Model RSX-WSM

Dimensional Table⇒A1-270

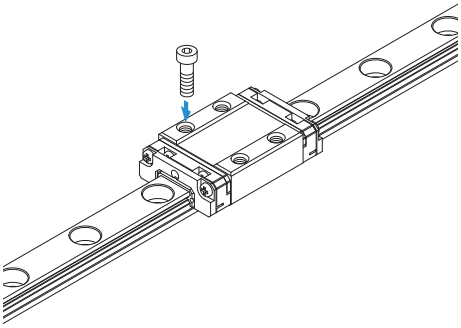
This type has a longer overall LM block length (L), a greater width, and a larger load rating and permissible moment than the Model RSX-SM.



Model RSX-M

Dimensional Table⇒A1-266

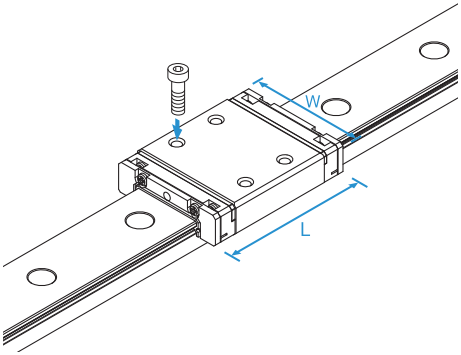
This is the standard type of RSX.



Model RSX-WM

Dimensional Table⇒A1-270

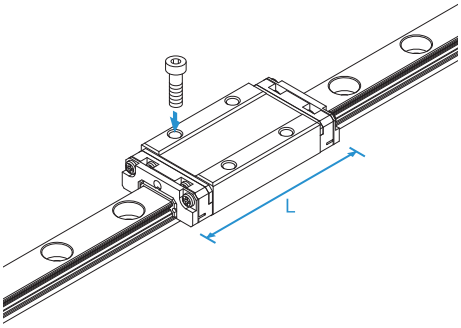
This type has a longer overall LM block length (L), a greater width and a larger load rating and permissible moment than RSX-M.



Model RSX-NM

Dimensional Table⇒A1-266

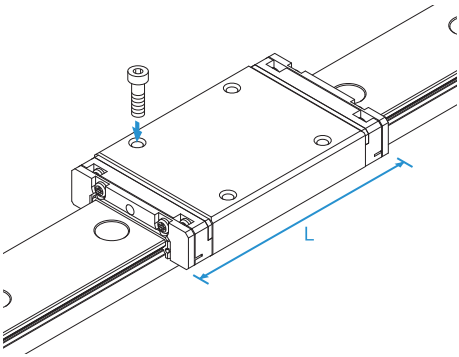
This type has a longer overall LM block length (L) and a larger load rating and permissible moment than the Model RSX-M.



Model RSX-WNM

Dimensional Table⇒A1-270

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



Flatness of the LM Rail and the LM Block Mounting Surface

Since the Model RSX has Gothic-arch grooves, any precision errors in the mounting surface may negatively affect its operability. Therefore, we recommend using it on mounting surfaces made with high precision.

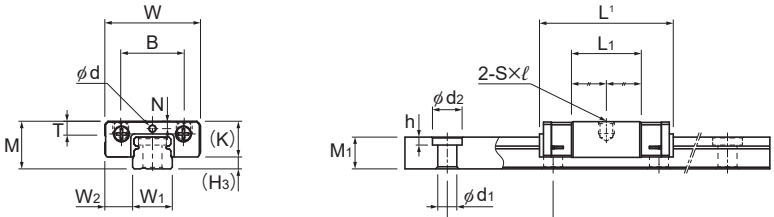
Table 1: Flatness of the LM Rail and the LM Block Mounting Surface

Unit: mm

Model No.	Flatness error
RSX 5	0.015/200
RSX 7	0.025/200
RSX 9	0.035/200
RSX 12	0.050/200
RSX 15	0.060/200
RSX 20	0.070/200
RSX 25	0.070/200

Notes: As there are many cases in which the mounting surface precision is affected by a number of factors, we recommend using 70% or less of the values shown. The above figures apply to normal clearances. When using two or more rails with C1 clearance, we recommend using 50% or less of the values shown.

Models RSX-SM, RSX-M, and RSX-NM



Models RSX5M/NM

Model No.	Outer dimensions			LM block dimensions								
	Height	Width	Length[1]								Lubrication hole	
	M	W	L	B	C	S×ℓ	L_1	T	K	N	d	H_3
RSX 5M	6	12	16.9	8	—	M2×1.5	8.8	—	4.5	0.93	0.8	1.5
RSX 5NM	6	12	20.1	8	—	M2×1.5	12	—	4.5	0.93	0.8	1.5
RSX 7SM	8	17	19	12	—	M2×2.6	9	—	6.5	1.7	1.2	1.5
RSX 7M	8	17	23.4	12	8	M2×2.6	13.4	—	6.5	1.7	1.2	1.5
RSX 7NM	8	17	31	12	13	M2×2.6	21	—	6.5	1.7	1.2	1.5
RSX 9SM	10	20	21.5	15	—	M3×2.8	10.5	—	7.8	2.4	1.6	2.2
RSX 9M	10	20	30.8	15	10	M3×2.8	19.8	—	7.8	2.4	1.6	2.2
RSX 9NM	10	20	40.8	15	16	M3×2.8	29.8	—	7.8	2.4	1.6	2.2
RSX 12SM	13	27	25.6	20	—	M3×3.5	11.2	5.3	10	3	2	3
RSX 12M	13	27	35	20	15	M3×3.5	20.6	5.3	10	3	2	3
RSX 12NM	13	27	47.7	20	20	M3×3.5	33.3	5.3	10	3	2	3

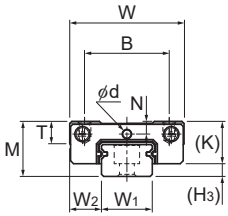
Model number coding

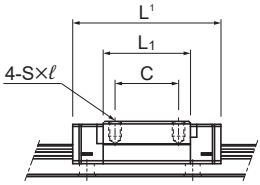
2 RSX12M UU C1 +220L P M -II

- 2: No. of LM blocks used on the same rail
- RSX12M: Model number
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- +220L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H)/Precision grade (P)
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

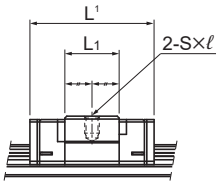
Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
No symbol for single LM block. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-87** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Models RSX7 to 12M/NM



Models RSX7 to 12SM

Unit: mm

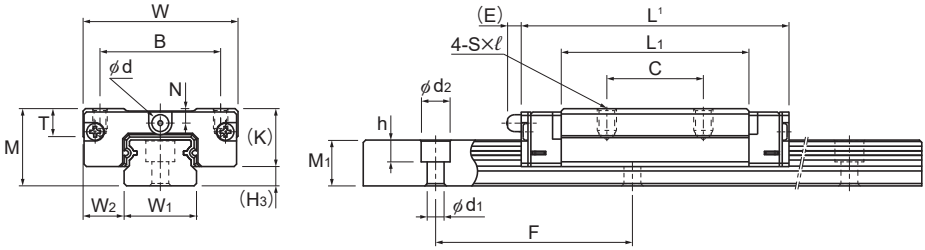
	LM rail dimensions						Basic load rating[3]		Static permissible moment N·m[4]					Mass	
	Width		Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 $^{0}_{-0.02}$	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	5	3.5	4	15	2.4×3.5×1	220	0.37	0.53	0.789	5.79	0.923	6.79	1.38	0.002	0.136
	5	3.5	4	15	2.4×3.5×1	220	0.45	0.7	1.34	8.78	1.56	10.3	1.82	0.003	0.136
	7	5	4.7	15	2.4×4.2×2.3	480	0.95	1.16	1.96	14.7	2.25	16.9	4.49	0.005	0.227
	7	5	4.7	15	2.4×4.2×2.3	480	1.16	1.54	3.27	23.1	3.77	26.7	5.96	0.008	0.227
	7	5	4.7	15	2.4×4.2×2.3	480	1.63	2.51	8.08	48.4	9.32	56	9.71	0.012	0.227
	9	5.5	5.5	20	3.5×6×3.3	1240	1.37	1.53	2.85	22.6	3.27	26	7.04	0.008	0.32
	9	5.5	5.5	20	3.5×6×3.3	1240	2.22	3.06	9.87	57.9	11.4	66.9	14.1	0.018	0.32
	9	5.5	5.5	20	3.5×6×3.3	1240	2.94	4.59	21.1	111	24.4	128	21.1	0.024	0.32
	12	7.5	7.5	25	3.5×6×4.5	2000	2.07	2.1	4.17	38.1	4.17	38.1	13.8	0.015	0.65
	12	7.5	7.5	25	3.5×6×4.5	2000	3.36	4.21	14.2	92.5	14.2	92.5	27.6	0.037	0.65
	12	7.5	7.5	25	3.5×6×4.5	2000	4.72	6.83	34.8	195	34.8	195	44.7	0.047	0.65

[1] Length L is for when the contamination protection accessory symbol is UU.
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-272**.)
[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] 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

Notes: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment.
Using a lubrication hole other than for greasing may cause damage.
To secure the LM rail of Model RSX5, use M2 cross-recessed head screws for precision equipment (No. 0 pan head screw, class 1).

Options⇒A1-541

Models RSX-SM, RSX-M, and RSX-NM



Models RSX15 to 25M/NM

Model No.	Outer dimensions			LM block dimensions									
	Height	Width	Length[1]									Grease nipple	
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E		H_3
RSX 15SM	16	32	31.9	25	—	M3×4	14.7	5.8	12	3	4	PB107	4
RSX 15M	16	32	42.9	25	20	M3×4	25.7	5.8	12	3	4	PB107	4
RSX 15NM	16	32	60.7	25	25	M3×4	43.5	5.8	12	3	4	PB107	4
RSX 20SM	20	40	38	30	—	M4×6	22	9	15	4	4	PB107	5
RSX 20M	20	40	50	30	25	M4×6	34	9	15	4	4	PB107	5
RSX 20NM	20	40	68	30	30	M4×6	52	9	15	4	4	PB107	5
RSX 25SM	25	48	54.5	35	—	M6×7	33.5	11	20	5	4	PB1021B	5
RSX 25M	25	48	77	35	35	M6×7	56	11	20	5	4	PB1021B	5
RSX 25NM	25	48	98	35	40	M6×7	77	11	20	5	4	PB1021B	5

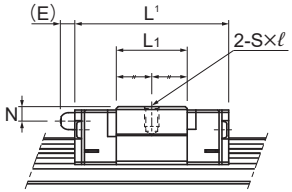
Model number coding

2 RSX20M UU C1 +460L P M -II

- 2: No. of LM blocks used on the same rail
- RSX20M: Model number
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- +460L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H)/Precision grade (P)
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
No symbol for single LM block. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-87** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Models RSX15 to 25SM

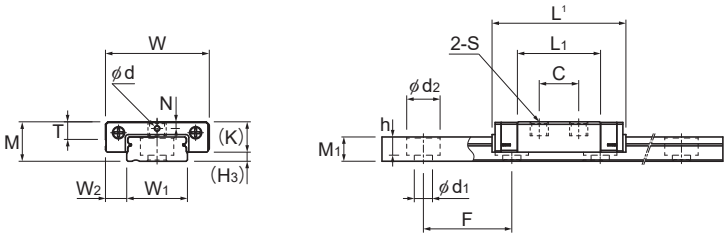
Unit: mm

	LM rail dimensions						Basic load rating[3]		Static permissible moment N·m[4]						Mass	
	Width		Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15 $^{0}_{-0.02}$	8.5	9.5	40	3.5×6×4.5	2000	4.01	4.24	12.6	92.6	12.6	92.6	30.1		0.03	0.96
	15 $^{0}_{-0.02}$	8.5	9.5	40	3.5×6×4.5	2000	5.59	6.78	29	186	29	186	48.1		0.069	0.96
	15 $^{0}_{-0.02}$	8.5	9.5	40	3.5×6×4.5	2000	8.27	11.8	82.1	432	82.1	432	84.3		0.089	0.96
	20 $^{0}_{-0.03}$	10	11	60	6×9.5×8	1800	4.63	5.4	20.6	131	24.7	158	57.8		0.07	1.59
	20 $^{0}_{-0.03}$	10	11	60	6×9.5×8	1800	6.35	8.48	47.2	256	56.7	309	90.8		0.1	1.59
	20 $^{0}_{-0.03}$	10	11	60	6×9.5×8	1800	8.26	12.3	95.4	493	115	596	131		0.16	1.59
	23 $^{0}_{-0.03}$	12.5	15	60	7×11×9	1800	9.02	10.6	56.6	368	56.6	368	130		0.16	2.48
	23 $^{0}_{-0.03}$	12.5	15	60	7×11×9	1800	13.3	18.6	160	855	160	855	228		0.27	2.48
	23 $^{0}_{-0.03}$	12.5	15	60	7×11×9	1800	16.5	25.2	287	1449	287	1449	309		0.37	2.48

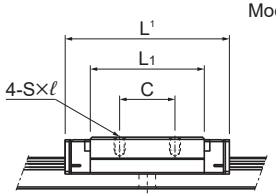
[1] Length L is for when the contamination protection accessory symbol is UU.
[2] The maximum length indicates the standard maximum length of an LM rail. (See A1-272.)
[3] The basic load rating is for a load in the radial direction.
Use Table 7 on A1-63 to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] 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
Note: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment.
Model RSX20 and 25 end plates do not have a slit on the side.

Options⇒A1-541

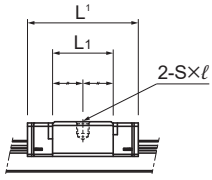
Models RSX-WSM, RSX-WM, and RSX-WNM



Models RSX5WM/WNM



Models RSX7 to 12WM/WNM



Models RSX7 to 12WSM

Model No.	Outer dimensions			LM block dimensions										H_3
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E	Lubrication hole d	Grease nipple	
RSX 5WM	6.5	17	22.1	—	6.5	M3 through	13.7	—	5	1.1	—	0.8	—	1.5
RSX 5WNM	6.5	17	28.1	—	11	M3 through	19.7	—	5	1.1	—	0.8	—	1.5
RSX 7WSM	9	25	22.5	19	—	M3×2.8	11.9	—	7	1.8	—	1.2	—	2
RSX 7WM	9	25	31	19	10	M3×2.8	20.4	—	7	1.8	—	1.2	—	2
RSX 7WNM	9	25	40.9	19	17	M3×2.8	30.3	—	7	1.8	—	1.2	—	2
RSX 9WSM	12	30	26.5	21	—	M3×2.8	14.5	—	8.3	2.3	—	1.6	—	3.7
RSX 9WM	12	30	39	21	12	M3×2.8	27	—	8.3	2.3	—	1.6	—	3.7
RSX 9WNM	12	30	50.7	23	24	M3×2.8	38.7	—	8.3	2.3	—	1.6	—	3.7
RSX 12WSM	14	40	30.5	28	—	M3×3.5	16.9	4.5	10	3	—	2	—	4
RSX 12WM	14	40	44.5	28	15	M3×3.5	30.9	4.5	10	3	—	2	—	4
RSX 12WNM	14	40	59.5	28	28	M3×3.5	45.9	4.5	10	3	—	2	—	4
RSX 15WSM	16	60	41.5	45	—	M4×4.5	24.9	5.6	12	3	4	—	PB107	4
RSX 15WM	16	60	55.5	45	20	M4×4.5	38.9	5.6	12	3	4	—	PB107	4
RSX 15WNM	16	60	74.5	45	35	M4×4.5	57.9	5.6	12	3	4	—	PB107	4

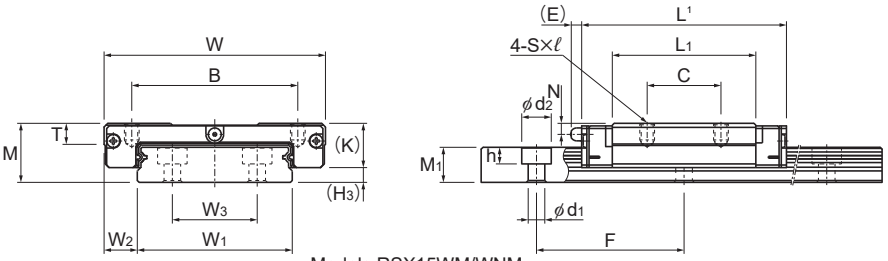
Model number coding

2 RSX12WM UU C1 +230L P M -II

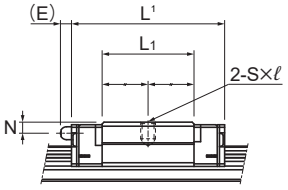
- 2: No. of LM blocks used on the same rail
- RSX12WM: Model number
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol) / Light preload (C1)
- +230L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H) / Precision grade (P)
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
No symbol for single LM block. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-87** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Models RSX15WM/WNM



Model RSX15WSM

Unit: mm

LM rail dimensions							Basic load rating[3]		Static permissible moment N·m[4]					Mass	
Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		M_C	LM block	LM rail
$W_1{}^{0}_{-0.02}$	W_2	W_3	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
10	3.5	—	4	20	3×5.5×3	220	0.5	0.82	1.79	11.1	2.1	13	4.18	0.006	0.276
10	3.5	—	4	20	3×5.5×3	220	0.64	1.17	3.54	19.6	4.15	23	5.97	0.008	0.276
14	5.5	—	5.2	30	3.5×6×3.2	480	1.06	1.35	2.58	20	2.96	23.1	9.95	0.011	0.54
14	5.5	—	5.2	30	3.5×6×3.2	480	1.63	2.51	8.08	46.9	9.32	54.2	18.5	0.018	0.54
14	5.5	—	5.2	30	3.5×6×3.2	480	2.12	3.66	16.6	87.7	19.2	101	27	0.027	0.54
18	6	—	7.5	30	3.5×6×4.5	1430	1.73	2.14	5.15	36.9	5.92	42.6	20.2	0.018	1.01
18	6	—	7.5	30	3.5×6×4.5	1430	2.8	4.28	18.5	99.3	21.4	115	40.5	0.035	1.01
18	6	—	7.5	30	3.5×6×4.5	1430	3.48	5.81	33.2	172	38.3	199	54.9	0.048	1.01
24	8	—	8.5	40	4.5×8×4.5	2000	3.05	3.68	11.1	72.6	11.1	72.6	46.2	0.033	1.52
24	8	—	8.5	40	4.5×8×4.5	2000	4.46	6.31	30	171	30	171	79.2	0.075	1.52
24	8	—	8.5	40	4.5×8×4.5	2000	5.93	9.46	64.7	332	64.7	332	119	0.091	1.52
42	9	23	9.5	40	4.5×8×4.5	2000	5.59	6.78	29	178	29	178	140	0.083	2.87
42	9	23	9.5	40	4.5×8×4.5	2000	7.43	10.1	61.4	343	61.4	343	211	0.17	2.87
42	9	23	9.5	40	4.5×8×4.5	2000	9.87	15.2	133	670	133	670	316	0.195	2.87

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-272**.)
[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] 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

Notes: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment.
Using a lubrication hole other than for greasing may cause damage.

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 2 shows the standard lengths and the maximum lengths of model RSX variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimension from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

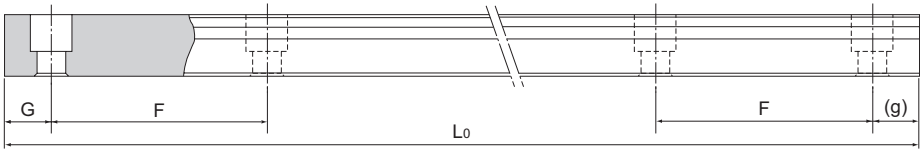


Table 2: Standard Lengths and Maximum Lengths of LM Rails for Model RSX

Unit: mm

Model No.	RSX 5	RSX 5W	RSX 7	RSX 7W	RSX 9	RSX 9W	RSX 12	RSX 12W	RSX 15	RSX 15W	RSX 20	RSX 25
LM rail standard lengths (L_0)	40 55 70 100 130 160	50 70 90 110 130 150 170	40 55 70 85 100 115 130	50 80 110 140 170 200 260 290	55 75 95 115 135 155 175 195 275 375	50 80 110 140 170 200 260 290 320	70 95 120 145 170 195 220 245 270 320 370 470 570	70 110 150 190 230 270 310 390 470 550	70 110 150 190 230 270 310 350 390 430 470 550 670 870	110 150 190 230 270 310 430 550 670 790	220 280 340 460 640 880 1000	220 280 340 460 640 880 1000
Standard pitch F	15	20	15	30	20	30	25	40	40	40	60	60
G, g	5	5	5	10	7.5	10	10	15	15	15	20	20
Max length	220	220	480	480	1240	1430	2000	2000	2000	2000	1800	1800

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Reference bolt tightening torques when mounting an LM block

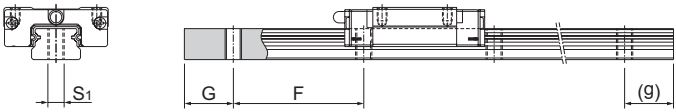
Reference bolt-tightening torques when mounting an LM block for Model RSX are shown in Table 3. Tightening above the tightening torque affects accuracy. Be sure to tighten at or below the defined tightening torque.

Table 3: Reference tightening torque

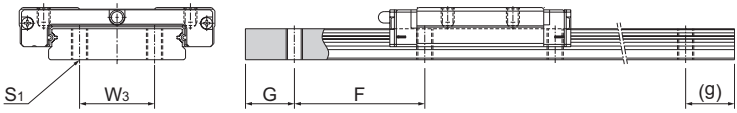
Model No.	Model No. of screw	Screw depth (mm)	Reference tightening torque (N·m)
RSX 5	M2	1.5	0.4
RSX 5W	M2	1.5	0.4
RSX 7	M2	2.3	0.4
RSX 7W	M2	2.8	0.4

Tapped-Hole Type LM Rail

Model RSX rails also include a type where the LM rail is tapped. This type is useful when mounting from the bottom of the base.



Model RSX



Model RSX-W

(1) For standard pitches of the taps and the G and g dimensions, see Table 2 on A1-272.

Table 4: Dimensions of the LM Rail Tap (Model RSX)
Unit: mm

Model No.	S_1
RSX 5	M2.6 through
RSX 7	M3 through
RSX 9	M4 through
RSX 12	M4 through
RSX 15	M5 through
RSX 20	M6 through
RSX 25	M6 through

Table 5: Dimensions of the LM Rail Tap (Model RSX-W)
Unit: mm

Model No.	W_3	S_1
RSX 5W	—	M3 through
RSX 7W	—	M4 through
RSX 9W	—	M4 through
RSX 12W	—	M5 through
RSX 15W	23	M5 through

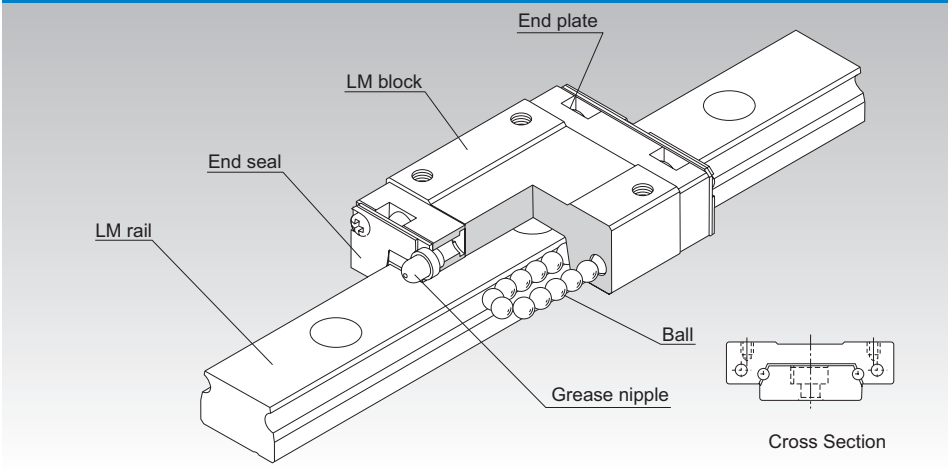
Model number coding

RSX12MUUC1+550LH W

Symbol for tapped-hole LM rail

RSR

Miniature LM Guide Model RSR



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-76
Accuracy Standards A1-87
Shoulder Height of the Mounting Base and the Corner Radius A1-531
Reference Error Tolerance for the Mounting Surface A1-533
Flatness of the Mounting Surface A1-534
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in two 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 balls circulate in a compact structure, the LM Block is able to provide infinite linear motion and thus infinite stroke.
The LM block is designed to have high rigidity in a limited space, and in combination with large-diameter balls, it demonstrates high rigidity in all directions.

Super Compact

This model is a highly reliable LM System because it is not susceptible to cage displacement, a problem common in cross-roller guides, ball slides, and other products with finite stroke.

Capable of Receiving a Load in Any Direction

This model is capable of receiving loads in all directions, and a single-rail guide can adequately operate under a small moment load. Model RSR-W, in particular, has a greater number of load-bearing balls and a broader LM rail to increase its rigidity against a moment. This allows it to achieve linear motion with a more compact structure and greater durability than a pair of parallel linear bushes.

Corrosion Prevention

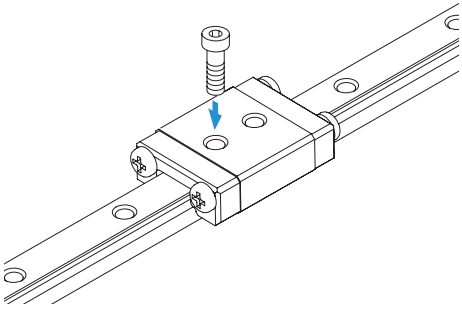
The LM rail, LM block, and balls are made of stainless steel, which has high corrosion resistance.

Types and Features

Model RSR-M

Dimensional Table⇒A1-278

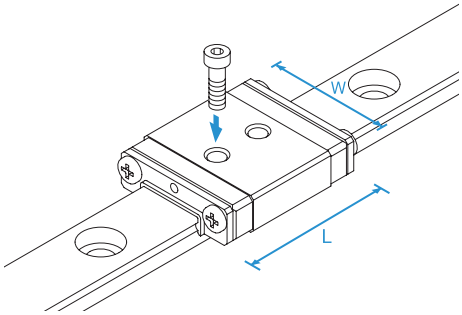
This model is the standard type.



Model RSR-WM

Dimensional Table⇒A1-278

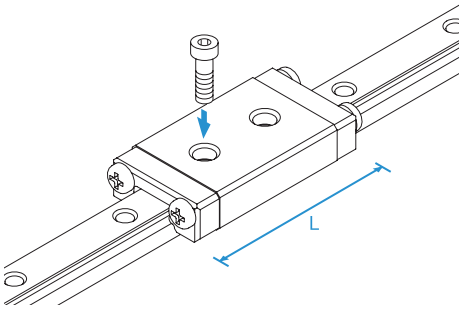
This model has a broader width (W), greater overall length (L), and greater load rating and permissible moment than the Model RSR-M.



Model RSR-N

Dimensional Table⇒A1-278

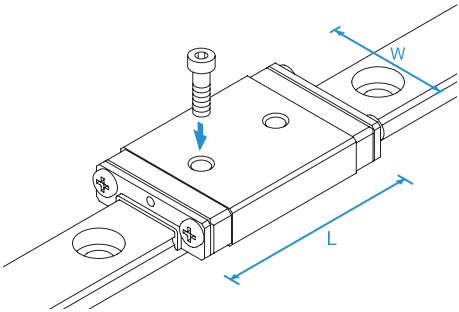
This model has a longer overall LM block length (L) and a greater load rating.



Model RSR-WN

Dimensional Table⇒A1-278

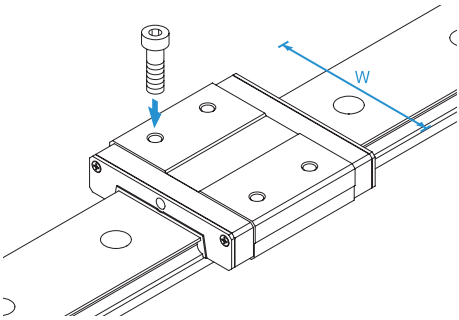
This model has a broader width (W), greater overall length (L), and greater load rating and permissible moment than the Model RSR-N.



Model RSR14WVM

Dimensional Table⇒A1-278

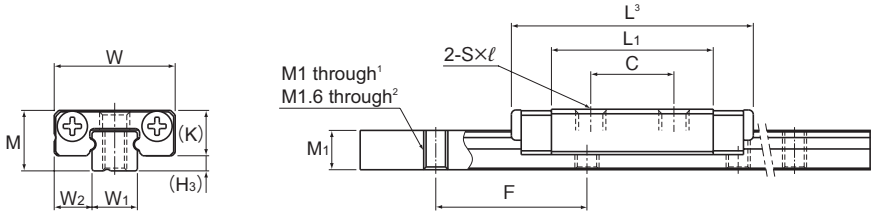
This model has a greater overall LM block width (W) and a greater permissible moment.



Accuracy of the Mounting Surface

Model RSR uses Gothic-arch grooves in the ball raceways. When two rails of RSR are used in parallel, any error in accuracy of the mounting surface may increase rolling resistance and negatively affect the smooth motion of the guide. For specific accuracy of the mounting surface, see Flatness of the Mounting Surface on **A1-534**.

Models RSR-M, RSR-N, RSR-WM, RSR-WN, and RSR-WVM



Models RSR2N and RSR3M/N

Model No.	Outer dimensions			LM block dimensions										H_3
	Height	Width	Length[3]								Lubrication hole	Grease nipple		
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E	d		
RSR 2N RSR 2WN	3.2 4	6 10	12.4 16.7	—	4 6.5	M1.4 through M2 through	8.84 11.9	—	2.5 3	—	—	—	—	0.7 1
RSR 3M RSR 3N	4	8	12 16	—	3.5 5.5	M1.6 through M2 through	6.7 10.7	—	3	—	—	—	—	1
RSR 3WM RSR 3WN	4.5	12	14.9 19.9	—	4.5 8	M2 through	8.5 13.3	—	3.5	0.8	—	0.8	—	1
RSR 14WVM	15	50	50	35	18	M4×4.5	34.3	6	11.5	3	4	—	PB107	3.5

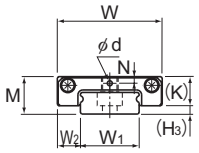
Model number coding

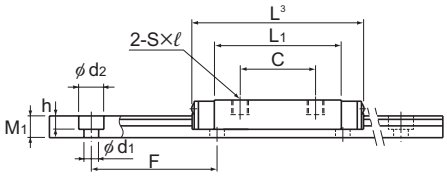
2 RSR3W M UU C1 +70L P M -II

- **2**: No. of LM blocks used on the same rail
- **RSR3W M**: Model number
- **UU**: Contamination protection accessory symbol
- **C1**: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- **+70L**: LM rail length (in mm)
- **P**: Accuracy symbol — Normal grade (No Symbol)/Precision grade (P)
- **M**: Stainless steel LM rail
- **-II**: Symbol for No. of rails used on the same plane

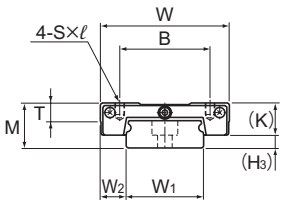
Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
No symbol for single LM block. See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-87** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

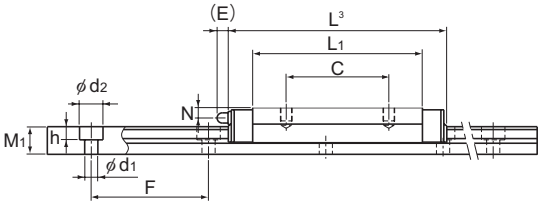
Download data from the THK Online Services website. https://www.thk.com/





Models RSR2WN and RSR3WM/WN





Model RSR14WVM

Unit: mm

	LM rail dimensions						Basic load rating[5]		Static permissible moment N·m [6]					Mass	
	Width		Height	Pitch		Length[4]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	2 0 4 −0.03	2 3	2 2.6	8 10	See figure above[1] 1.8×2.8×0.75	200	0.214 0.395	0.384 0.682	0.564 1.336	2.994 7.32	0.564 1.336	2.994 7.32	0.442 1.501	0.0008 0.0020	0.029 0.075
	3 0 −0.02	2.5	2.6	10	See figure above[2]	220	0.18 0.3	0.27 0.44	0.293 0.726	2.11 4.33	0.293 0.726	2.11 4.33	0.45 0.73	0.0011 0.0016	0.055
	6 0 −0.02	3	2.6	15	2.4×4×1.5	335	0.25 0.39	0.47 0.75	0.668 1.57	4.44 9.06	0.668 1.57	4.44 90.6	1.48 2.36	0.002 0.003	0.12
	30 0 −0.05	10	9	40	4.5×7.5×5.3	1800	6.01	9.08	43.2	233	38.2	208	110	0.096	2

[3] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[4] The maximum length indicates the standard maximum length of an LM rail. (See A**1-280**.)
[5] The basic load rating is for a load in the radial direction.
Use Table 7 on A**1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[6] 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

Notes: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment.
Please be aware that the balls will fall out of the LM block if it is removed from the LM rail.
Models RSR2N/WN and RSR3M/N do not have lubrication holes. When lubricating them, apply a lubricant directly to the LM rail raceways.
Models RSR2N/WN and RSR3M/N do not have contamination protection seals.

Options⇒A**1-541**

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard and maximum lengths of the RSR model rail.

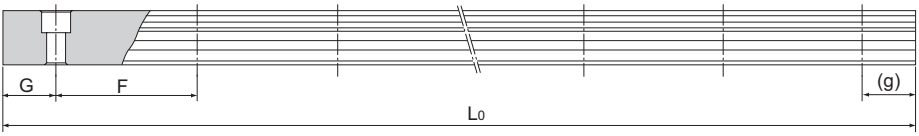


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model RSR/RSR-W

Unit: mm

Model No.	RSR2N	RSR2WN	RSR3	RSR3W	RSR14W
LM rail standard lengths (L_o)	32 40 56 80 104	40 60 70 80 100 180	30 40 60 80 100	40 55 70	110 150 190 230 270 310 430 550 670 790
Standard pitch F	8	10	10	15	40
G, g	4	5	5	5	15
Max length	200	200	220	335	1800

Notes: The maximum length varies with accuracy grades. Contact THK for details.
The LM rail mounting hole of model RSR3 is an M1.6 through hole.

Preventing the LM Block from Falling off of the LM Rail

In model RSR/RSR-W, the balls fall out if the LM block comes off the LM rail.
For this reason, LM Guide assemblies are delivered with a part which prevents the LM block from coming off the rail. If you remove this part when using the product, please take precautions to avoid overrunning the blocks off of the rail.

Recommended bolt tightening torques when mounting the LM block and LM rail

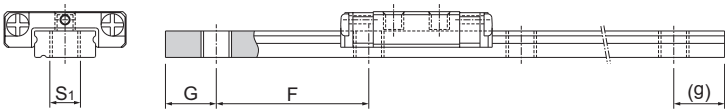
Recommended bolt tightening torques when mounting the LM block and LM rail of Model RSR are shown in Table 2.

Table 2: Recommended Tightening Torques of Mounting Bolts

Model No.	Recommended tightening torque (N·m)		Notes
	block	rail	Applicable bolt
RSR 2N	0.09	0.03	Flathead machine screw designed for use with precision equipment
RSR 2WN	0.28	0.138	
RSR 3M	0.09	0.09	Austenitic stainless steel hexagonal-socket-head type bolts
RSR 3N	0.19	0.09	
RSR 3WM/WN	0.19	—	
	—	0.25	Cross-recessed head screws for precision equipment (No. 0 pan head screw, class 1)

Tapped-Hole Type LM Rail

Model RSR-W rails also include a type where the LM rail is tapped. This type is useful when mounting from the bottom of the base.



Model RSR-W

(1) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-280.

Table 3: Dimensions of the LM Rail Tap

Unit: mm

Model No.	S_1
RSR 2W	M1.6 through
RSR 3W	M3 through
RSR 14W	M5 through

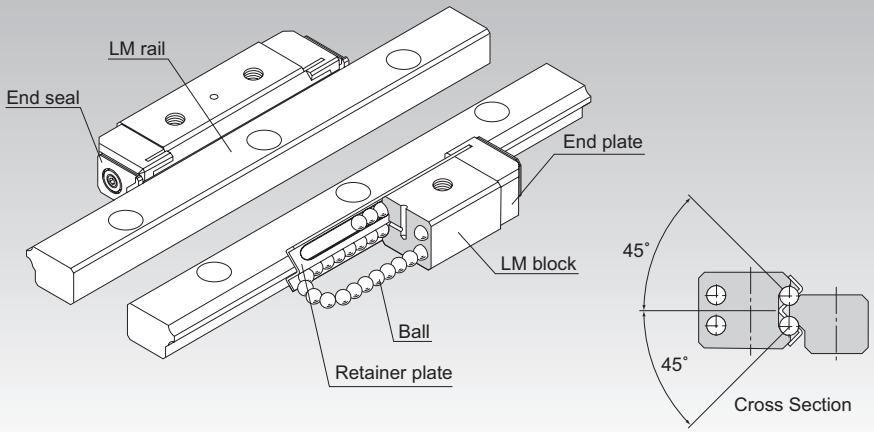
Model number coding

RSR3WMUUC1+70LPM W

Symbol for tapped-hole LM rail

HR

Separate Type (4-Way Equal Load) LM Guide Model HR



Selection Criteria	**A1-10**
Design Highlights	**A1-516**
Options	**A1-541**
Model No.	**A1-614**
Handling Precautions	**A1-620**
Accessories for Lubrication	**A24-1**
Mounting Procedure	**B1-91**

Equivalent Moment Factor	A1-45
Rated Loads in All Directions	A1-63
Equivalent Factor in Each Direction	A1-65
Example of Clearance Adjustment	A1-285
Accuracy Standards	A1-85
Shoulder Height of the Mounting Base and the Corner Radius	A1-530
Reference Error Tolerance for the Mounting Surface	A1-533
Dimensions of Each Model with Options Attached	A1-555

Structure and Features

Balls roll in two 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.
Each of the two rows of balls that circulate through the LM rail contact the raceway at a 45° angle. With this angular contact structure, installing one set (a combination of two LM rails and LM blocks on the same plane) on a flat surface allows the system to bear an equal load in all four directions (radial, reverse-radial, and horizontal directions). In addition, because the cross-sectional height is low, this linear motion guide configuration provides stability in a compact form.
Clearance adjustments are relatively easy to perform, and the product is highly capable of absorbing mounting error.

Easy Installation

With Model HR, it is easier to adjust clearance and achieve accuracy than with cross-roller guides.

Self-Adjustment Capability

Even with poor parallelism or level between the two rails, the self-adjustment capability in the front-to-front configuration of THK's unique circular-arc grooves (DF set) absorbs mounting error and achieves smooth linear motion, even under a preload.

4-Way Equal Load

When the two rails are mounted in parallel, 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 various orientations.

Cross-Sectional Dimensions Approximate to Cross-Roller Guides

Since Model HR utilizes end caps for recirculation, it is not susceptible to the cage displacement that occurs in cross-roller guides. In addition, the cross-sectional shape of Model HR is similar to that of cross-roller guides, and the two product types are interchangeable.

Stainless Steel Type also Available

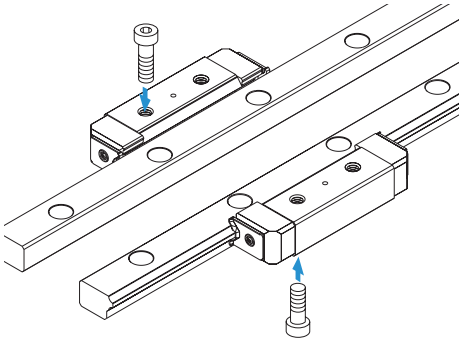
A special type whose LM block, LM rail, and balls are made of stainless steel is also available.

Types and Features

Model HR - Heavy-Load Type

Dimensional Table⇒A1-288

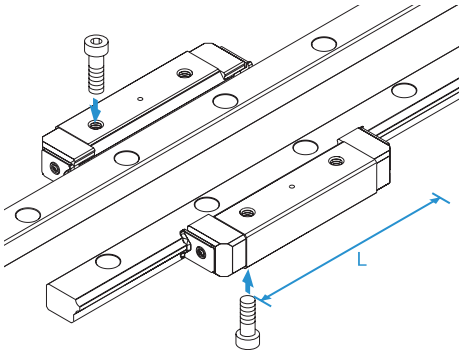
The LM blocks can be mounted from the top and the bottom.



Model HR-T - Super-Heavy Load Type

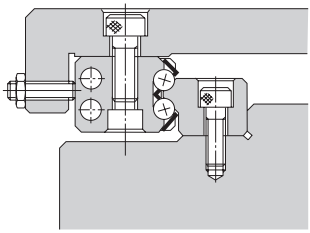
Dimensional Table⇒A1-288

This model has the same cross-sectional shape as model HR, but has a greater overall LM block length (L) and a higher load rating.

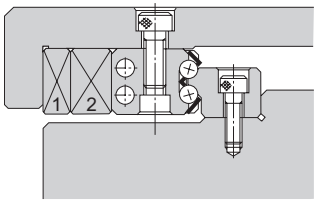


Example of Clearance Adjustment

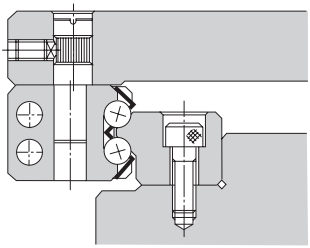
Design the clearance adjustment bolt so that it presses the center of the side face of the LM block.



a. Using an adjustment screw
Normally, an adjustment screw is used to press the LM block.



b. Using tapered gibs
When high accuracy and high rigidity are required, use tapered gibs 1) and 2).



c. Using an eccentric pin
A type using an eccentric pin to adjust the clearance is also available.

Comparable Cross-Roller Guide Model Numbers

Each type of LM Guide Model HR has cross-sectional dimensions approximate to those of a corresponding cross-roller guide model.

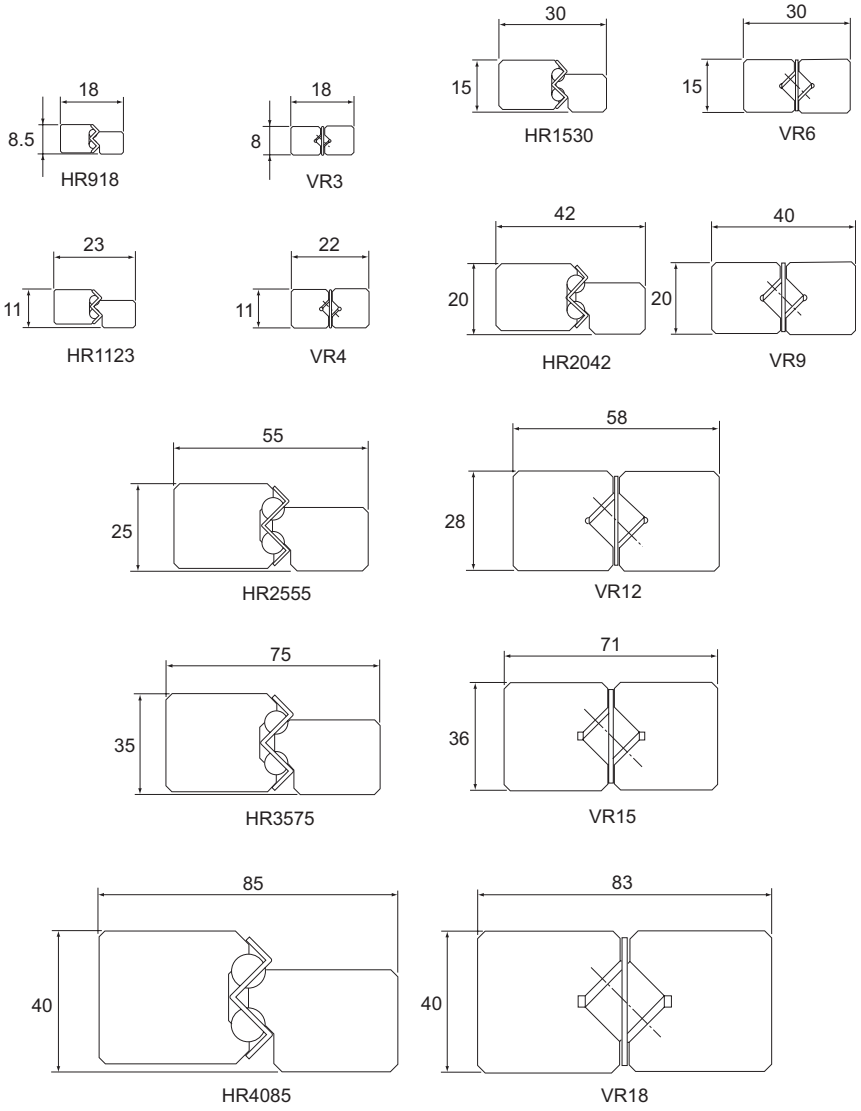
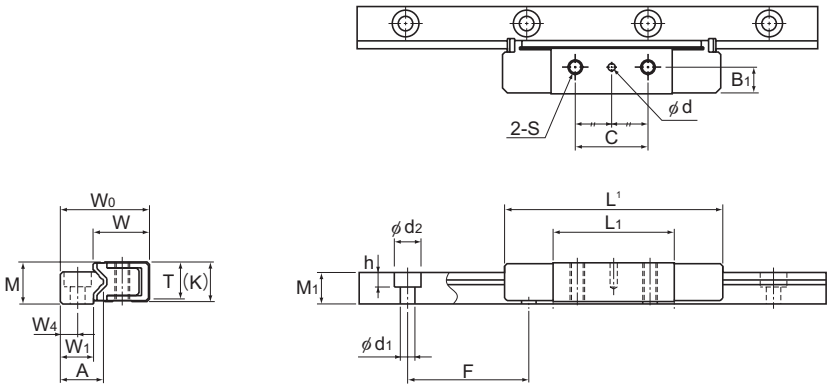


Fig. 1

Models HR, HR-T, HR-M, and HR-TM



Models HR918 and 918M

Model No.	Outer dimensions				LM block dimensions									
	Height	Width		Length[1]									Lubrication hole	
	M	W	W_0	L	B_1	C	H	S	h_2	L_1	T	K	d	D_1
HR 918 HR 918M	8.5	11.4	18	45	5.5	15	—	M3	—	25	7.5	8	1.5	—
HR 1123 HR 1123M	11	13.7	23	52	7	15	2.55	M3	3	30	9.5	10	2	5
HR 1530 HR 1530M	15	19.2	30	69	10	20	3.3	M4	3.5	40	13	14	2	6.5
HR 2042 HR 2042M	20	26.3	42	91.6	13	35	5.3	M6	5.5	56.6	17.5	19	3	10
HR 2042T HR 2042TM	20	26.3	42	110.7	13	50	5.3	M6	5.5	75.7	17.5	19	3	10
HR 2555 HR 2555M	25	33.3	55	121	16	45	6.8	M8	7	80	22.5	24	3	11
HR 2555T HR 2555TM	25	33.3	55	146.4	16	72	6.8	M8	7	105.4	22.5	24	3	11

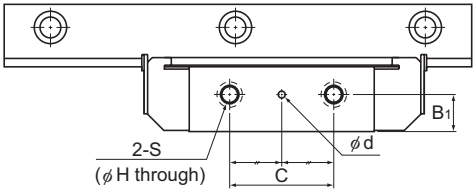
Model number coding

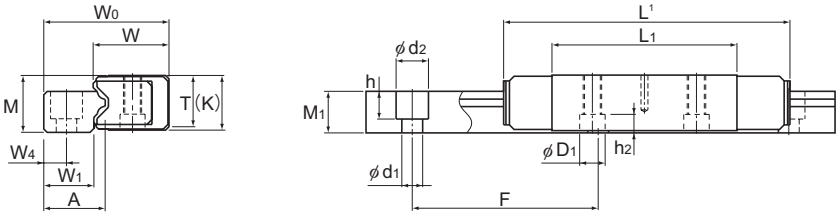
2 HR2555 UU M +1000L P T M

- **2**: No. of LM blocks used on the same rail
- **HR2555**: Model number
- **UU**: Contamination protection accessory symbol
- **M**: Stainless steel LM block
- **+1000L**: LM rail length (in mm)
- **P**: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- **T**: Symbol for LM rail jointed use
- **M**: Stainless steel LM rail

Notes: One set of model HR means a combination of two LM rails and LM blocks used on the same plane.
See **A1-584** for contamination protection accessories. See **A1-85** for accuracy symbol.

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





Models HR1123 to 2555M/T/TM

Unit: mm

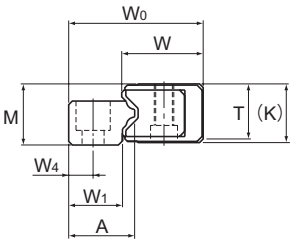
	LM rail dimensions							Basic load rating		Static permissible moment kN·m[3]				Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		LM block	LM rail
	W_1	W_4	A	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	kg	kg/m
	6.7	3.5	8.7	6.5	25	3×5.5×3	300 (300)	2.82	3.48	0.0261	0.194	0.0261	0.194	0.01	0.3
	9.5	5	11.6	8	40	3.5×6×4.5	500 (500)	4.09	4.93	0.0472	0.311	0.0472	0.311	0.03	0.5
	10.7	6	13.5	11	60	3.5×6×4.5	1600 (800)	7.56	8.77	0.112	0.733	0.112	0.733	0.08	1
	15.6	8	19.5	14.5	60	6×9.5×8.5	2200 (1000)	17	18.2	0.325	2.01	0.325	2.01	0.13	1.8
	15.6	8	19.5	14.5	60	6×9.5×8.5	2200 (1000)	20.8	24.3	0.56	3.16	0.56	3.16	0.26	1.8
	22	10	27	18	80	9×14×12	3000 (1000)	33.2	35.1	0.897	5.04	0.897	5.04	0.43	3.2
	22	10	27	18	80	9×14×12	3000 (1000)	40	45.9	1.49	7.8	1.49	7.8	0.5	3.2

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See A1-292.)
[3] Static permissible moment 1 block: the static permissible moment value with two LM rails, one LM block per rail, used on the same plane
2 blocks: static permissible moment when two LM blocks are in close contact with each other on two LM rails used on the same plane
A moment in the M_C direction can be received if two rails are used in parallel. However, since it depends on the distance between the two rails, it has been omitted.

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Models HR, HR-T, HR-M, and HR-TM



Model No.	Outer dimensions				LM block dimensions									
	Height	Width		Length[1]									Lubrication hole	
	M	W	W_0	L	B_1	C	H	S	h_2	L_1	T	K	d	D_1
HR 3065 HR 3065T	30	40.3	65	145 173.5	19	50 80	8.6	M10	9	90 118.5	27.5	29	4	14
HR 3575 HR 3575T	35	44.9	75	154.8 182.5	21.5	60 92.5	10.5	M12	12	103.8 131.5	32	34	4	18
HR 4085 HR 4085T	40	50.4	85	177.8 215.9	24	70 110	12.5	M14	13	120.8 158.9	36	38	4	20
HR 50105 HR 50105T	50	63.4	105	227 274.5	30	85 130	14.5	M16	15.5	150 197.5	45	48	5	23
HR 60125	60	74.4	125	329	35	160	18	M20	18	236	55	58	5	26

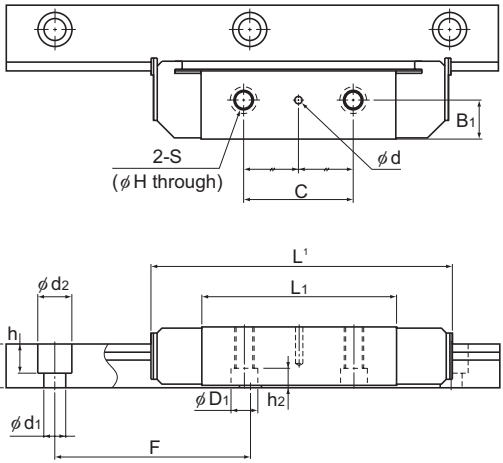
Model number coding

2 HR4085T UU +1500L P T

- **2**: No. of LM blocks used on the same rail
- **HR4085T**: Model number
- **UU**: Contamination protection accessory symbol
- **+1500L**: LM rail length (in mm)
- **P**: Accuracy symbol
  Normal grade (No Symbol)/High Accuracy grade (H)
  Precision grade (P)/Super Precision grade (SP)
  Ultra Precision grade (UP)
- **T**: Symbol for LM rail jointed use

Notes: One set of model HR means a combination of two LM rails and LM blocks used on the same plane.
See **A1-584** for contamination protection accessories. See **A1-85** for accuracy symbol.

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



Unit: mm

	LM rail dimensions							Basic load rating		Static permissible moment kN·m[3]				Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		LM block	LM rail
	W_1	W_4	A	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	kg	kg/m
	25	12	31.5	22.5	80	9×14×12	3000	42.6 51.5	44.4 58.1	1.27 2.12	7.71 11.7	1.27 2.12	7.71 11.7	0.7 0.9	4.6
	30.5	14.5	37	26	105	11×17.5×14	3000	53.5 64.4	54.8 71.7	1.75 2.91	10.1 15.2	1.75 2.91	10.1 15.2	1.05 1.4	6.4
	35	16	42.5	29	120	14×20×17	3000	78.8 95.1	78.9 103	3.02 5.02	16.6 25.7	3.02 5.02	16.6 25.7	1.53 1.7	8
	42	20	51.5	37	150	18×26×22	3000	127 153	123 161	5.89 9.81	33.1 51.3	5.89 9.81	33.1 51.3	3.06 3.5	12.1
	51	25	65	45	180	22×32×25	3000	226	232	16	89.5	16	89.5	7.5	19.3

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-292**.)
[3] Static permissible moment 1 block: the static permissible moment value with two LM rails, one LM block per rail, used on the same plane
2 blocks: static permissible moment when two LM blocks are in close contact with each other on two LM rails used on the same plane

A moment in the M_C direction can be received if two rails are used in parallel. However, since it depends on the distance between the two rails, it has been omitted.

Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model HR variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

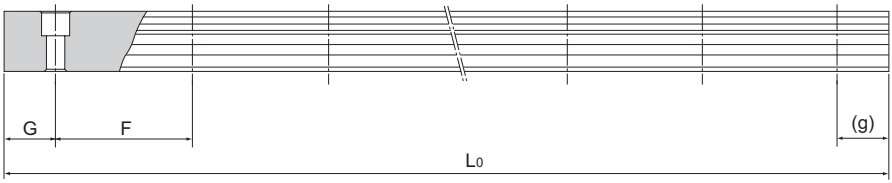


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model HR — Unit: mm

Model No.	HR 918	HR 1123	HR 1530	HR 2042	HR 2555	HR 3065	HR 3575	HR 4085	HR 50105	HR 60125
LM rail standard lengths (L_o)	70 120 220 295	110 230 310 390	160 280 340 460 580	220 280 340 460 640	280 440 600 760 1000 1240	280 440 600 760 1000 1240	570 885 1200 1620 2040 2460	780 1020 1260 1500 1980 2580	1270 1570 2020 2620	1530 1890 2250 2610
Standard pitch F	25	40	60	60	80	80	105	120	150	180
G, g	10	15	20	20	20	20	22.5	30	35	45
Max length	300 (300)	500 (500)	1600 (800)	2200 (1000)	3000 (1000)	3000	3000	3000	3000	3000

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Accessories

Dedicated Mounting Bolt

Normally, when mounting the LM block on the side that will be used for clearance adjustment, use the tapped hole provided on the LM block to secure it as shown in Fig. 2.

The holes of the bolt (d_1 and D_1) must be machined so that they are larger by the amount of the adjustment allowance.

If structural reasons require a mounting method similar to Fig. 3, the dedicated mounting bolt as shown in Fig. 4 is required for securing the LM block. Be sure to specify that the dedicated mounting bolt is required when ordering the LM Guide.

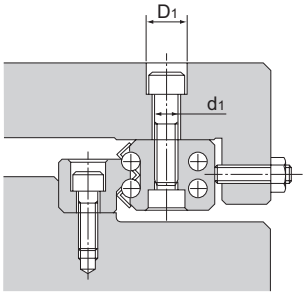


Fig. 2

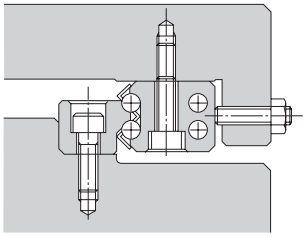


Fig. 3

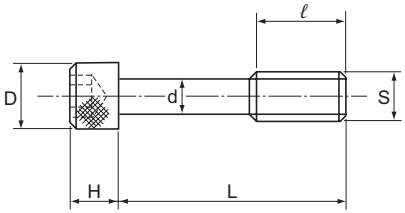


Fig. 4

Table 2: Dedicated Mounting Bolt Unit: mm

Model No.	S	d	D	H	L	ℓ	Supported model number
B 3	M3	2.4	5.5	3	17	5	HR 1530
B 5	M5	4.1	8.5	5	22	7	HR 2042
B 6	M6	4.9	10	6	28	9	HR 2555
B 8	M8	6.6	13	8	34	12	HR 3065
B 10	M10	8.3	16	10	39	15	HR 3575
B 12	M12	10.1	18	12	45	18	HR 4085
B 14	M14	11.8	21	14	55	21	HR 50105
B 16	M16	13.8	24	16	66	24	HR 60125

Lubrication Hole

Lubrication for Model HR

The LM block has a lubrication hole in the center of its top face. To provide lubrication through this hole, the table must be machined to also have a lubrication hole as shown in Fig. 5 and attach a grease nipple or the like. When using oil lubrication, it is necessary to identify the lubrication route. Contact THK for details.

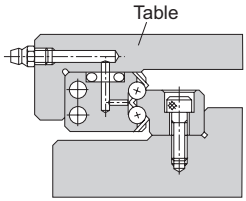
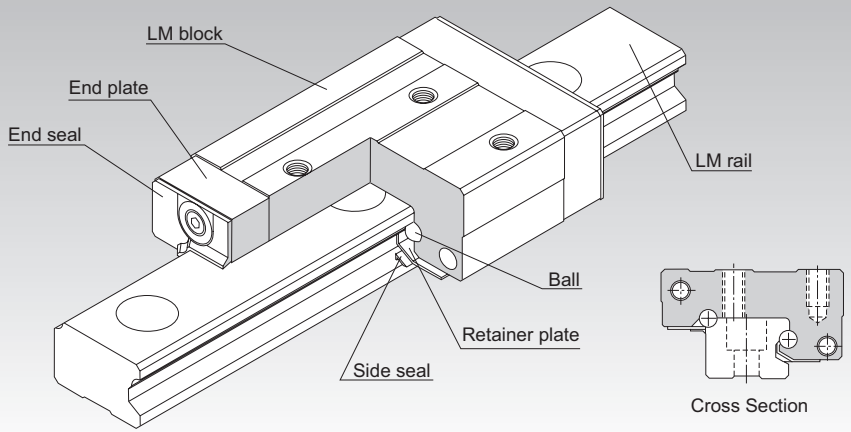


Fig. 5: Example of Machining a Lubrication Hole

GSR

Separate Type (Radial) LM Guide Model GSR



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Example of Clearance Adjustment A1-299
Accuracy Standards A1-86
Shoulder Height of the Mounting Base and the Corner Radius A1-530
Reference Error Tolerance for the Mounting Surface A1-533
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in two 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.
Because the top face of the LM block is inclined, clearance is eliminated and an appropriate preload is applied simply by securing the LM block with mounting bolts.
Model GSR has a special contact structure using circular-arc grooves. This increases self-adjusting capability and makes GSR an optimal model for places associated with difficulty establishing high accuracy and for general industrial machinery.
Note: Model GSR cannot be used in single-axis applications.

Interchangeability

Both the LM block and LM rail are interchangeable and can be stored separately. Therefore, it is possible to store a long-size LM rail and cut it to a desired length before using it.

Compact

Model GSR's low center of gravity and low overall height help reduce the size of machines.

Capable of Receiving a Load in any Direction

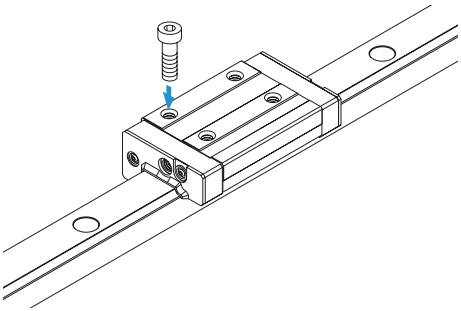
The ball contact angle is designed so that this model can receive a load in any direction. As a result, it can be used in places where a reverse-radial load, lateral load, or a moment in any direction is applied.

Types and Features

Model GSR-T

Dimensional Table⇒A1-300

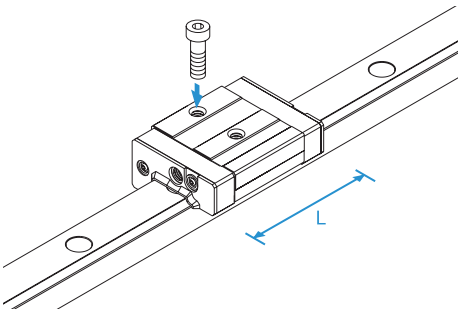
This model is the standard type.



Model GSR-V

Dimensional Table⇒A1-300

This is a space-saving type that has the same cross-sectional shape as GSR-T, but has a shorter overall LM block length (L).



Example of Clearance Adjustment

By providing a shoulder on the side face of each LM block and pressing either LM block with a bolt, a preload can be applied and the rigidity increased.

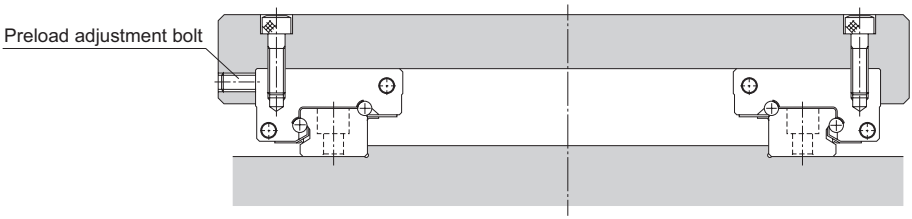
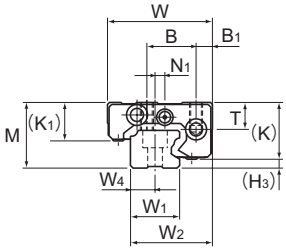
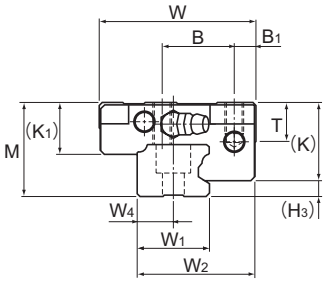


Fig. 1: Example of Adjusting a Preload with a Push Bolt

Models GSR-T and GSR-V



Model GSR15T/V



Models GSR20 to 35T, Models GSR20V, and 25V

Model No.	Outer dimensions			LM block dimensions												Grease nipple	H_3
	Height M	Width W	Length[1] L	B_1	B	C	S×ℓ	L_1	T	K	K_1	N	N_1	E			
GSR 15V GSR 15T	20	32	47.1 59.8	5	15	— 26	M4×7	27.5 40.2	8.25	16.8	12	4.5	3	5.5		PB107	3.2
GSR 20V GSR 20T	24	43	58.1 74	7	20	— 30	M5×8	34.3 50.2	9.7	20.6	13.6	5	—	12		B-M6F	3.4
GSR 25V GSR 25T	30	50	69 88	7	23	— 40	M6×10	41.2 60.2	12.7	25.4	16.8	7	—	12		B-M6F	4.6
GSR 30T	33	57	103	8	26	45	M8×12	70.3	14.6	28.5	18	7	—	12		B-M6F	4.5
GSR 35T	38	68	117	9	32	50	M8×15	80.3	15.6	32.5	20.5	8	—	12		B-M6F	5.5

Model number coding

Combination of LM rail and LM block

GSR25 T 2 UU +1060L H T K

- GSR25: Model number
- T: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- +1060L: LM rail length (in mm)
- H: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H) Precision grade (P)
- T: Symbol for LM rail jointed use
- K: Symbol for tapped-hole LM rail

Notes: One set of model GSR: This model number indicates that a single-rail unit constitutes one set.
See A1-584 for contamination protection accessories. See A1-86 for accuracy symbol.

LM block

GSR25 T UU

- GSR25: Model number
- T: Type of LM block
- UU: Contamination protection accessory symbol

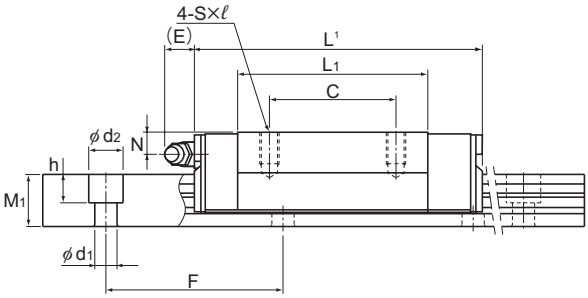
LM rail

GSR25 -1060L H K

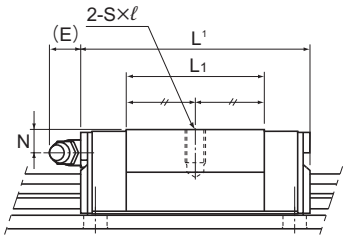
- GSR25: Model number
- -1060L: LM rail length (in mm)
- H: Accuracy symbol — Normal grade (No Symbol) High Accuracy grade (H) Precision grade (P)
- K: Symbol for tapped-hole LM rail

Notes: See A1-584 for contamination protection accessories. See A1-86 for accuracy symbol.

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Models GSR15 to 35T



Models GSR15 to 25V

Unit: mm

	LM rail dimensions							Basic load rating[3]		Static permissible moment kN·m [4]				Mass	
	Width			Height	Pitch		Length[2]	C	C_0	M_A		M_B		LM block	LM rail
	W_1	W_2	W_4	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	kg	kg/m
	15	25	7.5	11.5	60	4.5×7.5×5.3	2000	6.51 8.42	6.77 9.77	0.0305 0.0606	0.19 0.337	0.0264 0.0523	0.165 0.29	0.08 0.13	1.2
	20	33	10	13	60	6×9.5×8.5	3000	10.5 13.6	10.6 15.3	0.06 0.118	0.368 0.652	0.052 0.102	0.318 0.562	0.17 0.25	1.8
	23	38	11.5	16.5	60	7×11×9	3000	15.5 20	15.2 22	0.102 0.205	0.625 1.11	0.0891 0.176	0.541 0.961	0.29 0.5	2.6
	28	44.5	14	19	80	9×14×12	3000	27.8	29.9	0.325	1.77	0.28	1.52	0.6	3.6
	34	54	17	22	80	11×17.5×14	3000	37	39.1	0.485	2.63	0.419	2.27	1	5

[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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-302**.)

[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[4] 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
A moment in the M_C direction can be received if two rails are used in parallel. However, since it depends on the distance between the two rails, it has been omitted.

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model GSR variations.
For customers requiring a large quantity of rails in different lengths, it is more economical to prepare a stock of LM rail of the maximum length and cut the rail to the desired length as necessary.

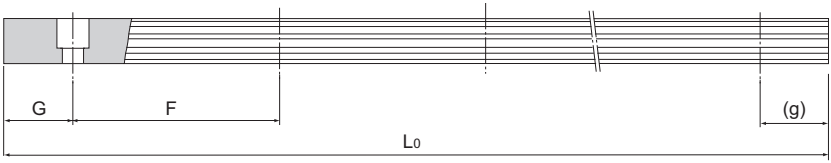


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model GSR

Unit: mm

Model No.	GSR 15	GSR 20	GSR 25	GSR 30	GSR 35
LM rail standard lengths (L_0)	460 820 1060 1600	460 820 1060 1600	460 820 1060 1600	1240 1720 2200 3000	1240 1720 2200 3000
Standard pitch F	60	60	60	80	80
G, g	20	20	20	20	20
Max length	2000	3000	3000	3000	3000

Note: The maximum length varies with accuracy grades. Contact THK for details.

Tapped-Hole Type LM Rail

- Since the bottom of the LM rail has a tapped hole, this model can easily be installed on a steel H-beam or channel.
- Since the top face of the LM rail has no mounting hole, it provides a better seal and prevents the entrance of foreign material (e.g., cutting chips).

(1) As shown in Fig. 2, a tapered washer is also available that allows GSR to be mounted on a steel flange.
(2) For model number coding, see **A1-300**.

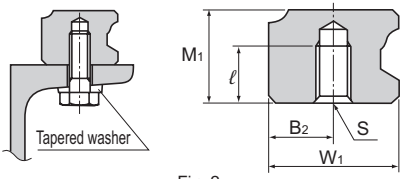


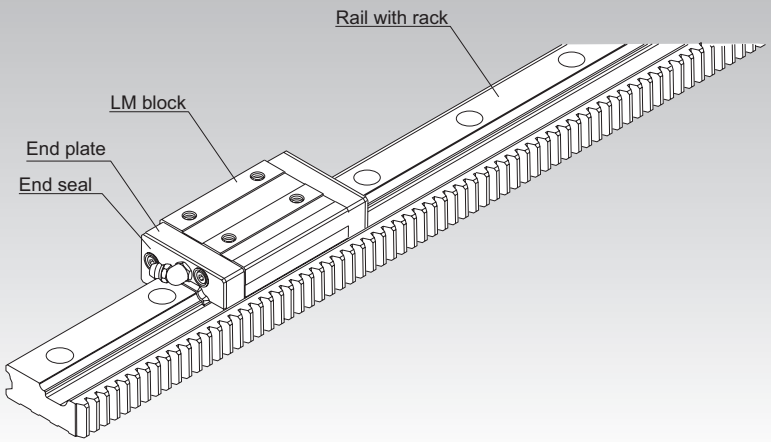
Fig. 2

Table 2: Tap Profile and Depth at Each Position

Model No.	W_1	B_2	M_1	S×ℓ
GSR 15	15	7.5	11.5	M4×7
GSR 20	20	10	13	M5×8
GSR 25	23	11.5	16.5	M6×10
GSR 30	28	14	19	M8×12
GSR 35	34	17	22	M10×14

GSR-R

Separate Type (Radial) LM Guide Model GSR-R



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Accuracy Standards A1-86
Shoulder Height of the Mounting Base and the Corner Radius A1-530
Reference Error Tolerance for the Mounting Surface A1-533
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in two 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.
Because the top face of the LM block is inclined, clearance is eliminated and an appropriate preload is applied simply by securing the LM block with mounting bolts.
Model GSR-R is based on model GSR, but has rack teeth on the LM rail. This facilitates the design and assembly of drive mechanisms.
Note: Model GSR-R cannot be used in single-axis applications.

Reduced Machining and Assembly Costs

Integrating the LM rail (linear guide) and rack (drive) into a single-piece structure reduces labor and time for machining the rack mounting surface, assembling, and adjusting the guide system, and thus significantly reduces costs.

Design with Ease

The travel distance per turn of the pinion is specified by the integer value. This makes it easy to calculate the travel distance per pulse when the LM Guide is used in combination with a stepping motor or servomotor.

Space Saving

Since a rack is included on the rail, machine size can be reduced.

Long Stroke

The end faces of the LM rail are machined for jointed use. To obtain a long stroke, simply joint LM rails of the standard length.

High Durability

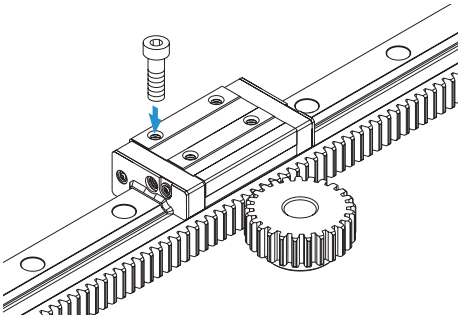
The rack teeth have a width equal to the LM rail height. The rack uses high-grade steel with proven performance and the tooth surface is heat-treated to ensure high durability.

Types and Features

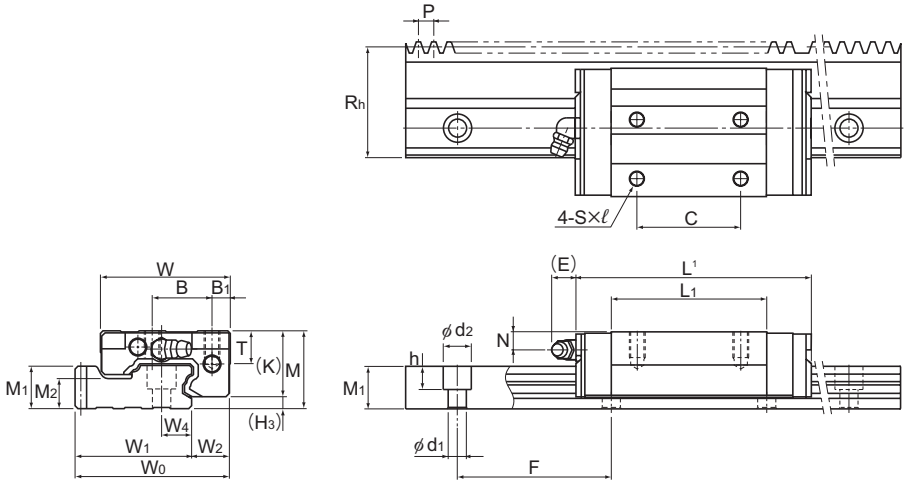
Model GSR-R (Rail with Rack)

Dimensional Table⇒A1-308

Since the thrust load on the pinion shaft can be kept low due to rack-pinion meshing, it is easy to design systems with pinion shaft bearings and tables that are not so rigid.



Model GSR-R



Model GSR-T-R

Model No.	Rack			Outer dimensions				LM block dimensions										Grease nipple	H_3
	Reference pitch dimension P	Module	Pitch line height Rh	Height M	Width W	W_0	Length[1] L	B_1	B	C	S×ℓ	L_1	T	K	N	E		
GSR 25V-R GSR 25T-R	6	1.91	43	30	50	59.91	69 88	7	23	— 40	M6×10	41.2 60.2	12.7	25.4	7	12	B-M6F	4.6
GSR 30T-R	8	2.55	48	33	57	67.05	103	8	26	45	M8×12	70.3	14.6	28.5	7	12	B-M6F	4.5
GSR 35T-R	10	3.18	57	38	68	80.18	117	9	32	50	M8×15	80.3	15.6	32.5	8	12	B-M6F	5.5

Model number coding

Single-rail LM Guide

GSR25T 2 UU +2004L H R T

- GSR25T: Model number
- 2: No. of LM blocks
- UU: Contamination protection accessory symbol
- +2004L: LM rail length (in mm)
- H: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H)
- R: Symbol for rail with rack type — R: Symbol for rail with rack type
- T: Symbol for LM rail jointed use

Notes: This model number indicates that a single-rail unit constitutes one set.
See **A1-584** for contamination protection accessories. See **A1-86** for accuracy symbol.

LM block

GSR25T UU

- GSR25T: Model number
- UU: Contamination protection accessory symbol

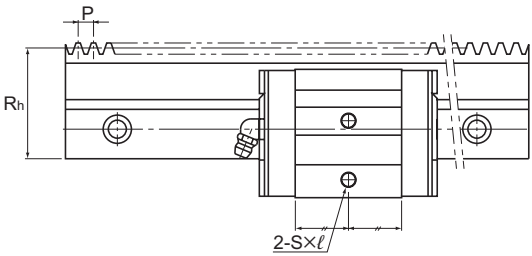
Rail with rack

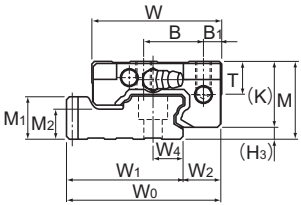
GSR25-2004L H R

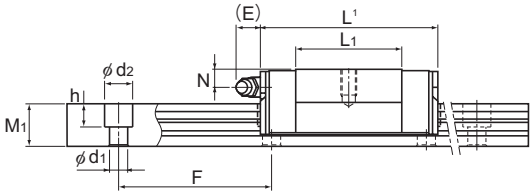
- H: Accuracy symbol — Normal grade (No Symbol) / High Accuracy grade (H)
- R: R: Symbol for rail with rack type

Notes: See **A1-584** for contamination protection accessories. See **A1-86** for accuracy symbol.

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







Model GSR25V-R

Unit: mm

	LM rail dimensions							Basic load rating[2]		Static permissible moment kN·m[3]				Mass	
	Width			Height	Pitch			C	C0	MA		MB		LM block	LM rail
	W1	W2	W4	M1	F	M2	d1×d2×h	kN	kN	1 block	2 blocks	1 block	2 blocks	kg	kg/m
	44.91	15	11.5	16.5	60	11.5	7×11×9	15.5 20	15.2 22	0.102 0.205	0.625 1.11	0.0891 0.176	0.541 0.961	0.29 0.5	4.7
	50.55	16.5	14	19	80	12	9×14×12	27.8	29.9	0.325	1.77	0.28	1.52	0.6	5.9
	60.18	20	17	22	80	14.5	11×17.5×14	37	39.1	0.485	2.63	0.419	2.27	1	8.1

[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 A1-555 or A1-578)

[2] The basic load rating is for a load in the radial direction.
Use Table 7 on A1-63 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[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
A moment in the M_C direction can be received if two rails are used in parallel. However, since it depends on the distance between the two rails, it has been omitted.

Notes: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A1-12, Lubricant: see A24-2)
A special type with a module pitch is also available. Contact THK for details.
For checking the pinion strength, see A1-312.

Options⇒A1-541

Standard Lengths of LM Rails

Table 1 shows the standard LM rail lengths of model GSR-R variations.

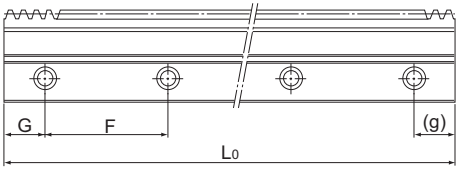


Table 1: Standard Lengths of LM Rails for Model GSR-R

Unit: mm

Model No.	GSR 25-R		GSR 30-R		GSR 35-R	
LM rail Standard lengths (L_0)	1500	2004	1504	2000	1500	2000
Standard pitch F	60	60	80	80	80	80
G, g	30	42	32	40	30	40

Rack and Pinion

Joining Two or More Rails

The end faces of rails with built-in racks are machined to facilitate jointed rail installation by leaving a clearance between rails after assembly.
Use of a special jig as shown in Fig. 1 will make the connection easier.
(THK also offers the rack-aligning jig.)

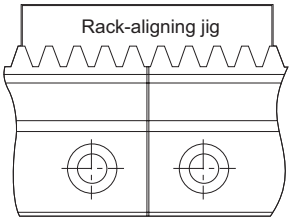


Fig. 1: Rack Connection Method

Reworking the Pinion Hole

Only the teeth of the type with a reworkable pinion hole (type C) are heat-treated. The hole and keyway can therefore be reworked by the user to the desired diameter and shape.
When reworking the pinion hole, be sure to take the following into account.
The material of the type with a reworkable hole diameter (type C): S45C

(1) When chucking the teeth of a type with a reworkable hole diameter, use a jaw scroll chuck or something like it to maintain the tooth profile.
(2) The pinion is produced using the center of the hole as a reference point. The center of the hole should therefore be used as a reference point when the pinion is aligned.
When checking the pinion runout, refer to the boss sides.
(3) Keep the reworked hole diameter within roughly 60 to 70% of the boss diameter.

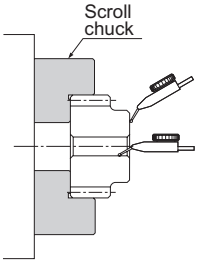


Fig. 2

Lubricating the Rack and Pinion

To ensure smooth sliding on tooth surfaces and prevent wear, the teeth should be provided with a lubricant.

Notes: Use a lubricant of the same type of thickener as that contained in the LM Guide.
Unpredictable wear may occur in the rack and pinion according to load conditions and lubrication status. Contact THK when undertaking design.

Checking Strength

The strength of the assembled rack and pinion must be checked in advance.

(1) Calculate the maximum thrust acting on the pinion.
(2) Divide the permissible power transmission capacity of the pinion to be used (Table 1) by an overload factor (Table 2).
(3) By comparing the thrust acting on the pinion obtained in step 1 with the pinion power transmission capacity obtained in step 2, make sure the applied thrust does not exceed the permissible power transmission capacity.

Example Calculation

When Model GSR-R is used in a horizontal conveyance system receiving a medium impact (assuming external load to be zero):

● Conditions

Subject model No. (pinion)	GP6-20A
Mass (table + work)	m = 100 kg
Speed	v = 1 m/s
Acceleration/deceleration time	T_1 = 0.1 s

● Consideration

(1) Calculating the maximum thrust
Calculated the thrust during acceleration/deceleration.

$$\mathbf{Fmax} = \mathbf{m} \cdot \frac{\mathbf{v}}{\mathbf{T_1}} = \mathbf{1\ kN}$$

(2) Permissible power transmission capacity of the pinion

$$\mathbf{Pmax} = \frac{\text{Permissible power transmission capacity (see Table 1)}}{\text{Overload factor (see Table 2)}} = \frac{\mathbf{2.33}}{\mathbf{1.25}} = \mathbf{1.86\ kN}$$

(3) Comparison between the maximum thrust and the permissible power transmission capacity of the pinion
Fmax < Pmax
Therefore, it is judged that the subject model number can be used.

Table 1: Permissible Power Transmission Capacity
Unit: kN

Model No.	Permissible power transmission capacity	Supported model
GP 6-20A	2.33	GSR 25-R
GP 6-20C	2.05	
GP 6-25A	2.73	
GP 6-25C	2.23	
GP 8-20A	3.58	GSR 30-R
GP 8-20C	3.15	
GP 8-25A	4.19	
GP 8-25C	3.42	
GP10-20A	5.19	GSR 35-R
GP10-20C	4.57	
GP10-25A	6.06	
GP10-25C	4.96	

Table 2: Overload Factor

Impact from the motor	Impact from the driven machine		
	Uniform load	Medium impact	Large impact
Uniform load (electric motor, turbine, hydraulic motor, etc.)	1.0	1.25	1.75

(Excerpt from JGMA401-01)

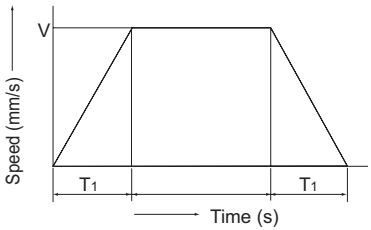
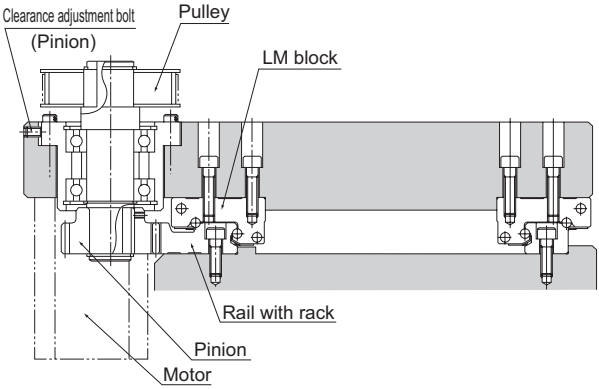
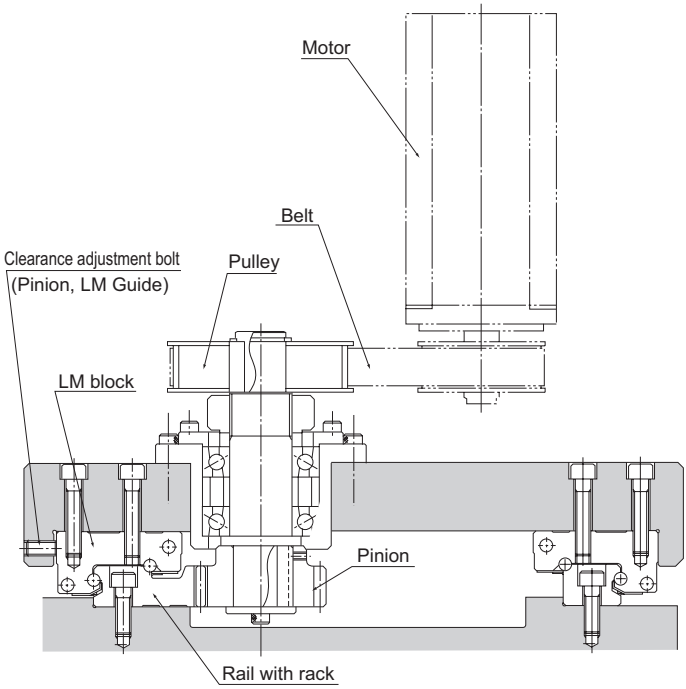


Fig. 3

Example of Installing Model GSR-R with a Table

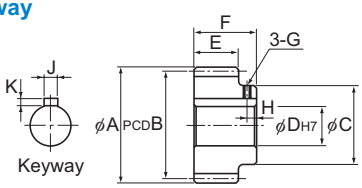




Rack and Pinion Dimensional Drawing

Pinion for rack - type A

Type with a worked keyway



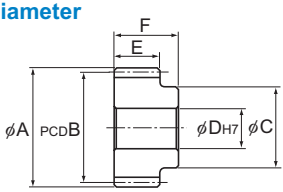
Unit: mm

Model No.	Pitch	Number of teeth	Tip circle diameter A	Meshing PCD B	Boss diameter C	Hole diameter D	Tooth width E	Overall length F	G	H	Keyway J×K	Supported model numbers
GP6-20A	6	20	42.9	39	30	18	16.5	24.5	M3	4	6×2.8	GSR 25-R
GP6-25A		25	51.9	48	35	18						
GP8-20A	8	20	57.1	52	40	20	19	26	M3	5	8×3.3	GSR 30-R
GP8-25A		25	69.1	64	40	20			M4			
GP10-20A	10	20	70.4	64	45	25	22	30	M4	5	8×3.3	GSR 35-R
GP10-25A		25	86.4	80	60	25					10×3.3	

Notes: When placing an order, specify the model number from the table.
Non-standard pinions with different numbers of teeth are also available upon request. Contact THK for details.

Pinion for rack - type C

Type with a reworkable hole diameter

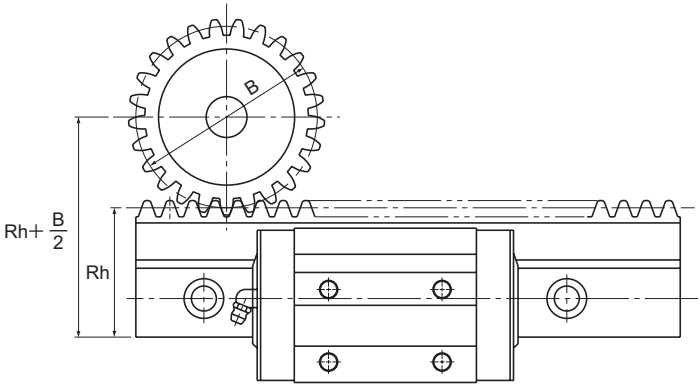


Unit: mm

Model No.	Pitch	Number of teeth	Tip circle diameter A	Meshing PCD B	Boss diameter C	Hole diameter D	Tooth width E	Overall length F	Supported model numbers
GP 6-20C	6	20	42.9	39	30	12	16.5	24.5	GSR 25-R
GP 6-25C		25	51.9	48	35	15			
GP 8-20C	8	20	57.1	52	40	18	19	26	GSR 30-R
GP 8-25C		25	69.1	64	40	18			
GP10-20C	10	20	70.4	64	45	18	22	30	GSR 35-R
GP10-25C		25	86.4	80	60	18			

Notes: When placing an order, specify the model number from the table.
Non-standard pinions with different numbers of teeth are also available upon request. Contact THK for details.

Dimensions when the LM rail is used in combination with a pinion

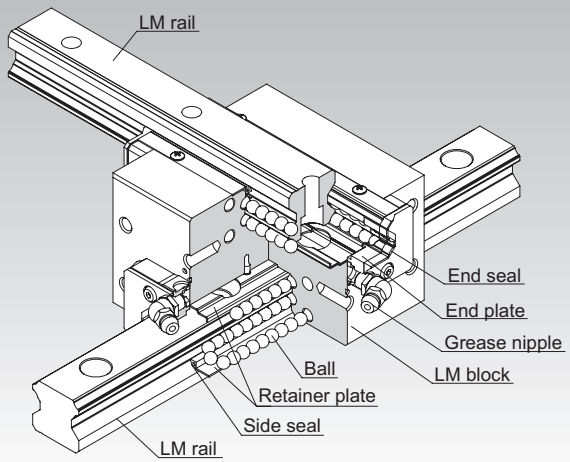


Unit: mm

Model GSR model No.	Pinion model No.	LM rail pitch line height Rh	Pinion meshing PCD B	Rh+B/2
GSR 25-R	GP 6-20A	43	39	62.5
	GP 6-20C			
	GP 6-25A		48	67
	GP 6-25C			
GSR 30-R	GP 8-20A	48	52	74
	GP 8-20C			
	GP 8-25A		64	80
	GP 8-25C			
GSR 35-R	GP 10-20A	57	64	89
	GP 10-20C			
	GP 10-25A		80	97
	GP 10-25C			

CSR

Cross LM Guide Model CSR



Selection Criteria	**A1-10**
Design Highlights	**A1-516**
Options	**A1-541**
Model No.	**A1-614**
Handling Precautions	**A1-620**
Accessories for Lubrication	**A24-1**
Mounting Procedure	**B1-91**

Equivalent Moment Factor	A1-45
Rated Loads in All Directions	A1-63
Equivalent Factor in Each Direction	A1-65
Radial Clearance	A1-76
Accuracy Standards	A1-84
Shoulder Height of the Mounting Base and the Corner Radius	A1-525
Reference Error Tolerance for the Mounting Surface	A1-532
Dimensions of Each Model with Options Attached	A1-555

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.
This LM Guide has two rails intersecting at right angles integrated back-to-back into a single block with the same internal structure as the proven LM Guide Model HSR. It is machined with high precision so that the error in the perpendicularity of the six faces of the LM block is within 2 μm per 100 mm. The two rails are also machined with high precision in relative straightness. This results in extremely high orthogonal accuracy. Because an orthogonal LM System can be achieved with the Model CSR alone, conventional saddles are no longer necessary, enabling simplified X-Y motion and a compact structure.

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.

High Rigidity

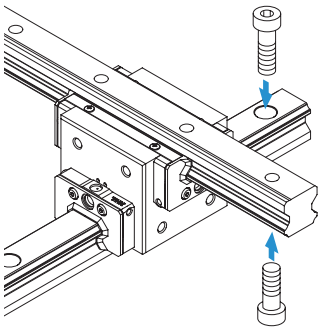
Since the balls are well balanced in four rows, this model is able to withstand moments, and it achieves smooth linear motion even when a preload is applied to increase the rigidity.
The rigidity of the single LM block is 50% higher than that of a combination of two HSR LM blocks secured back-to-back with bolts. That makes this model optimal for building an X-Y table that requires high rigidity.

Types and Features

Model CSR-S

Dimensional Table⇒A1-320

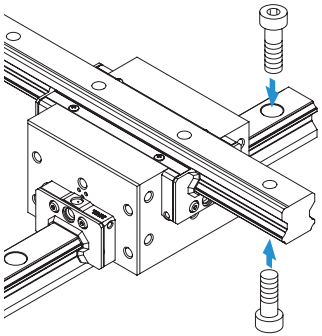
This model is the standard type.



Model CSR

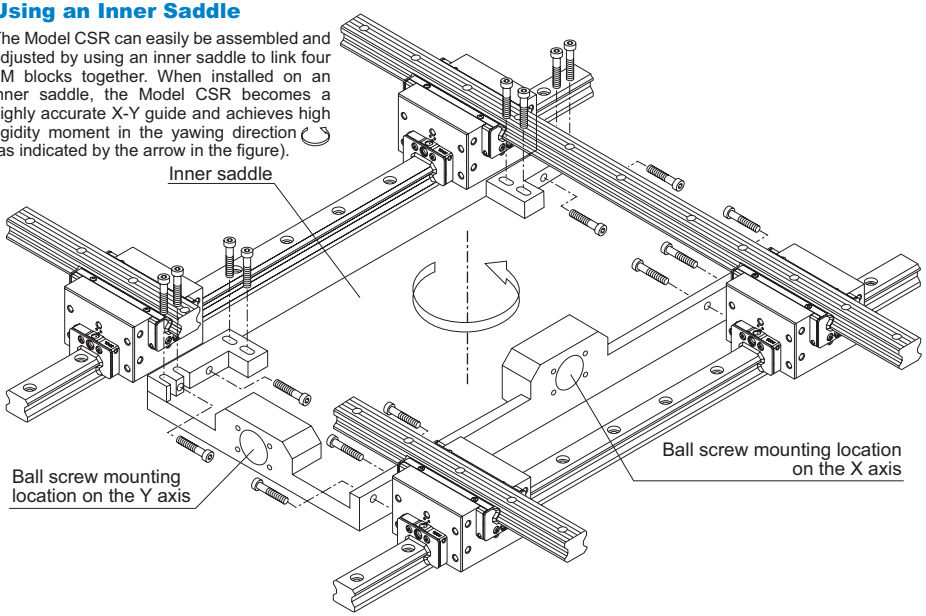
Dimensional Table⇒A1-320

It has a longer overall LM block length (L) and a greater load rating.

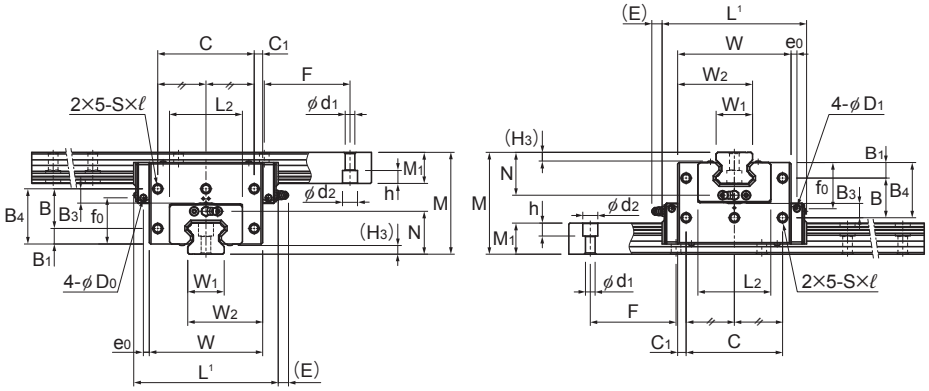


Using an Inner Saddle

The Model CSR can easily be assembled and adjusted by using an inner saddle to link four LM blocks together. When installed on an inner saddle, the Model CSR becomes a highly accurate X-Y guide and achieves high rigidity moment in the yawing direction (as indicated by the arrow in the figure).



Model CSR



Models CSR20 to 45

Model No.	Outer dimensions			LM block dimensions													
	Height	Width	Length[1]														Grease nipple
	M	W	L	B_1	B_3	B_4	B	C	C_1	S×ℓ	L_2	N	E	e_0	f_0	D_0	
CSR 15	47	38.8	56.6	—	11.0	34.8	—	20	9.4	M4×6	32	19.7	5.5	3.2	22.1	3	PB1021B
CSR 20S CSR 20	57	50.8 66.8	74 90	— 13	12.7 7.2	42.5 37	— 24	30 56	10.4 5.4	M5×8	42	25	12	3.1	24.8	3	B-M6F
CSR 25S CSR 25	70	59.5 78.6	83.1 102.2	— 18	16.4 8.4	52 44	— 26	34 64	12.75 7.3	M6×10	46	30	12	3.5	30.5	3	B-M6F
CSR 30S CSR 30	82	70.4 93	98 120.6	— 21	19.4 11.4	61 53	— 32	40 76	15.2 8.5	M6×10	58	35	12	5.2	38.2	5.2	B-M6F
CSR 35	95	105.8	134.8	24	13.3	61	37	90	7.9	M8×14	68	40	12	5.5	43.1	5.2	B-M6F
CSR 45	118	129.8	170.8	30	15.4	75	45	110	9.9	M10×15	84	50	16	6.4	53.1	5.2	B-PT1/8

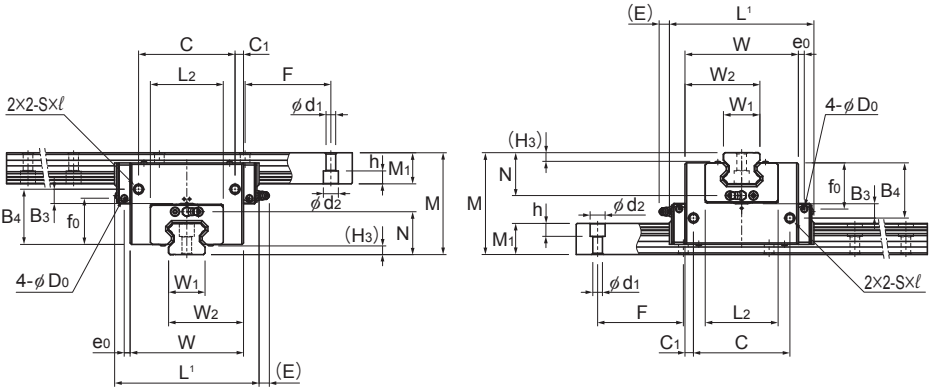
Model number coding

4 CSR25 UU C0 +1240/1000L P

- 4: Total No. of LM blocks
- CSR25: Model number
- UU: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol)/Light preload (C1)/Medium preload (C0)
- +1240/1000L: LM rail length on the X axis (in mm) / LM rail length on the Y axis (in mm)
- P: Accuracy symbol — Precision grade (P)/Super Precision grade (SP)/Ultra Precision grade (UP)

Notes: See contamination protection accessories on **A1-584**. See **A1-76** for radial clearance symbol. See **A1-84** for accuracy symbol.

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

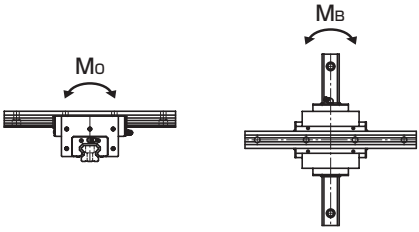


Models CSR15, 20S to 30S

Unit: mm

		LM rail dimensions						Basic load rating		Static permissible moment[3]		Mass	
	H_3	Width W_1 ±0.05	W_2	Height M_1	Pitch F	$d_1 \times d_2 \times h$	Length[2] Max	C kN	C_0 kN	M_0 kN·m	M_B kN·m	LM block kg	LM rail kg/m
	4.7	15	26.9	15	60	4.5×7.5×5.3	3000	10.9	15.7	0.0945	0.0945	0.34	1.5
	4	20	35.4 43.4	18	60	6×9.5×8.5	3000	19.8 23.9	27.4 35.8	0.218 0.307	0.218 0.363	0.73 1.3	2.3
	5.5	23	41.25 50.8	22	60	7×11×9	3000	27.6 35.2	36.4 51.6	0.324 0.518	0.324 0.627	1.2 2.2	3.3
	7	28	49.2 60.5	26	80	9×14×12	3000	40.5 48.9	53.7 70.2	0.599 0.852	0.599 0.995	2 3.6	4.8
	7.5	34	69.9	29	80	9×14×12	3000	65	91.7	1.37	1.49	5.3	6.6
	10	45	87.4	38	105	14×20×17	3090	100	135	2.59	2.59	9.8	11

[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 **A1-555** or **A1-578**)
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-322**.)
[3] Static permissible moment 1 block: the static permissible moment with one LM block
Note: This model is not available with an upper surface lubrication hole.



Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model CSR variations.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

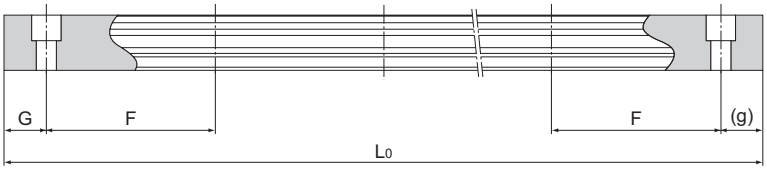


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model CSR

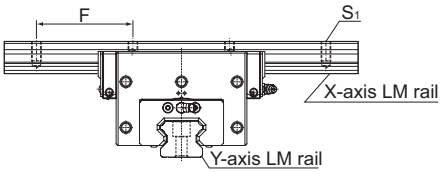
Unit: mm

Model No.	CSR 15	CSR 20	CSR 25	CSR 30	CSR 35	CSR 45
LM rail standard lengths (L_0)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600 1720 1840 1960 2080 2200	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1720 1840 1960 2080 2200 2320 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985 3090
Standard pitch F	60	60	60	80	80	105
G, g	20	20	20	20	20	22.5
Max length	2200	3000	3000	3000	3000	3090

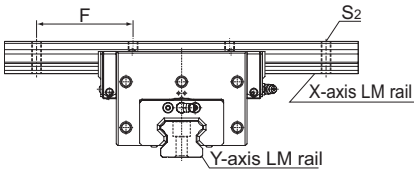
Note: The maximum length varies with accuracy grades. Contact THK for details.

Tapped-Hole Type LM Rail

Model CSR rails also include a type where the LM rail is tapped from the bottom. With the X-axis LM rail having tapped holes, this model can be secured with bolts from the top.



K Type



W Type

Table 2: Dimensions of the LM Rail Tap

Unit: mm

Model No.	K Type		W Type
	S_1	Effective tap depth ℓ_1	S_2
CSR 15	M5	8	M5 through
CSR 20	M6	10	M6 through
CSR 25	M6	12	—
CSR 30	M8	15	—
CSR 35	M8	17	—
CSR 45	M12	24	—

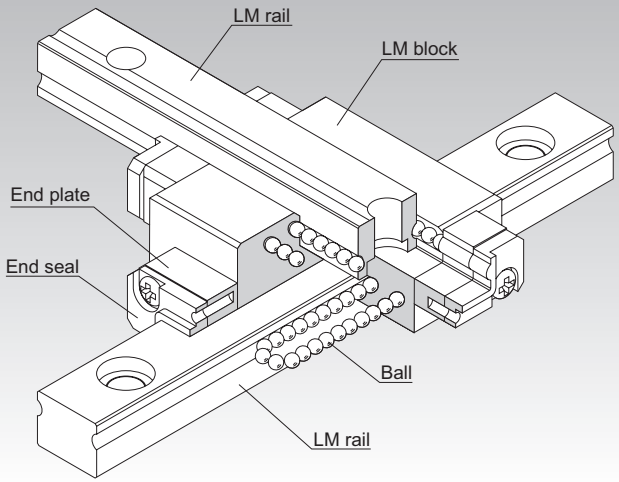
Model number coding

4CSR25UUC0+1200LP K /1000LP

Symbol for
tapped-hole LM rail (K/W)

MX

Miniature Cross LM Guide Model MX



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-76
Accuracy Standards A1-88
Shoulder Height of the Mounting Base and the Corner Radius A1-526
Dimensions of Each Model with Options Attached A1-555

Structure and Features

Balls roll in two 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. This model has two Miniature LM Guide Model RSR rails intersecting at right angles integrated back-to-back into a single block. The Model MX alone achieves an extremely low-profile orthogonal LM System, eliminating the need for conventional saddles and enabling a more compact structure.

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.

LM Rail with Tapped Holes

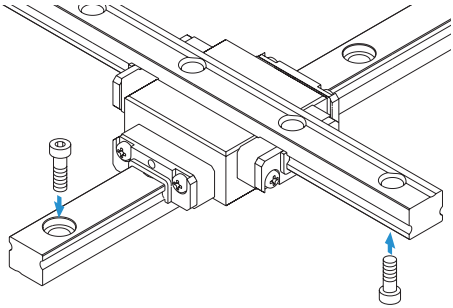
There are two types of the LM rail: one designed to be mounted from the top with bolts, and a semi-standard type whose bottom face has tapped holes, allowing the rail to be mounted from the bottom.

Types and Features

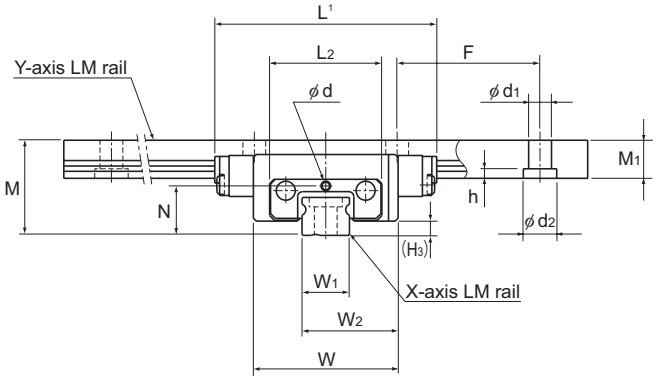
Model MX

Dimensional Table⇒A1-326

Model MX is divided into two types: RSR5 cross type and RSR7W cross type.



Model MX



Model No.	Outer dimensions			LM block dimensions			
	Height M	Width W	Length[1] L	L_2	N	Lubrication hole d	H_3
MX 5M	10	15.2	23.3	11.8	5.2	0.8	1.5
MX 7WM	14.5	30.2	40.8	24.6	7.4	1.2	2

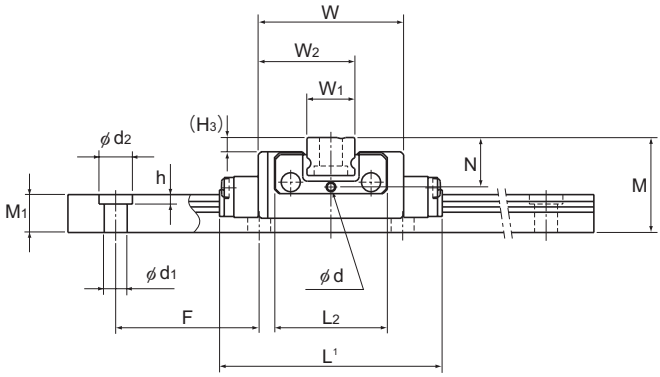
Model number coding

4 MX7W M UU C1 +140L P M / 110L P T M

- 4: Total No. of LM blocks
- MX7W M: Model number
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- +140L: LM rail length on the X axis (in mm)
- P: Accuracy symbol — Normal grade (No Symbol), Precision grade (P)
- M: LM rail is made of stainless steel
- 110L: LM rail length on the Y axis (in mm)
- P: Symbol for LM rail jointed use
- T: LM rail is made of stainless steel
- M: LM rail is made of stainless steel

Notes: See contamination protection accessories on **A1-584**. See **A1-76** for radial clearance symbol. See **A1-88** for accuracy symbol.
If the product is of the semi-standard type that uses tapped holes in the LM rail for mounting, include a “K” in the model number after the accuracy symbol.
Example: 4MX7WMUUC1+120LP K M/100LP K TM
Add symbol "K"

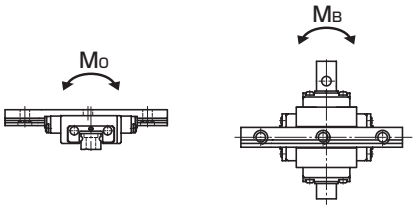
Download data from the THK Online Services website. https://www.thk.com/



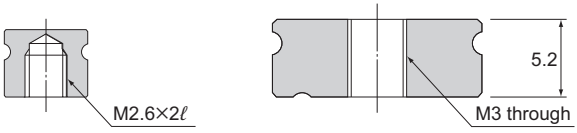
Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment[3] N·m		Mass	
	Width W_1	W_2	Height M_1	Pitch F	$d_1 \times d_2 \times h$	Length[2] Max	C kN	C_0 kN	M_0	M_B	LM block kg	LM rail kg/m
	$5\ ^{0}_{-0.02}$	10.1	4	15	2.4×3.5×1	200	0.59	1.1	2.57	2.57	0.01	0.14
	$14\ ^{0}_{-0.025}$	22.1	5.2	30	3.5×6×3.2	400	2.04	3.21	14.7	14.7	0.051	0.51

[1] Length L shown in the table is the length with the contamination protection accessories (code: UU).
[2] The maximum length indicates the standard maximum length of an LM rail. (See A1-328.)
[3] Static permissible moment 1 block: the static permissible moment with one LM block
Notes: Since stainless steel is used in the LM block, LM rail, and balls, these models are highly resistant to corrosion and environment. Please be aware that the balls will fall out of the LM block if it is removed from the LM rail.



For the LM rail mounting holes, a semi-standard type with tapped holes in the LM rail is also available.



Model MX5M Model MX7WM

When mounting the LM rail of model MX7WM, take into account the thread length of the mounting bolt in order to prevent the bolt end from sticking out of the top face of the LM rail.

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model MX variations.

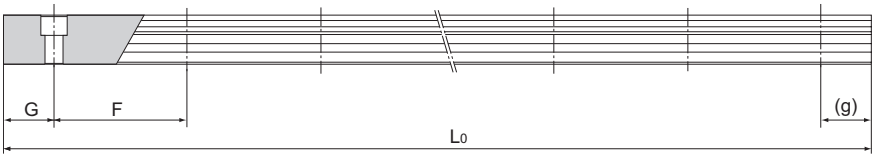


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model MX

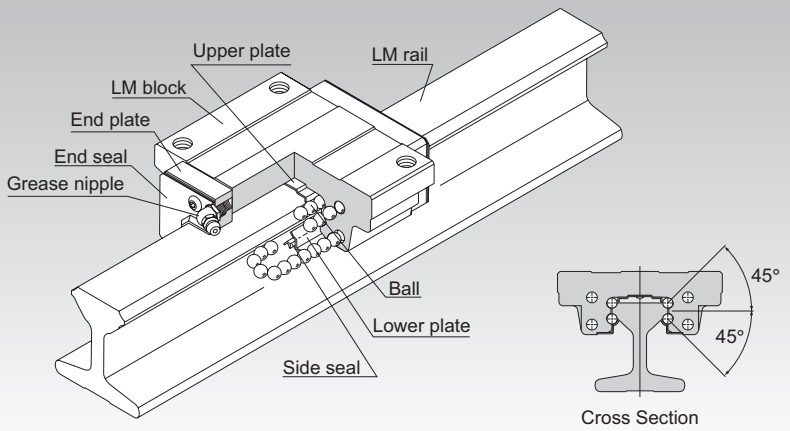
Unit: mm

Model No.	MX 5	MX 7W
LM rail standard lengths (L_0)	40 55 70 100 130 160	50 80 110 140 170 200 260 290
Standard pitch F	15	30
G, g	5	10
Max length	200	400

Note: The maximum length varies with accuracy grades. Contact THK for details.

JR

Structural Beam LM Guide Model JR



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-77
Accuracy Standards A1-83
Shoulder Height of the Mounting Base and the Corner Radius A1-525
Reference Error Tolerance for the Mounting Surface A1-532
Dimensions of Each Model with Options Attached A1-555

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.

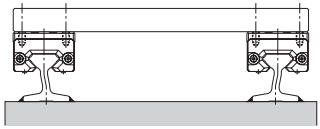


Fig. 1

Geometric Moment of Inertia of the LM Rail

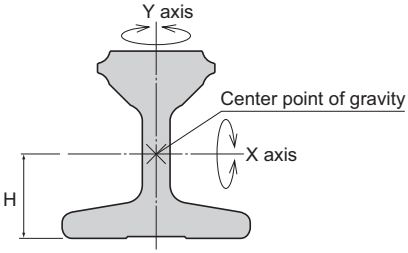


Fig. 2

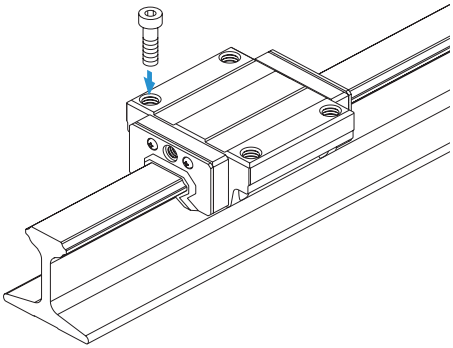
	Geometric moment of inertia I (×10^5 mm^4)		Section modulus Z (×10^4 mm^3)		Height of gravitational center H (mm)
	About X axis	About Y axis	About X axis	About Y axis	
JR 25	1.9	0.51	0.69	0.21	19.5
JR 35	4.26	1.32	1.43	0.49	24.3
JR 45	12.1	3.66	3.31	1.04	33.1
JR 55	27.6	6.54	5.89	1.4	43.3

Types and Features

Model JR-A

Dimensional Table⇒A1-334

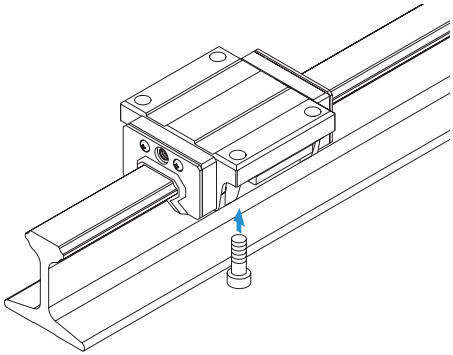
The flange of its LM block has tapped holes.



Model JR-B

Dimensional Table⇒A1-334

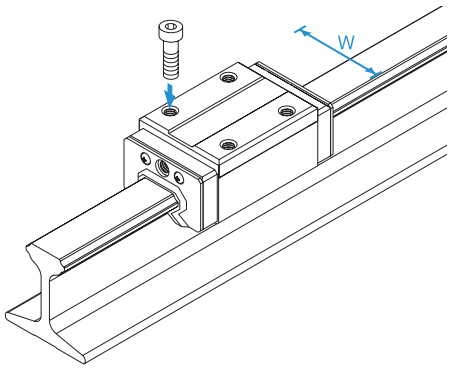
The flange of the LM block has through holes. It is used in places where the table cannot have through holes for mounting bolts.



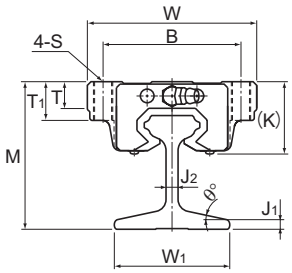
Model JR-R

Dimensional Table⇒A1-334

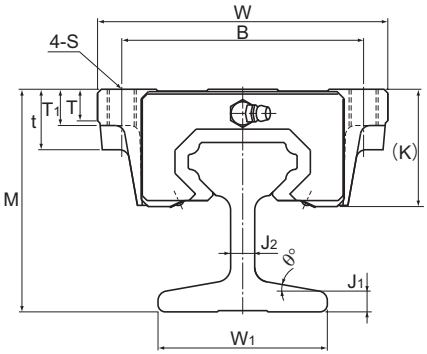
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



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



Models JR25 and 35A



Models JR45 and 55A

Model No.	Outer dimensions			LM block dimensions											
	Height	Width	Length												Grease nipple
	M	W	L	B	C	H	S×ℓ	L_1	t	T	T_1	K	N	E	
JR 25A	61	70		57	45	—	M8 through		—	11	16	30.5	6		
JR 25B	61	70	83.1	57	45	7	—	59.5	16	11	10	30.5	6	12	B-M6F
JR 25R	65	48		35	35	—	M6×8		—	9	—	34.5	10		
JR 35A	73	100		82	62	—	M10 through		—	12	21	40	8		
JR 35B	73	100	113.6	82	62	9	—	80.4	21	12	13	40	8	12	B-M6F
JR 35R	80	70		50	50	—	M8×12		—	11.7	—	47.4	15		
JR 45A	92	120		100	80	—	M12 through		25	13	15	50	10		
JR 45B	92	120	145	100	80	11	—	98	25	13	15	50	10	16	B-PT1/8
JR 45R	102	86		60	60	—	M10×17		—	15	—	59.4	20		
JR 55A	114	140		116	95	—	M14 through		29	13.5	17	57	11		
JR 55B	114	140	165	116	95	14	—	118	29	13.5	17	57	11	16	B-PT1/8
JR 55R	124	100		75	75	—	M12×18		—	20.5	—	67	21		

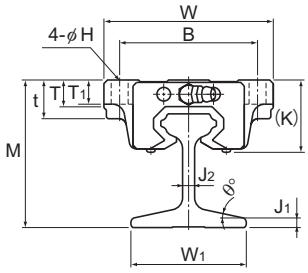
Model number coding

JR35 R 2 UU +1000L T

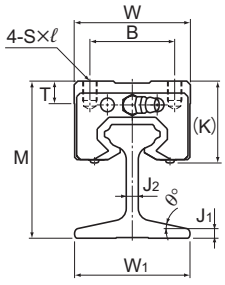
- JR35: Model number
- R: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- +1000L: LM rail length (in mm)
- T: Symbol for LM rail jointed use

Note: See contamination protection accessory on A1-584.

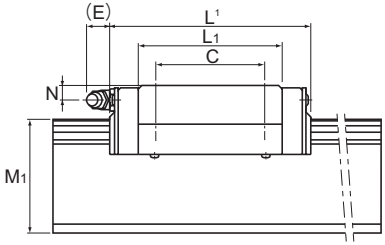
Download data from the THK Online Services website. https://www.thk.com/



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 **A1-555** or **A1-578**)

[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-336**.)

[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⇒A1-541

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**1-101**.

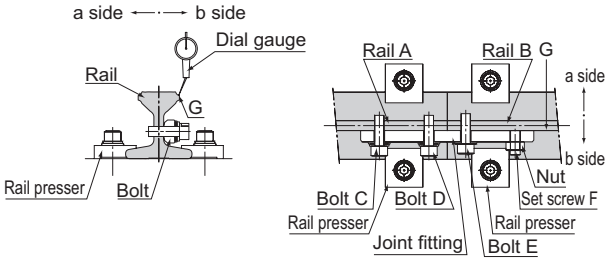
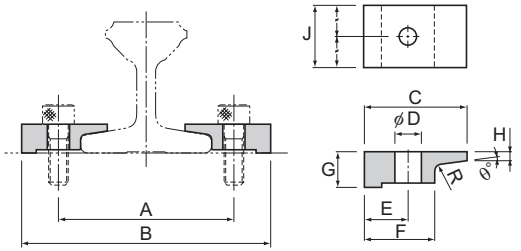


Fig. 3

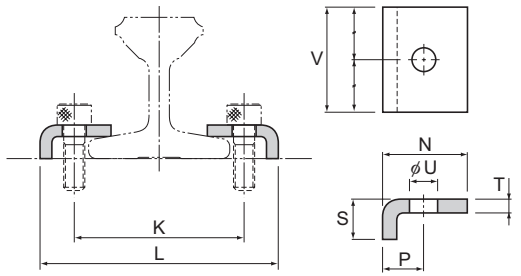
Model JB Frame for LM Rail Clamps



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

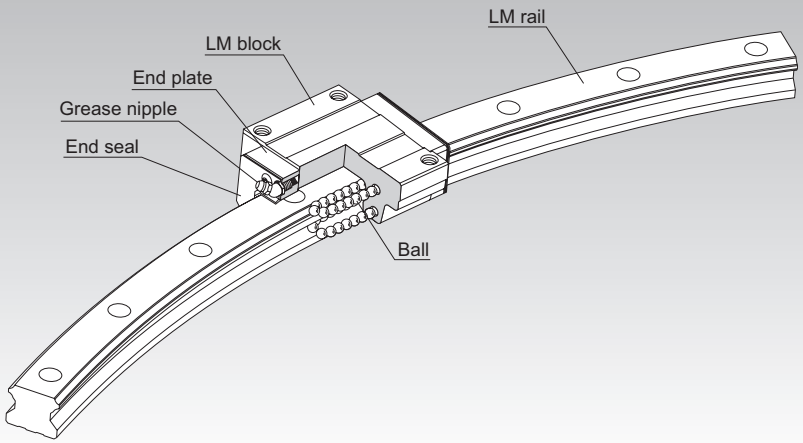


Unit: mm

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

HCR

Curved LM Guide Model HCR



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-77
Accuracy Standards A1-83
Shoulder Height of the Mounting Base and the Corner Radius A1-527
Dimensions of Each Model with Options Attached A1-555

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.
The curved guide is capable of achieving highly accurate circular motion. It is a novel product with the same basic structure as the successful LM Guide Model HSR, which can bear an equal load in four directions.

Freedom of Design

Multiple LM blocks can individually move on the same rail. By arranging LM blocks on the load points, efficient structural design is achieved.

Shortened Assembly Time

This model allows clearance-free, highly accurate circular motion as opposed to sliding guides or cam followers. You can easily assemble this model simply by mounting the LM rail and LM blocks with bolts.

Allows Circular Motion of 5 m or Longer

It allows circular motion of 5 m or longer, which is impossible with swivel bearings.
In addition, use of this model makes it easy to assemble, disassemble, and reassemble equipment that moves in a circular path.

Capable of Receiving a Load in Any Direction

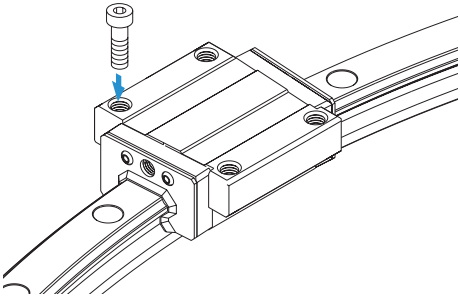
This model is capable of receiving loads in all directions since it has the same basic structure as Model HSR.

Types and Features

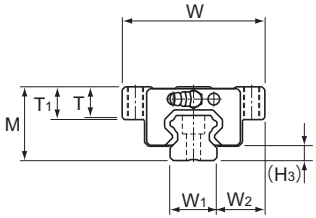
Model HCR

Dimensional Table⇒A1-342

The flange of its LM block has tapped holes.



Model HCR



Model No.	Outer dimensions			LM block dimensions									H_3
	Height M	Width W	Length[1] L	B	C	S	L_1	T	T_1	N	E	Grease nipple	
HCR 12A+60/100R	18	39	44.6	32	18	M4	30.5	4.5	5	3.4	3.5	PB107	3.1
HCR 15A+60/150R	24	47	54.5	38	24	M5	38.8	10.3	11	4.5	5.5	PB1021B	4.8
HCR 15A+60/300R			55.5		28								
HCR 15A+60/400R			55.8		28								
HCR 25A+60/500R	36	70	81.6	57	45	M8	59.5	14.9	16	6	12	B-M6F	7
HCR 25A+60/750R			82.3										
HCR 25A+60/1000R			82.5										
HCR 35A+60/600R	48	100	107.2	82	58	M10	80.4	19.9	21	8	12	B-M6F	8.5
HCR 35A+60/800R			107.5										
HCR 35A+60/1000R			108.2										
HCR 35A+60/1300R			108.5										
HCR 45A+60/800R	60	120	136.7	100	70	M12	98	23.9	25	10	16	B-PT1/8	11.5
HCR 45A+60/1000R			137.3										
HCR 45A+60/1200R			137.3										
HCR 45A+60/1600R			138										
HCR 65A+60/1000R	90	170	193.8	142	106	M16	147	34.9	37	19	16	B-PT1/8	15
HCR 65A+60/1500R			195.4										
HCR 65A+45/2000R			195.9										
HCR 65A+45/2500R			196.5										
HCR 65A+30/3000R			196.5										

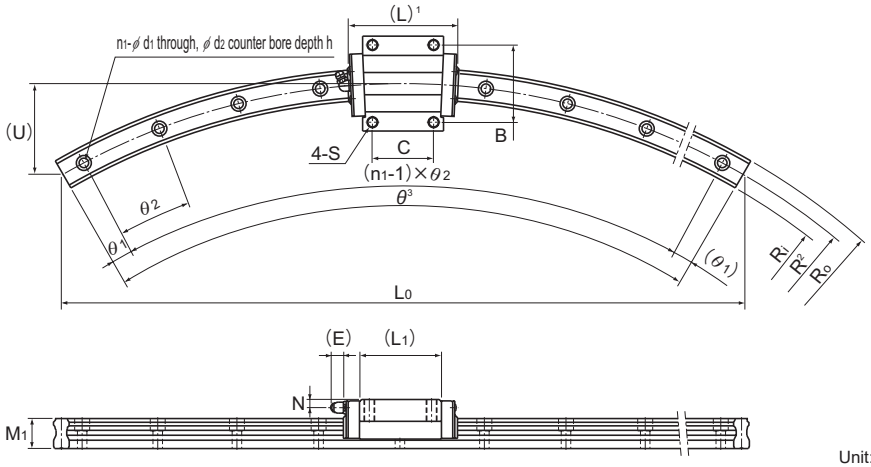
Model number coding

HCR25A 2 UU C1 +60 / 1000R H 6 T

- HCR25A: Model number
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- +60: R-Guide center angle
- / 1000R: LM rail radius (in mm)
- H: Accuracy symbol — Normal grade (No Symbol), High Accuracy grade (H)
- 6: Number of LM rail joints used on one axis
- T: Symbol for LM rail jointed use

Notes: See A1-584 for contamination protection accessories. See A1-77 for radial clearance. See A1-83 for accuracy code. This is the number of LM rails used for one arc. Contact THK for details. When using joined LM rails for models HCR15 to 65, the contamination protection seal must be a low-resistance end seal.

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



Unit: mm

LM rail dimensions													Basic load rating		Static permissible moment kN·m[4]						Mass	
					Width		Height						C	C_0	M_A		M_B		M_C		LM block	LM rail
R^2	R_0	R_i	L_0	U	W_1	W_2	M_1	$d_1 \times d_2 \times h$	n_1	$\theta°$[3]	$\theta_1°$	$\theta_2°$	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
100	106	94	100	13.4	12	13.5	11	3.5×6×5	3	60	7	23	4.7	8.53	0.0409	0.228	0.0409	0.228	0.0445		0.08	0.83
150	157.5	142.5	150	20.1					3		7	23	6.66	10.8								
300	307.5	292.5	300	40	15	16	15	4.5×7.5×5.3	5	60	6	12	8.33	13.5	0.0805	0.457	0.0805	0.457	0.0844		0.2	1.5
400	407.5	392.5	400	54					7		3	9	8.33	13.5								
500	511.5	488.5	500	67					9		2	7										
750	761.5	738.5	750	100	23	23.5	22	7×11×9	12	60	2.5	5	19.9	34.4	0.307	1.71	0.307	1.71	0.344		0.59	3.3
1000	1011.5	988.5	1000	134					15		2	4										
600	617	583	600	80					7		3	9										
800	817	783	800	107	34	33	29	9×14×12	11	60	2.5	5.5	37.3	61.1	0.782	3.93	0.782	3.93	0.905		1.6	6.6
1000	1017	983	1000	134					12		2.5	5										
1300	1317	1283	1300	174					17		2	3.5										
800	822.5	777.5	800	107					8		2	8										
1000	1022.5	977.5	1000	134	45	37.5	38	14×20×17	10	60	3	6	60	95.6	1.42	7.92	1.42	7.92	1.83		2.8	11
1200	1222.5	1177.5	1200	161					12		2.5	5										
1600	1622.5	1577.5	1600	214					15		2	4										
1000	1031.5	968.5	1000	134					8	60	2	8										
1500	1531.5	1468.5	1500	201					10	60	3	6										
2000	2031.5	1968.5	1531	152	63	53.5	53	18×26×22	12	45	0.5	4	141	215	4.8	23.5	4.8	23.5	5.82		8.5	22.5
2500	2531.5	2468.5	1913	190					13	45	1.5	3.5										
3000	3031.5	2968.5	1553	102					10	30	1.5	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 **A1-555** or **A1-578**)

[2] R is the radius of the curve in the LM rail. Radii other than those shown in the table are also available. Contact THK for details.

[3] θ° is the maximum manufacturing angle. Exceeding this angle is normally done by using a joint; however, some products may have LM rails that exceed the maximum manufacturing angle. Contact THK for details.

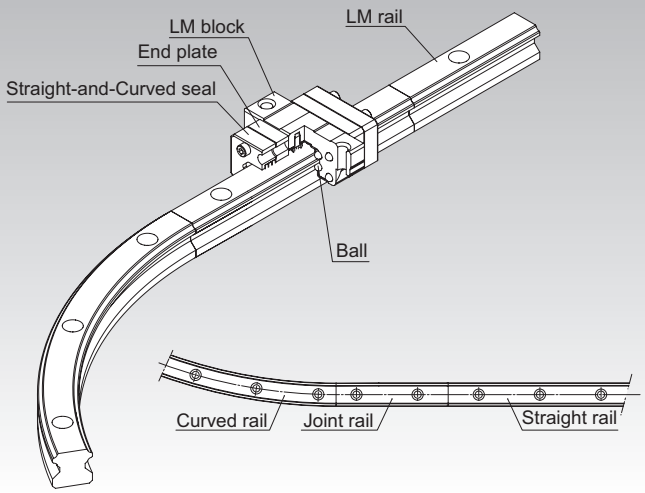
[4] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

Note: Please be aware that the balls will fall out of the LM block if it is removed from the LM rail.

Options⇒A1-541

HMG

Straight-and-Curved LM Guide Model HMG



Selection Criteria	**A1-10**
Design Highlights	**A1-516**
Options	**A1-541**
Model No.	**A1-614**
Handling Precautions	**A1-620**
Accessories for Lubrication	**A24-1**
Mounting Procedure	**B1-91**

Equivalent Moment Factor	A1-45
Rated Loads in All Directions	A1-63
Equivalent Factor in Each Direction	A1-65
Radial Clearance	A1-77
Accuracy Standards	A1-82
Shoulder Height of the Mounting Base and the Corner Radius	A1-527
Dimensions of Each Model with Options Attached	A1-555

Structure and Features

The Straight-and-Curved LM Guide Model HMG is a novel guide that allows the same type of LM blocks to continuously move on straight and curved rails by combining the technologies of the LM Guide Model HSR and the Curved LM Guide Model HCR. It achieves drastic cost reduction by eliminating the need for lifts and turntables, improving the efficiency and simplifying the structure of assembly and conveyance lines and inspection equipment.

Freedom of Design

It allows free combinations of straight and curved shapes.
Since LM blocks can smoothly transit between the straight and curved sections, various combinations of straight and curved rails can be joined into dynamic arrangements such as O, U, L, and S shapes.
In addition, HMG allows a large table to be mounted and a heavy object to be carried through combinations of multiple blocks on a single rail or 2 or more LM rails. Thus, it provides great freedom of design.

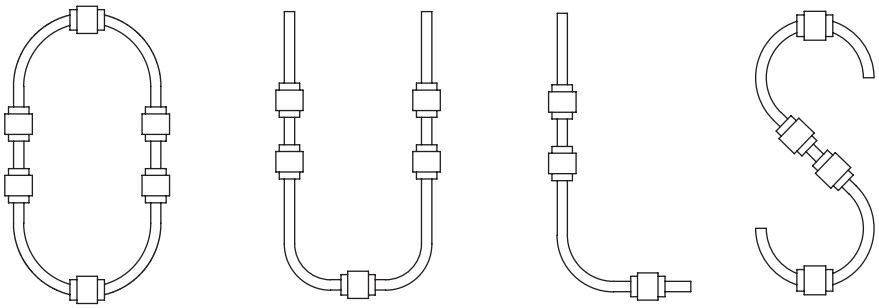


Fig. 1: Examples of Joining Rails into Different Shapes

Straight-and-Curved Seals

The Model HMG is available with seals that can be used for both straight and curved sections to prevent foreign materials from entering. These straight-and-curved seals provide sealing for both the straight and curved sections, preventing foreign materials from entering the unit.

Shortened Transportation Time

Unlike the shuttle method, using HMG units in a circulating system allows workpieces to be placed while other workpieces are being inspected or mounted, thus significantly improving process time. Increasing the number of tables can further shorten process time.

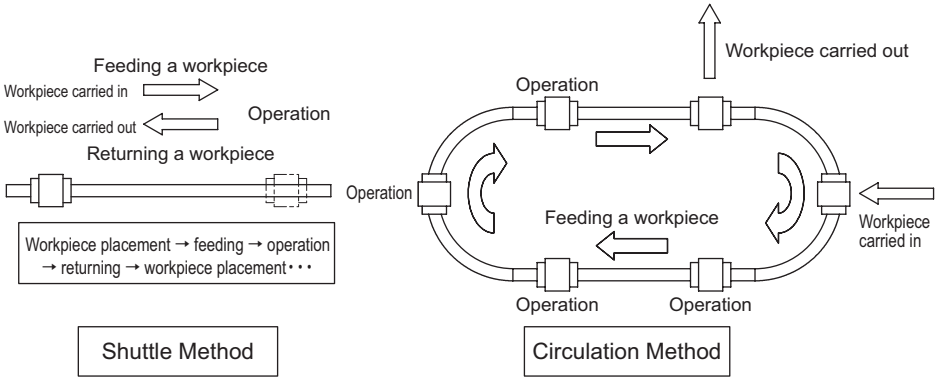


Fig. 2: Improved Process Time

Cost Reduction through a Simplified Mechanism

The combination of straight and curved rails eliminates lifts and turntables conventionally used for changing directions in conveyance and production lines. Therefore, use of HMG simplifies machines and eliminates a large number of parts, allowing the cost to be reduced. This also reduces the labor and time required for design.

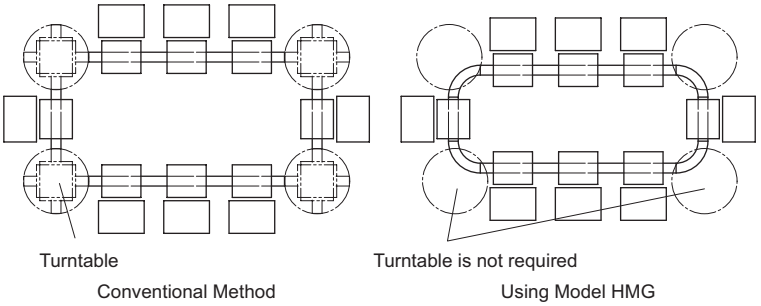


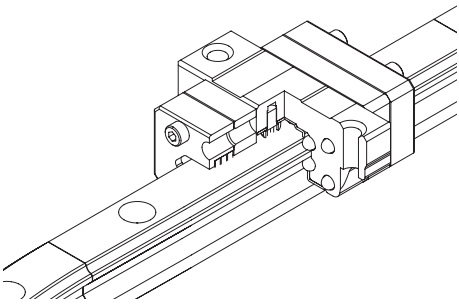
Fig. 3

Types and Features

Model HMG

Dimensional Table⇒A1-350

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



Examples of Table Mechanisms

The Straight-and-Curved LM Guide Model HMG requires a rotating mechanism or a slide mechanism for the table to rotate the curved sections when 2 or more rails are used or when 2 or more LM blocks are connected on a single rail. Refer to Fig. 4 for examples of such mechanisms.

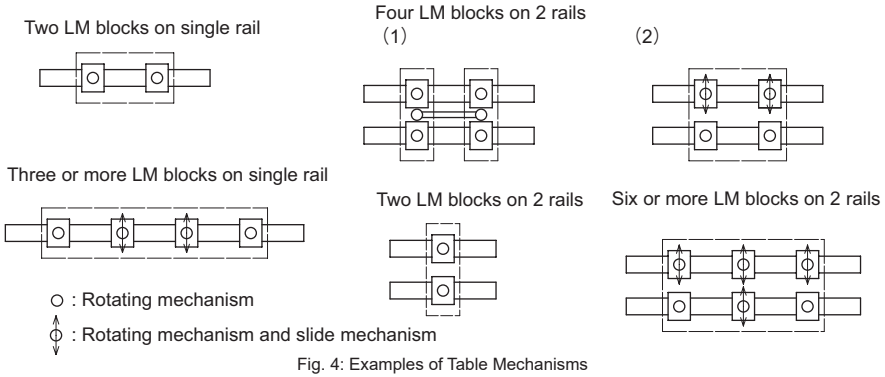


Fig. 4: Examples of Table Mechanisms

Fig. 5 shows examples of designing a table when units are used on multiple axes. HMG requires a rotating mechanism and a slide mechanism since the table is decentered when an LM block transits from a straight section to a curved section. The amount of decentering differs according to the radius of the curved section and the LM block span. Therefore, it is necessary to design the system in accordance with the corresponding specifications.

Fig. 6 shows detail drawings of the slide and rotating mechanisms. In the figure, LM Guide units are used in the slide mechanism and cross-roller rings in the rotating mechanism to achieve smooth sliding and rotating motions.

For driving the straight-and-curved guide, belt drives and chain drives are available.

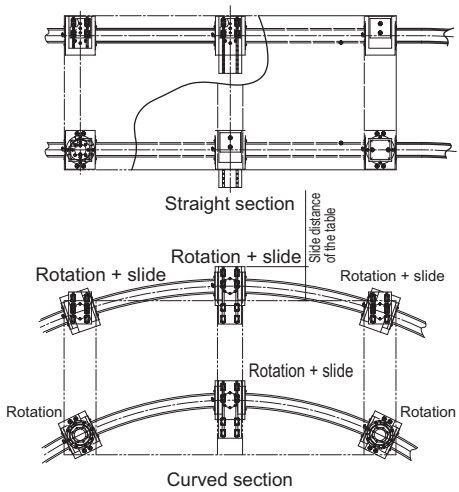


Fig. 5

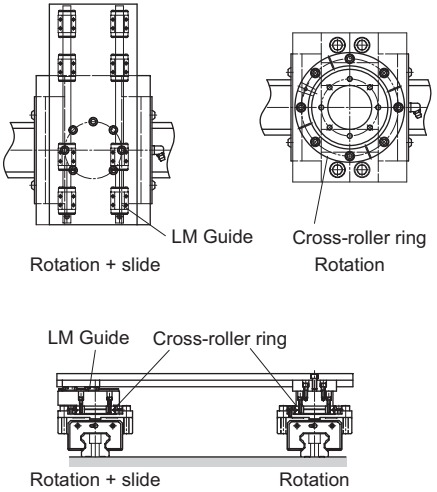
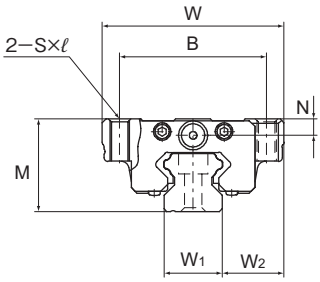
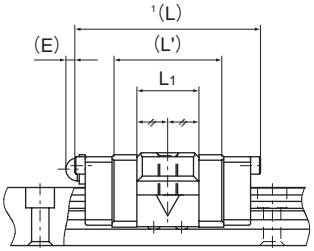


Fig. 6

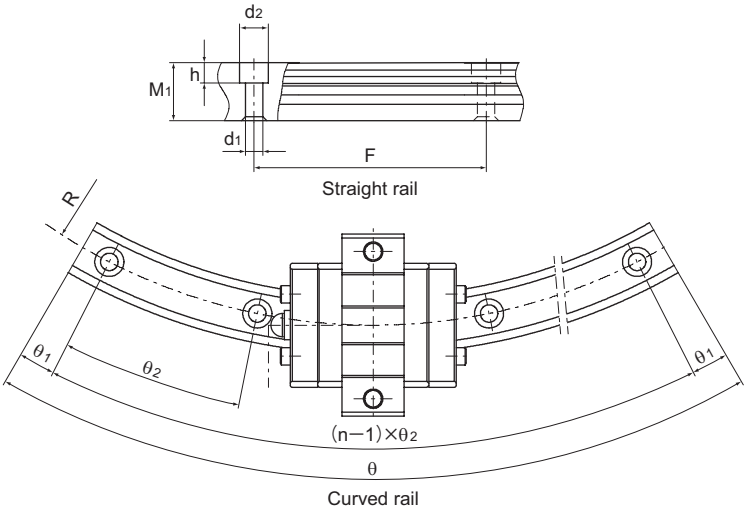
Model HMG





Model No.	Outer dimensions				LM block dimensions					LM rail dimensions			
										Straight rail			Height
	M	W	1L	L´	B	S×ℓ	L_1	N	E	W_1	W_2	F	M_1
HMG 15A	24	47	48	28.8	38	M5×11	16	4.3	5.5	15	16	60	15
HMG 25A	36	70	62.2	42.2	57	M8×16	25.6	6	12	23	23.5	60	22
HMG 35A	48	100	80.6	54.6	82	M10×21	32.6	8	12	34	33	80	29
HMG 45A	60	120	107.6	76.6	100	M12×25	42.6	10	16	45	37.5	105	38
HMG 65A	90	170	144.4	107.4	142	M16×37	63.4	19	16	63	53.5	150	53

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



Unit: mm

Mounting hole	Curved rail					Basic dynamic load rating (C)	Basic static load rating (C_0)	
$d_1 \times d_2 \times h$	R	n	θ°	θ_1°	θ_2°	Resultant load (C) kN	Straight section (C_0st) kN	Curved section (C_0r) kN
4.5×7.5×5.3	150	3	60	7	23	2.56	4.23	0.44
	300	5	60	6	12			
	400	7	60	3	9			
7×11×9	500	9	60	2	7	9.41	10.8	6.7
	750	12	60	2.5	5			
	1000	15	60	2	4			
9×14×12	600	7	60	3	9	17.7	19	11.5
	800	11	60	2.5	5.5			
	1000	12	60	2.5	5			
	1300	17	60	2	3.5			
14×20×17	800	8	60	2	8	28.1	29.7	18.2
	1000	10	60	3	6			
	1200	12	60	2.5	5			
	1600	15	60	2	4			
18×26×22	1000	8	60	2	8	66.2	66.7	36.2
	1500	10	60	3	6			
	2000	12	45	0.5	4			
	2500	13	45	1.5	3.5			
	3000	10	30	1.5	3			

[1] Length L is for when the product includes the straight-curved seal (code: UU).

Table 1: Static Permissible Moments of Model HMG

Unit: kN·m

Model No.	M_A		M_B		M_C	
	Straight section	Curved section	Straight section	Curved section	Straight section	Curved section
HMG 15	0.008	0.007	0.008	0.01	0.027	0.003
HMG 25	0.1	0.04	0.1	0.05	0.11	0.07
HMG 35	0.22	0.11	0.22	0.12	0.29	0.17
HMG 45	0.48	0.2	0.48	0.22	0.58	0.34
HMG 65	1.47	0.66	1.47	0.73	1.83	0.94

Notes: Static permissible moment 1 block (straight/curved components): the static permissible moment value with 1 LM block.
When a moment is applied where one LM block is specified per axis, the LM block may experience non-smooth motion.
We recommend that multiple LM blocks be used per axis when a moment is applied.

Options⇒A1-541

Jointed LM Rail

Height Difference Specification for the Joint

Accuracy errors in LM rail installation will have an influence on the service life of the product. When installing the LM rail, take care to minimize the height difference in the joint within the specification indicated in Table 2. Particularly for joints between two curved rails, we recommend using a flushing piece like the one shown in Fig. 7 at the part where one curved rail meets the next. When using the flushing piece, place the fixed butt piece on the outer side, push the rail against the butt piece, and then adjust the level difference in the joint section by turning the adjustment screw from the inner side.

Table 2: Height Difference Specification for the Joint

Unit: mm

Model No.	Ball raceway, side face	Upper face	Maximum clearance of the joint section
15	0.01	0.02	0.6
25	0.01	0.02	0.7
35	0.01	0.02	1.0
45	0.01	0.02	1.3
65	0.01	0.02	1.3

Note: Place the pin on the outer circumference and the bolt on the inner circumference.

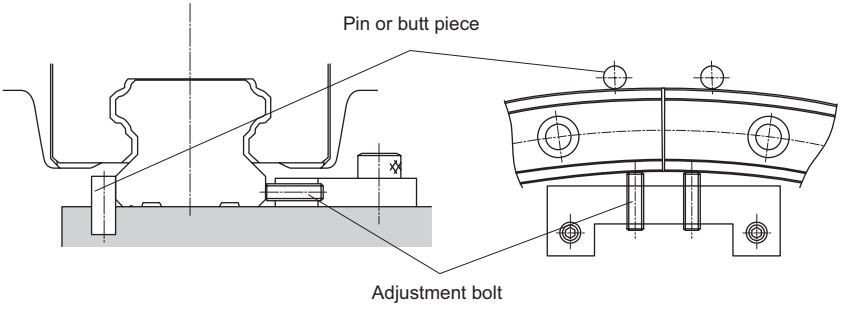


Fig. 7: Flush Piece

About the Curved Section

The curved section of model HMG has a clearance for a structural reason. Therefore, this model may not be used in applications where highly accurate feed is required. In addition, the curved section cannot withstand a large moment. When a large moment is applied, it is necessary to increase the number of LM blocks or LM rails. For permissible moment values, see Table 1 on **A1-351**.

Jointed LM Rail

Model HMG always requires a jointed rail where an LM block travels from the straight section to the curved section and where the curve is inverted such as an S curve. Take this into account when designing the system.

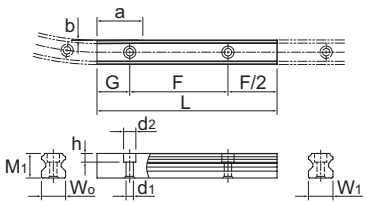


Table 3: Dimensions of the Jointed Rail

Unit: mm

Model No.	Dimensions of the jointed rail							
	Height	Pitch	Mounting hole	Width		Taper length	Taper depth	Radius
	M_1	F	$d_1 \times d_2 \times h$	W_1	W_0	a	b	R
15A	15	60	4.5×7.5×5.3	15	14.78	28	0.22	150
					14.89		0.11	300
					14.92		0.08	400
25A	22	60	7×11×9	23	22.83	42	0.17	500
					22.89		0.11	750
					22.92		0.08	1000
35A	29	80	9×14×12	34	33.77	54	0.23	600
					33.83		0.17	800
					33.86		0.14	1000
					33.9		0.1	1300
45A	38	105	14×20×17	45	44.71	76	0.29	800
					44.77		0.23	1000
					44.81		0.19	1200
					44.86		0.14	1600
65A	53	150	18×26×22	63	62.48	107	0.52	1000
					62.66		0.34	1500
					62.74		0.26	2000
					62.8		0.2	2500
					62.83		0.17	3000

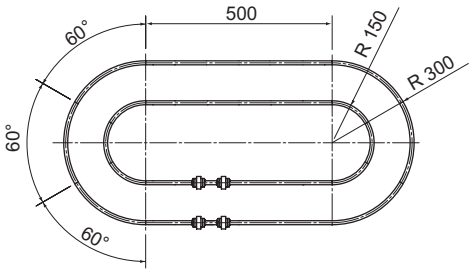


Fig. 8: Model No. Coding Example

Model number coding

When 2 rails are used

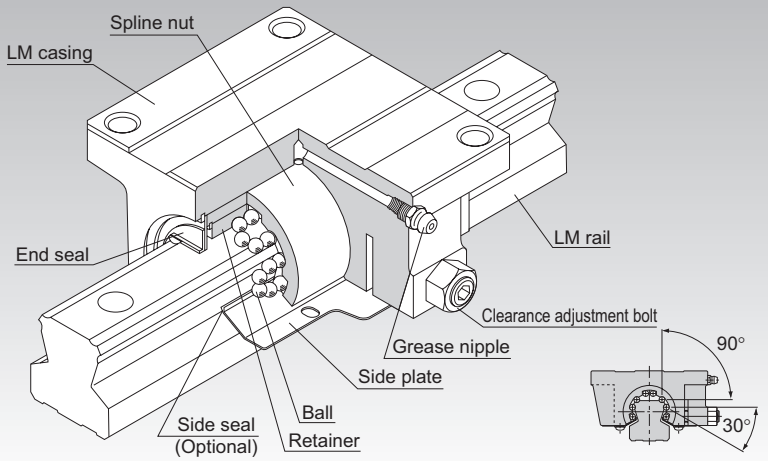
HMG15A 2 UU C1 +1000L T + 60/150R 6T + 60/300R 6T -Ⅱ

- Model number
- No. of LM blocks used on the same rail
- Contamination protection accessory symbol
- Radial clearance symbol: Normal (No symbol), Light preload (C1)
- Overall linear LM rail length per rail
- Symbol for linear LM rail joint
- Center angle of one inner curved rail
- Radius of inner curved rail
- No. of inner curved LM rails jointed
- Center angle of one outer curved rail
- Radius of outer curved rail
- No. of outer curved LM rails jointed
- Symbol for No. of rails used on the same plane

Notes: This model number indicates that an LM block and an LM rail constitute one set (i.e., the required number of sets when 2 rails are used in parallel is 2).
The standard Model HMG does not have a seal. To attach a seal, make sure to specify a straight-curved seal (code: UU).
For the model number above, Fig. 8.
See **A1-584** for contamination protection accessories. See **A1-13** for number of rails used on the same plane.

NSR-TBC

Self-Aligning LM Guide Model NSR-TBC



Selection Criteria	**A1-10**
Design Highlights	**A1-516**
Options	**A1-541**
Model No.	**A1-614**
Handling Precautions	**A1-620**
Accessories for Lubrication	**A24-1**
Mounting Procedure	**B1-91**

Equivalent Moment Factor	A1-45
Rated Loads in All Directions	A1-63
Equivalent Factor in Each Direction	A1-65
Radial Clearance	A1-77
Accuracy Standards	A1-81
Shoulder Height of the Mounting Base and the Corner Radius	A1-525
Reference Error Tolerance for the Mounting Surface	A1-533
Dimensions of Each Model with Options Attached	A1-555

Structure and Features

Model NSR-TBC is the only LM Guide whose casing consists of two pieces instead of a single-piece LM block. The rigid, cast iron casing contains a cylindrical spline nut that is partially cut at an angle of 120°. This enables the model to self-align on the fitting surface with the casing, and reduces the required mounting precision.

Capable of Receiving a Load in Any Direction

NSR-TBC has four rows of balls. The balls are arranged in two rows on each shoulder of the LM rail, and can receive loads in all four directions: upward, downward, and in the lateral directions. Due to the self-aligning structure, however, a rotational moment (M_C) cannot be applied in a single-rail configuration.

Easy Installation and Accuracy Establishment

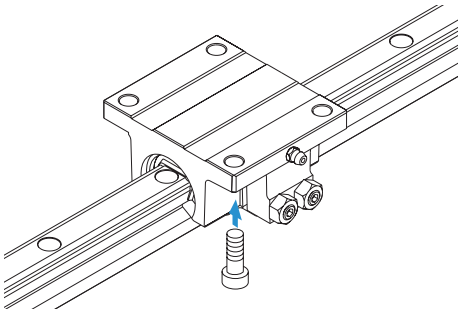
Model NSR-TBC is highly capable of performing self-adjustment and self-alignment. As a result, even if two rails are not mounted with precision, the LM casing absorbs the error and does not allow it to affect the traveling performance or reduce the machine's functionality.

Types and Features

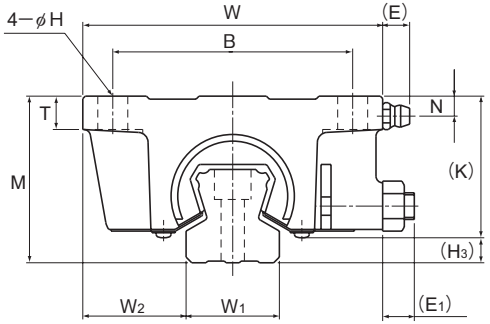
Model NSR-TBC

Dimensional Table⇒A1-356

The flange of the LM casing has through holes, allowing the LM Guide to be mounted from the bottom.



Model NSR-TBC



Model No.	Outer dimensions			LM casing dimensions									
	Height	Width	Length[1]									Grease nipple	
	M	W	L	B	C	H	T	K	N	E	E_1		H_3
NSR 20TBC	40	70	67	55	50	6.6	8	34.5	5.5	8.5	7	A-M6F	5.5
NSR 25TBC	50	90	78	72	60	9	10	43.5	6	8.5	7.5	A-M6F	6.5
NSR 30TBC	60	100	90	82	72	9	12	51	8	8.5	9.5	A-M6F	9
NSR 40TBC	75	120	110	100	80	11	13	64	10	8.5	12	A-M6F	10.5
NSR 50TBC	82	140	123	116	95	14	15	74	9	15	15	A-PT1/8	8
NSR 70TBC	105	175	150	150	110	14	18	95.5	10	15	16.5	A-PT1/8	9.5

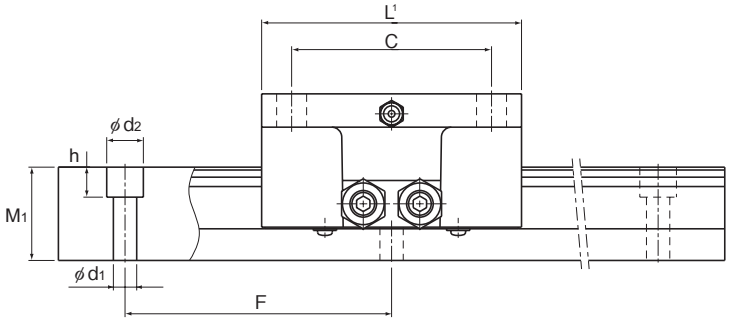
Model number coding

NSR50TBC 2 UU C1 +1260L P T -II

- NSR50TBC: Model number
- 2: No. of LM cases used on the same rail
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1260L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-77** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Unit: mm

	LM rail dimensions						Basic load rating[3]		Static permissible moment[4] kN·m		Mass	
	Width		Height	Pitch		Length[2]	C	C_0	M_A	M_B	LM casing	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	2 casings	2 casings	kg	kg/m
	23	23.5	23	60	6×9.5×8.5	2200	9.41	18.6	0.31	0.27	0.62	3.1
	28	31	28	80	7×11×9	3000	14.9	26.7	0.53	0.46	1.13	4.7
	34	33	34.5	80	7×11×9	3000	22.5	38.3	0.85	0.74	1.8	7.2
	45	37.5	44.5	105	9×14×12	3000	37.1	62.2	1.7	1.5	3.5	12.2
	48	46	47.5	120	11×17.5×14	3000	55.1	87.4	2.7	2.4	5.2	14.3
	63	56	62	150	14×20×17	3000	90.8	152	9.8	4.9	9.4	27.6

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
[2] The maximum length indicates the standard maximum length of an LM rail. (See **A1-358**.)
[3] The basic load rating is for a load in the radial direction.
Use Table 7 on **A1-63** to calculate the load rating for loads in the reverse-radial direction or lateral direction.
[4] Static permissible moment 2 casings: the static permissible moment with two LM casings in close contact with each other

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model NSR-TBC variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

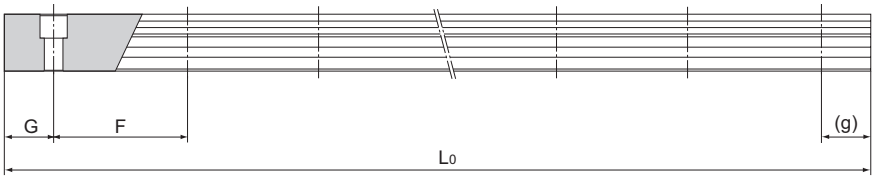


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model NSR-TBC

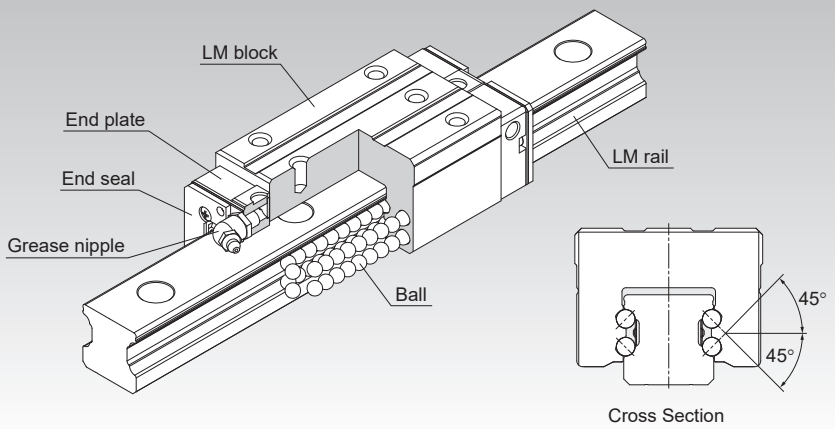
Unit: mm

Model No.	NSR 20TBC	NSR 25TBC	NSR 30TBC	NSR 40TBC	NSR 50TBC	NSR 70TBC
LM rail standard lengths (L_0)	220 280 340 460 640 820 1000 1240 1600	280 440 600 760 1000 1240 1640 2040 2520 3000	280 440 600 760 1000 1240 1640 2040 2520 3000	570 885 1200 1620 2040 2460 2985	780 1020 1260 1500 1980 2580 2940	1270 1570 2020 2620
Standard pitch F	60	80	80	105	120	150
G, g	20	20	20	22.5	30	35
Max length	2200	3000	3000	3000	3000	3000

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

HDR

LM Guide Suited for Single-Rail Applications Model HDR



Selection Criteria	**A1-10**
Design Highlights	**A1-516**
Options	**A1-541**
Model No.	**A1-614**
Handling Precautions	**A1-620**
Accessories for Lubrication	**A24-1**
Mounting Procedure	**B1-91**

Equivalent Moment Factor	A1-45
Rated Loads in All Directions	A1-63
Equivalent Factor in Each Direction	A1-65
Radial Clearance	A1-76
Accuracy Standards	A1-81
Shoulder Height of the Mounting Base and the Corner Radius	A1-527
Reference Error Tolerance for the Mounting Surface	A1-533
Dimensions of Each Model with Options Attached	A1-555

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.

High Rigidity against Moment Forces from the Rolling Direction

Balls arranged in a DB configuration provide high rigidity against moment forces coming from the rolling direction (Mc moments). This makes the Model HDR ideal for single-rail applications, where moment loads are more likely to occur.

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 and in extensive applications.

Global Standard Size

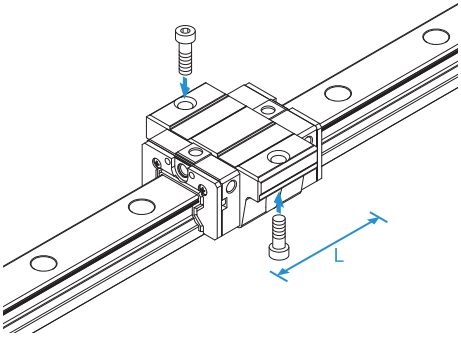
This model is designed to have dimensions nearly equal to those of the Full-Ball LM Guide Model HSR, THK's pioneering LM System and the de facto global standard. (This does not include models HDR-US/UT or UV/UW.)

Types and Features

Model HDR-SC

Dimensional Table⇒A1-366

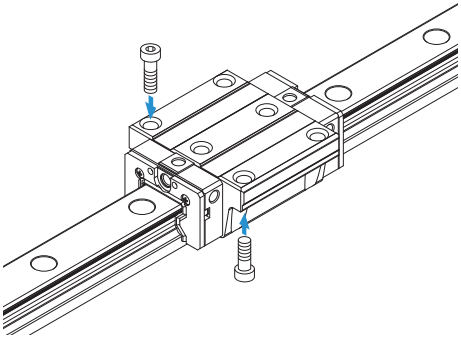
This type has a shorter overall LM block length (L) than the Model HDR-C.



Model HDR-C

Dimensional Table⇒A1-366

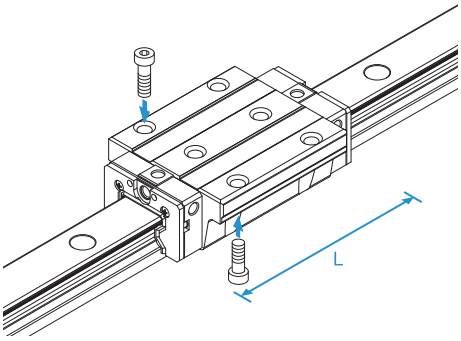
The flange of the LM block has tapped holes.
It can be mounted from the top or the bottom.
It can also be used in places where the table cannot have through holes for mounting bolts.



Model HDR-LC

Dimensional Table⇒A1-366

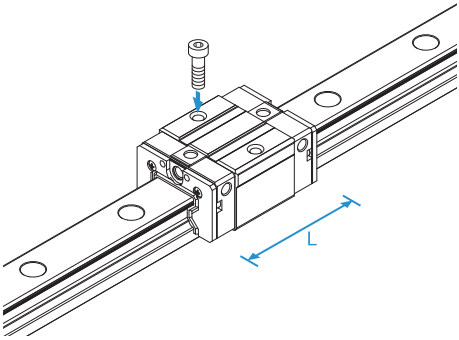
The LM block has the same cross-sectional shape as model HDR-C, but has a longer overall LM block length (L) and a greater load rating.



Model HDR-SR

Dimensional Table⇒A1-368

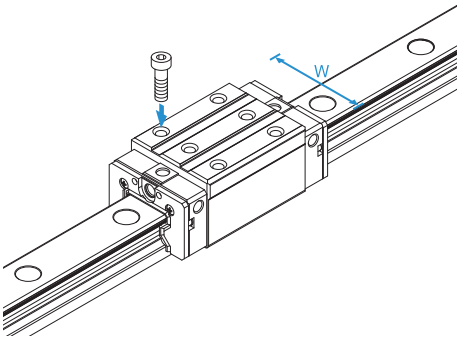
This type has a shorter overall LM block length (L) than the Model HDR-R.



Model HDR-R

Dimensional Table⇒A1-368

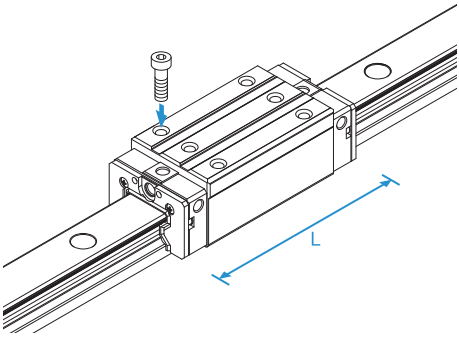
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



Model HDR-LR

Dimensional Table⇒A1-368

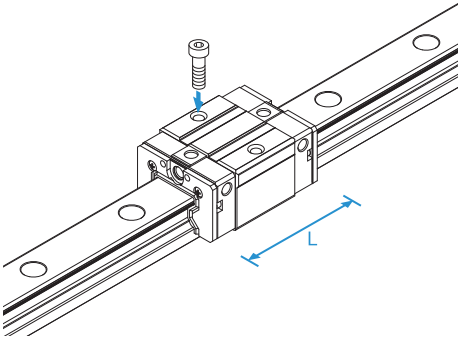
The LM block has the same cross-sectional shape as the Model HDR-R, but has a longer overall LM block length (L) and a greater load rating.



Model HDR-SV

Dimensional Table⇒A1-370

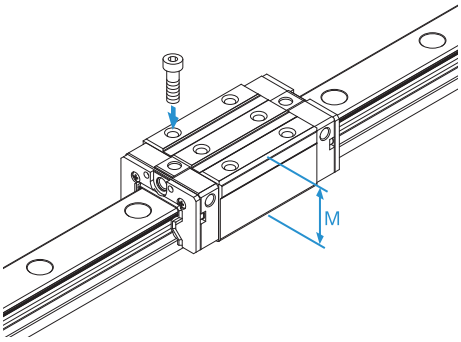
This type has a shorter overall LM block length (L) than the Model HDR-V.



Model HDR-V

Dimensional Table⇒A1-370

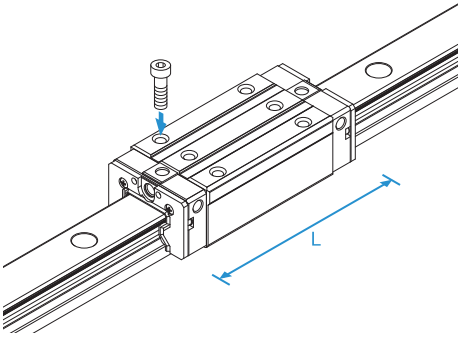
This type has a shorter height (M) than the HDR-R/LR and a more compact design.



Model HDR-LV

Dimensional Table⇒A1-370

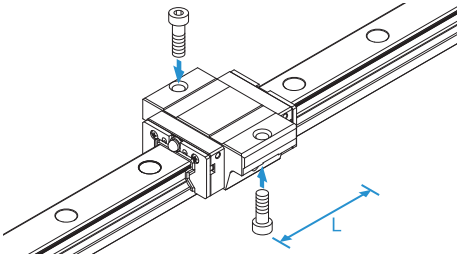
The LM block has the same cross-sectional shape as the Model HDR-V, but has a longer overall LM block length (L) and a greater load rating.



Model HDR-US

Dimensional Table⇒A1-372

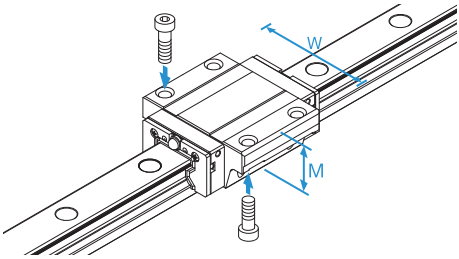
This type has a shorter overall LM block length (L) than the Model HDR-UT.



Model HDR-UT

Dimensional Table⇒A1-372

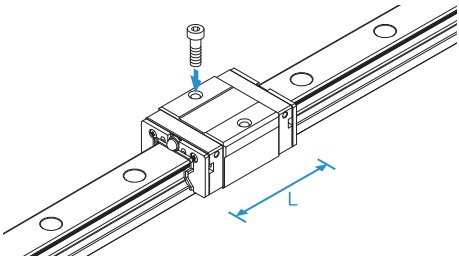
This type conforms to the height (M) and block width (W) of the compact-type Model SR-SB/TB, which features a low cross-sectional height. The M dimension is even shorter than that of the SC/C/LC.



Model HDR-UV

Dimensional Table⇒A1-374

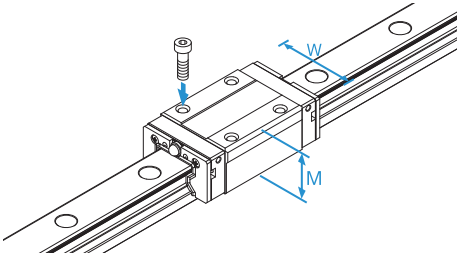
This type has a shorter overall LM block length (L) than the Model HDR-UW.



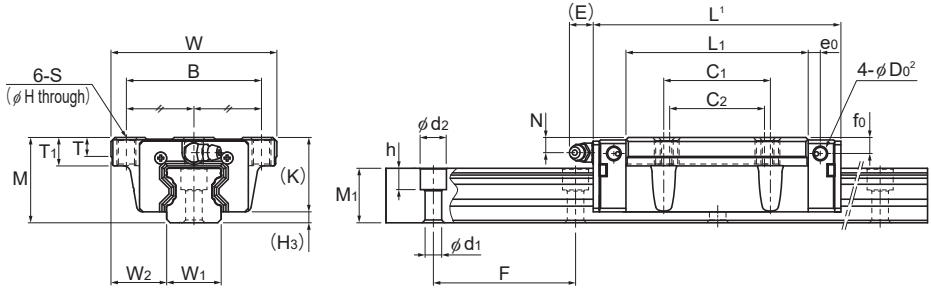
Model HDR-UW

Dimensional Table⇒A1-374

This type conforms to the height (M) and block width (W) of the compacttype Model SR-V/W, which features a low cross-sectional height. The M dimension is even shorter than that of the SV/V/LV.



Models HDR-SC, HDR-C, and HDR-LC



Models HDR-C/LC

Model No.	Outer dimensions			LM block dimensions												Pilot hole for side nipple			
	Height	Width	Length[1]				Mounting hole								Grease nipple				
	M	W	L	B	C_1	C_2	S	H	L_1	T	T_1	K	N	E		e_0	f_0	D_0^2	H_3
HDR 15SC	24	47	43	38	—	—	M5	4.4	21.6	5.9	9.9	20.2	3.5	3.4	PB107	3.5	3.6	2.9	3.8
HDR 15C			61.4		30	26			40										
HDR 15LC			74.9		30	26			53.5										
HDR 20SC	30	63	57.3	53	—	—	M6	5.4	34.1	7.2	9.9	25.5	4.7	3	PB107	3	4.7	2.9	4.5
HDR 20C			74.9		40	35			51.7										
HDR 20LC			90.7		40	35			67.5										
HDR 25SC	36	70	63.9	57	—	—	M8	6.8	36.3	8	11.9	31.4	6.4	10	B-M6F	5.1	6.8	5.2	4.6
HDR 25C			87.6		45	40			60										
HDR 25LC			104.5		45	40			76.9										
HDR 30SC	42	90	73.5	72	—	—	M10	8.5	41.9	8	14.9	36.3	7.5	9.5	B-M6F	4.8	7.5	5.2	5.7
HDR 30C			102.1		52	44			70.5										
HDR 30LC			124.1		52	44			92.5										
HDR 35SC	48	100	84.2	82	—	—	M10	8.5	48.2	11.5	14.9	41.8	9.5	9.3	B-M6F	5.6	9.5	5.2	6.2
HDR 35C			116.5		62	52			80.5										
HDR 35LC			139.5		62	52			103.5										
HDR 45C	60	120	145.6	100	80	60	M12	10.5	104.2	14.1	17.9	50.5	10.5	14.3	B-PT1/8	8	10.5	5.2	9.5
HDR 45LC			177.3		80	60			135.9										
HDR 55C	70	140	179.2	116	95	70	M14	12.5	134.2	16	20.9	58	12	14.3	B-PT1/8	9	12	5.2	12
HDR 55LC			217.3		95	70			172.3										
HDR 65C	90	170	199.2	142	110	82	M16	14.5	144.8	18.8	23.9	77.3	19	14.3	B-PT1/8	10	19	5.2	12.7
HDR 65LC			258.8		110	82			204.4										

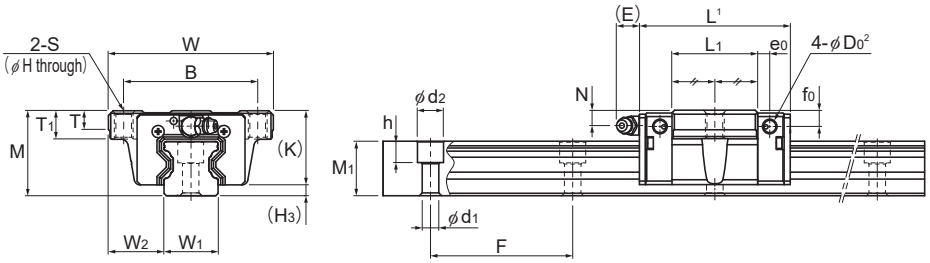
Model number coding

HDR25 LC 2 QZ KKHH C0 +1240L P T -II

- HDR25: Model number
- LC: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol); Light preload (C1); Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H); Precision grade (P)/Super Precision grade (SP); Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum). Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ. See A1-584 for contamination protection accessories. See A1-75 for radial clearance symbol. See A1-80 for accuracy symbol. See A1-13 for symbol for number of rails used on the same plane.

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



Model HDR-SC

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[4]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15	16	15.6	60	4.5×7.5×5.3	3000	7.07 10.9 13.7	8.43 15.7 21.7	0.031 0.098 0.182	0.246 0.601 0.984	0.031 0.098 0.182	0.246 0.601 0.984	0.084 0.155 0.215		0.11 0.21 0.28	1.5
	20	21.5	20.1	60	6×9.5×8.5	3000	15.3 19.8 23.9	19 27.4 35.8	0.114 0.227 0.378	0.688 1.27 1.97	0.114 0.227 0.378	0.688 1.27 1.97	0.241 0.348 0.456		0.3 0.46 0.59	2.5
	23	23.5	23	60	7×11×9	3000	20.8 29.2 33.8	24.3 39.5 48.6	0.159 0.392 0.582	0.968 2.13 3.09	0.159 0.392 0.582	0.968 2.13 3.09	0.353 0.574 0.707		0.43 0.71 0.9	3.4
	28	31	26	80	9×14×12	3000	28.8 40.5 48.9	33.1 53.7 70.2	0.252 0.623 1.04	1.57 3.38 5.26	0.252 0.623 1.04	1.57 3.38 5.26	0.588 0.956 1.25		0.74 1.25 1.61	4.8
	34	33	30	80	9×14×12	3000	38.3 53.9 62.4	43.2 70.2 86.4	0.376 0.93 1.38	2.35 5.03 7.32	0.376 0.93 1.38	2.35 5.03 7.32	0.95 1.54 1.9		1.05 1.76 2.23	6.5
	45	37.5	37	105	14×20×17	3090	86.9 105	110 143	1.82 3.03	9.82 15.3	1.82 3.03	9.82 15.3	3 3.93		3.08 4	10.8
	53	43.5	43	120	16×23×20	3060	135 161	170 219	3.61 5.84	18.6 28.5	3.61 5.84	18.6 28.5	5.51 7.09		5.21 6.66	14.8
	63	53.5	54	150	18×26×22	3000	195 249	228 323	5.27 10.2	28 50.3	5.27 10.2	28 50.3	8.79 12.5		9.38 13.15	22.3

[1] Length L is for when the contamination protection accessory symbol is UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-555** or **A1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

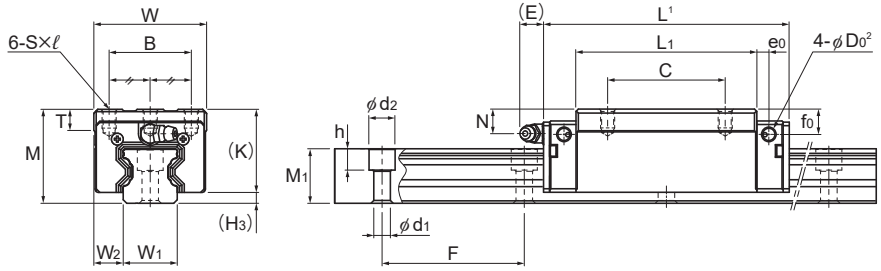
[3] Length Max represents the standard maximum length of an LM rail (see **A1-376**).

[4] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)

Options⇒A1-541

Models HDR-SR, HDR-R, and HDR-LR



Models HDR-R/LR

Model No.	Outer dimensions			LM block dimensions									Pilot hole for side nipple			
	Height	Width	Length[1]									Grease nipple				
	M	W	L	B	C	S×ℓ	L_1	T	K	N	E		e_0	f_0	D_0^2	H_3
HDR 15R HDR 15LR	28	34	61.4 74.9	26	26 26	M4×5	40 53.5	6	24.2	7.5	3.4	PB107	3.5	7.6	2.9	3.8
HDR 20SR HDR 20R HDR 20LR	30	44	57.3 74.9 90.7	32	— 36 50	M5×7.5 M5×6 M5×6	34.1 51.7 67.5	8	25.5	4.7	3	PB107	3	4.7	2.9	4.5
HDR 25R HDR 25LR	40	48	87.6 104.5	35	35 50	M6×8	60 76.9	9	35.4	10.4	10	B-M6F	5.1	10.6	5.2	4.6
HDR 30R HDR 30LR	45	60	102.1 124.1	40	40 60	M8×10	70.5 92.5	9	39.3	10.5	9.5	B-M6F	4.8	10.5	5.2	5.7
HDR 35R HDR 35LR	55	70	116.5 139.5	50	50 72	M8×12	80.5 103.5	11.8	48.8	16.5	9.3	B-M6F	5.6	16.5	5.2	6.2
HDR 45R HDR 45LR	70	86	145.6 177.3	60	60 80	M10×17	104.2 135.9	15	60.5	20.5	14.3	B-PT1/8	8	20.5	5.2	9.5
HDR 55R HDR 55LR	80	100	179.2 217.3	75	75 95	M12×18	134.2 172.3	20.5	68	22	14.3	B-PT1/8	9	22	5.2	12
HDR 65R HDR 65LR	90	126	199.2 258.8	76	70 120	M16×20	144.8 204.4	23	77.3	19	14.3	B-PT1/8	10	19	5.2	12.7

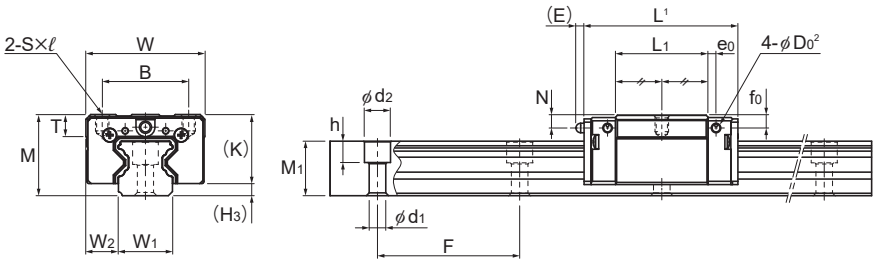
Model number coding

HDR25 LR 2 QZ KKHH C0 +1240L P T -II

- HDR25: Model number
- LR: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol
  - Normal grade (No Symbol)/High Accuracy grade (H)
  - Precision grade (P)/Super Precision grade (SP)
  - Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum). Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-80** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Model HDR-SR

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[4]					Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC	LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	9.5	15.6	60	4.5×7.5×5.3	3000	10.9 13.7	15.7 21.7	0.098 0.182	0.601 0.984	0.098 0.182	0.601 0.984	0.155 0.215	0.19 0.28	1.5
	20	12	20.1	60	6×9.5×8.5	3000	15.3 19.8 23.9	19 27.4 35.8	0.114 0.227 0.378	0.688 1.27 1.97	0.114 0.227 0.378	0.688 1.27 1.97	0.241 0.348 0.456	0.24 0.36 0.42	2.5
	23	12.5	23	60	7×11×9	3000	29.2 33.8	39.5 48.6	0.392 0.582	2.13 3.09	0.392 0.582	2.13 3.09	0.574 0.707	0.64 0.74	3.4
	28	16	26	80	9×14×12	3000	40.5 48.9	53.7 70.2	0.623 1.04	3.38 5.26	0.623 1.04	3.38 5.26	0.956 1.25	1.06 1.37	4.8
	34	18	30	80	9×14×12	3000	53.9 62.4	70.2 86.4	0.93 1.38	5.03 7.32	0.93 1.38	5.03 7.32	1.54 1.9	1.75 2.04	6.5
	45	20.5	37	105	14×20×17	3090	86.9 105	110 143	1.82 3.03	9.82 15.3	1.82 3.03	9.82 15.3	3 3.93	3.16 4.07	10.8
	53	23.5	43	120	16×23×20	3060	135 161	170 219	3.61 5.84	18.6 28.5	3.61 5.84	18.6 28.5	5.51 7.09	5.28 6.72	14.8
	63	31.5	54	150	18×26×22	3000	195 249	228 323	5.27 10.2	28 50.3	5.27 10.2	28 50.3	8.79 12.5	8.03 11.17	22.3

[1] Length L is for when the contamination protection accessory symbol is UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See A**1-555** or A**1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

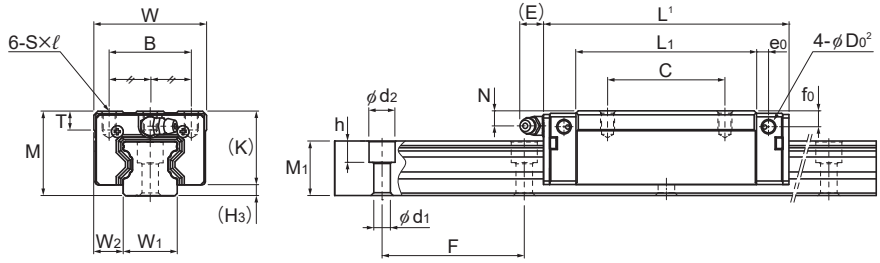
[3] Length Max represents the standard maximum length of an LM rail (see A**1-376**).

[4] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A**1-12**, Lubricant: see A**24-2**)

Options⇒A1-541

Models HDR-SV, HDR-V, and HDR-LV



Models HDR-V/LV

Model No.	Outer dimensions			LM block dimensions								Grease nipple	Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E		e_0	f_0	D_0^2	H_3
HDR 15SV HDR 15V HDR 15LV	24	34	43 61.4 74.9	26	— 26 26	M4×6 M4×4 M4×4	21.6 40 53.5	5.9	20.2	3.5	3.4	PB107	3.5	3.6	2.9	3.8
HDR 25SV HDR 25V HDR 25LV	36	48	63.9 87.6 104.5	35	— 35 50	M6×9 M6×8 M6×8	36.3 60 76.9	8	31.4	6.4	10	B-M6F	5.1	6.8	5.2	4.6
HDR 30SV HDR 30V HDR 30LV	42	60	73.5 102.1 124.1	40	— 40 60	M8×12 M8×10 M8×10	41.9 70.5 92.5	8	36.3	7.5	9.5	B-M6F	4.8	7.5	5.2	5.7
HDR 35SV HDR 35V HDR 35LV	48	70	84.2 116.5 139.5	50	— 50 72	M8×13 M8×12 M8×12	48.2 80.5 103.5	11.5	41.8	9.5	9.3	B-M6F	5.6	9.5	5.2	6.2
HDR 45V HDR 45LV	60	86	145.6 177.3	60	60 80	M10×15	104.2 135.9	14.9	50.5	10.5	14.3	B-PT1/8	8	10.5	5.2	9.5
HDR 55V HDR 55LV	70	100	179.2 217.3	75	75 95	M12×15	134.2 172.3	19.4	58	12	14.3	B-PT1/8	9	12	5.2	12

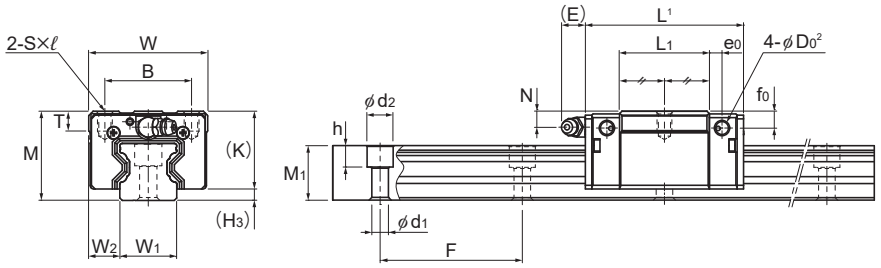
Model number coding

HDR25 LV 2 QZ KKHH C0 +1240L P T -II

- HDR25: Model number
- LV: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum). Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-80** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Model HDR-SV

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[4]						Mass	
	Width		Height	Pitch		Length[3]	C	C0	MA		MB		MC		LM block	LM rail
	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15	9.5	15.6	60	4.5×7.5×5.3	3000	7.07 10.9 13.7	8.43 15.7 21.7	0.031 0.098 0.182	0.246 0.601 0.984	0.031 0.098 0.182	0.246 0.601 0.984	0.084 0.155 0.215		0.08 0.15 0.2	1.5
	23	12.5	23	60	7×11×9	3000	20.8 29.2 33.8	24.3 39.5 48.6	0.159 0.392 0.582	0.968 2.13 3.09	0.159 0.392 0.582	0.968 2.13 3.09	0.353 0.574 0.707		0.3 0.51 0.62	3.4
	28	16	26	80	9×14×12	3000	28.8 40.5 48.9	33.1 53.7 70.2	0.252 0.623 1.04	1.57 3.38 5.26	0.252 0.623 1.04	1.57 3.38 5.26	0.588 0.956 1.25		0.44 0.74 1	4.8
	34	18	30	80	9×14×12	3000	38.3 53.9 62.4	43.2 70.2 86.4	0.376 0.93 1.38	2.35 5.03 7.32	0.376 0.93 1.38	2.35 5.03 7.32	0.95 1.54 1.9		0.8 1.34 1.65	6.5
	45	20.5	37	105	14×20×17	3090	86.9 105	110 143	1.82 3.03	9.82 15.3	1.82 3.03	9.82 15.3	3 3.93		2.47 3.17	10.8
	53	23.5	43	120	16×23×20	3060	135 161	170 219	3.61 5.84	18.6 28.5	3.61 5.84	18.6 28.5	5.51 7.09		4.25 5.4	14.8

[1] Length L is for when the contamination protection accessory symbol is UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See A**1-555** or A**1-578**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

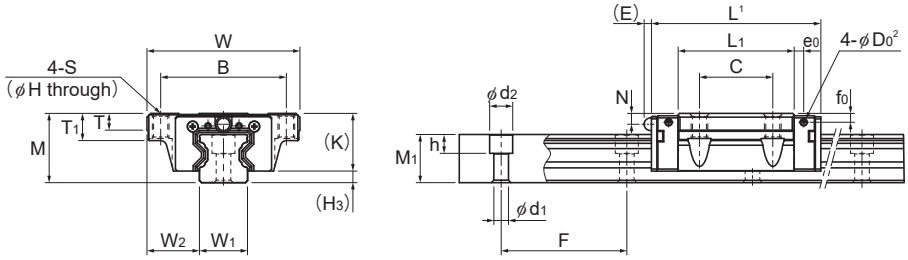
[3] Length Max represents the standard maximum length of an LM rail (see A**1-376**).

[4] 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

Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A**1-12**, Lubricant: see A**24-2**)

Options⇒A1-541

Models HDR-US and HDR-UT



Model HDR-UT

Model No.	Outer dimensions			LM block dimensions											Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	H	S	L_1	T	T_1	K	N	E	Grease nipple	e_0	f_0	D_0^2	H_3
HDR 20US HDR 20UT	28	59	49 68.8	49	— 32	5.4	M6	26.3 46.1	7.2	9.9	22.6	3.8	3	PB107	3.6	3.6	2.9	5.4
HDR 25US HDR 25UT	33	73	57 80.9	60	— 35	6.8	M8	31.5 55.4	8	11.9	27.5	5.1	3.5	PB1021B	4.6	4.2	2.9	5.5

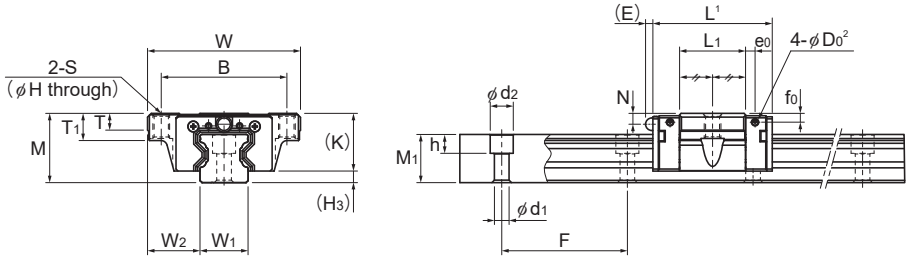
Model number coding

HDR25 UT 2 QZ KKHH C0 +1240L P T -II

- HDR25: Model number
- UT: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol
  - Normal grade (No Symbol)/High Accuracy grade (H)
  - Precision grade (P)/Super Precision grade (SP)
  - Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum). Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-80** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Model HDR-US

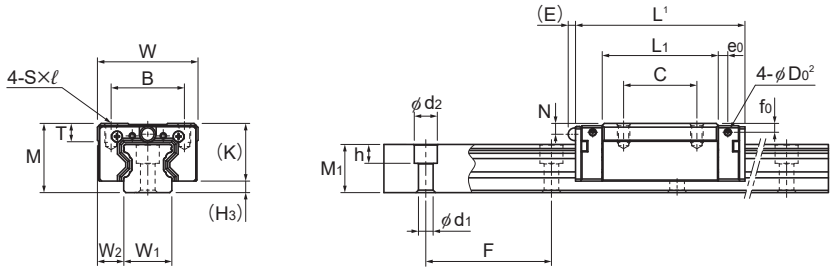
Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[4]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	20	19.5	20.1	60	6×9.5×8.5	3000	12.8	14.8	0.072	0.477	0.072	0.477	0.188		0.24	2.5
							18.7	25.3	0.195	1.078	0.195	1.078	0.322		0.35	
	23	25	23	60	7×11×9	3000	18.9	21.3	0.124	0.795	0.124	0.795	0.309		0.46	3.4
							27.6	36.4	0.337	1.822	0.337	1.822	0.53		0.65	

[1] Length L is for when the contamination protection accessory symbol is UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See A**1-555** or A**1-578**)
[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.
[3] Length Max represents the standard maximum length of an LM rail (see A**1-376**).
[4] 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
Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A**1-12**, Lubricant: see A**24-2**)

Options⇒A1-541

Models HDR-UV and HDR-UW



Model HDR-UW

Model No.	Outer dimensions			LM block dimensions								Grease nipple	Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L1	T	K	N	E		e0	f0	D0[2]	H3
HDR 20UV HDR 20UW	28	42	49 68.8	32	— 32	M5×7	26.3 46.1	8	22.6	3.8	3	PB107	3.6	3.6	2.9	5.4
HDR 25UV HDR 25UW	33	48	57 80.9	35	— 35	M6×9	31.5 55.4	8	27.5	5.1	3.5	PB1021B	4.6	4.2	2.9	5.5

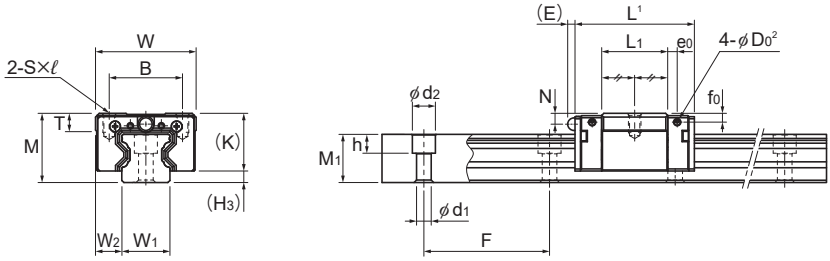
Model number coding

HDR25 UW 2 QZ KKHH C0 +1240L P T -II

- HDR25: Model number
- UW: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol
- C0: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol
  - Normal grade (No Symbol)/High Accuracy grade (H)
  - Precision grade (P)/Super Precision grade (SP)
  - Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum). Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ. See **A1-584** for contamination protection accessories. See **A1-75** for radial clearance symbol. See **A1-80** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



Model HDR-UV

Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m[4]						Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 0 -0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	20	11	20.1	60	6×9.5×8.5	3000	12.8	14.8	0.072	0.477	0.072	0.477	0.188		0.18	2.5
							18.7	25.3	0.195	1.078	0.195	1.078	0.322		0.28	
	23	12.5	23	60	7×11×9	3000	18.9	21.3	0.124	0.795	0.124	0.795	0.309		0.23	3.4
							27.6	36.4	0.337	1.822	0.337	1.822	0.53		0.38	

[1] Length L is for when the contamination protection accessory symbol is UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See A**1-555** or A**1-578**)
[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.
[3] Length Max represents the standard maximum length of an LM rail (see A**1-376**).
[4] 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
Note: For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see A**1-12**, Lubricant: see A**24-2**)

Options⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of Model HDR variations. If the maximum length of the desired LM rail exceeds these values, joint rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

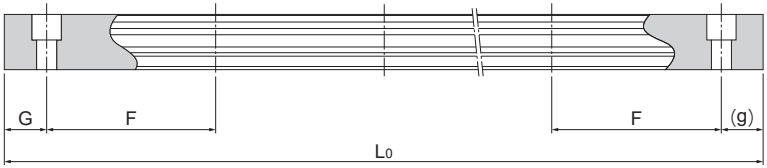


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model HDR

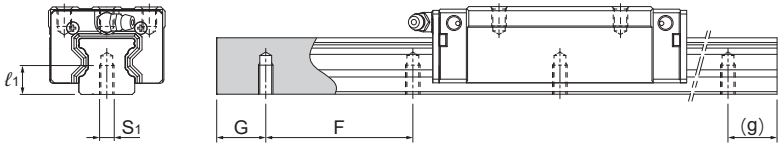
Unit: mm

Model No.	HDR 15	HDR 20	HDR 25	HDR 30	HDR 35	HDR 45	HDR 55	HDR 65
LM rail standard lengths (L_0)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600 1720 1840 1960 2080 2200	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1720 1840 1960 2080 2200 2320 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985 3090	780 900 1020 1140 1260 1380 1500 1620 1740 1860 1980 2100 2220 2340 2460 2580 2700 2820 2940 3060	1270 1570 2020 2620
Standard pitch F	60	60	60	80	80	105	120	150
G, g	20	20	20	20	20	22.5	30	35
Max length	3000	3000	3000	3000	3000	3090	3060	3000

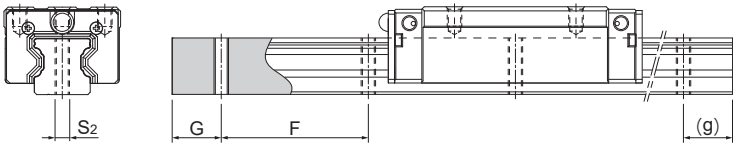
Notes: The maximum length varies with accuracy grades. Contact THK for details
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Tapped-Hole Type LM Rail

Model HDR rails also include a type where the LM rail is tapped from the bottom. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



K Type



W Type

(1) A tapped-hole LM rail type is available only for Precision grade or lower grades.
(2) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-376.

Table 2: Dimensions of the LM Rail Tap

Unit: mm

Model No.	K Type		W Type
	S_1	Effective tap depth ℓ_1	S_2
HDR 15	M5	8	M5 through
HDR 20	M6	10	M6 through
HDR 25	M6	12	—
HDR 30	M8	15	—
HDR 35	M8	17	—
HDR 45	M12	24	—
HDR 55	M14	24	—
HDR 65	M20	30	—

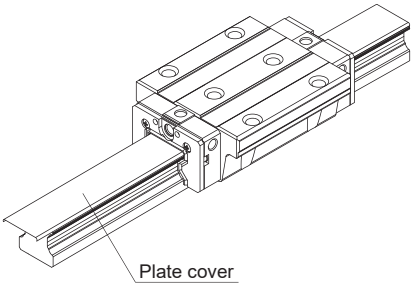
Model number coding

HDR35LC2UU+1000LH K

Symbol for
tapped-hole LM rail (K/W)

Plate Cover

Covering the LM rail's mounting holes with ultra-thin stainless steel (SUS304) plates drastically increases end seal adhesion, which helps to prevent debris and liquid from entering from the top of the LM rail. Special tools for installing the plate cover are also available.
Contact THK for further details regarding mounting.



Notes: Plate covers do not come standard with the Model HDR, nor can they be added later on their own.
Installing a plate cover involves removing the LM block from the LM rail. When doing this, a removing/mounting jig (see **A1-611**) is required. Please contact THK for details.
Plate covers cannot be used in combination with a tapped-hole LM rail.

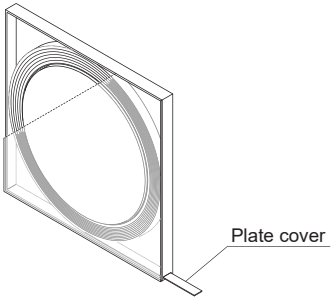
● Plate Cover Roll

An extra-long plate cover is available for you to store onsite and use for maintenance and replacements when necessary.

Model number coding

WPC35 - 90M

Model number Length



Notes: This option is only available for models HDR15 to 65.
Please order protective caps separately.

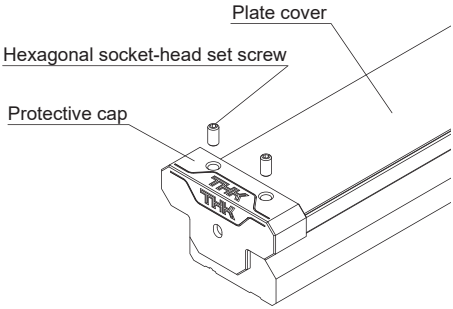
● Protective Cap

Protective caps are included when a product is ordered with a plate cover. Using the protective caps will prevent injuries caused by coming in contact with the end of the plate cover.

Model number coding

WPC-PT 35

Model number



Note: This option is only available for models HDR15 to 65.

● Plate Cover Installation Tool

A plate cover installation tool and removing/mounting jig are available to make the plate cover installation process easier. Contact THK for details.

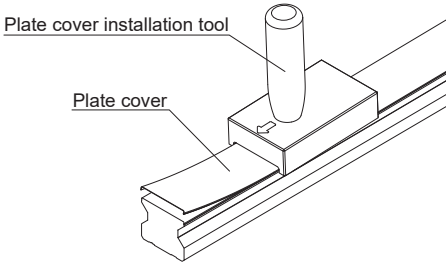


Plate Cover Installation Tool Compatibility

Model No.	Model No.
HDR15, HDR20	WPC-AT15/20
HDR25, HDR30, HDR35	WPC-AT25/30/35
HDR45, HDR55, HDR65	WPC-AT45/55/65

Notes: Please order the plate cover installation tool separately.
Each tool can be used for more than one size (see the table).

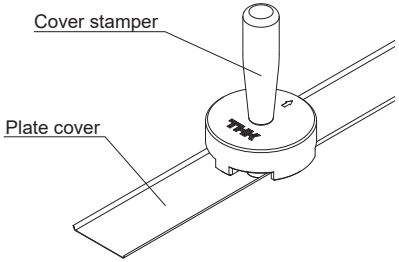
Model number coding

WPC-AT 15/20

Model number

● Cover Stamper

A jig is available to slide the plate cover on and install while the LM block is mounted on the LM rail. Contact THK for details.



Cover Stamper Compatibility

Model No.	Model No.
HDR15	WPC-ST15
HDR20	WPC-ST20
HDR25	WPC-ST25
HDR30	WPC-ST30
HDR35	WPC-ST35
HDR45	WPC-ST45
HDR55	WPC-ST55
HDR65	WPC-ST65

Note: Please order the plate cover installation tool separately.

Model number coding

WPC-ST 30

Model number

Lubrication Hole

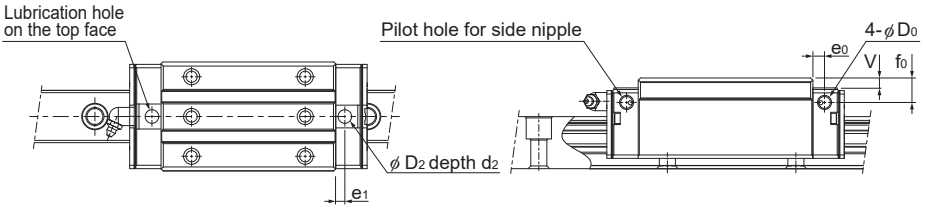
Lubrication Hole for Model HDR

The Model HDR LM block can be lubricated from the side or top surface. In order to prevent foreign material from entering the LM block, lubrication holes are not through holes in blocks with regular specifications. Contact THK if these will be used.

When using the lubrication hole on the upper surface of models HDR-SR/R/LR or HDR65C/LC, a separate lubrication adapter is required. Contact THK for details.

The lubricant may not reach the raceway if the LM Guide is not installed in a horizontal orientation. Be sure to let THK know the mounting orientation and the position where the grease nipple or pipe fitting will be attached to each LM block.

See **A1-12** for the mounting orientation and **A24-2** for lubrication.



Note: Upper surface lubrication is oil lubrication only. Contact THK if you are considering using the lubrication hole on the top face for grease lubrication.

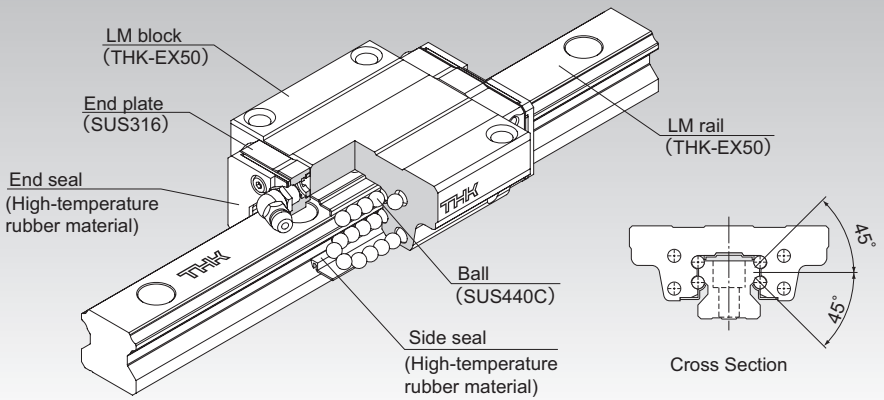
Unit: mm

Model No.		Pilot hole for side nipple			Applicable nipple	Lubrication hole on the top face			
		e_0	f_0	D_0		D_2	(O-ring)	V	e_1
HDR	15SC 15C 15LC	3.5	3.6	2.9	PB107	5.1	(SS4)	0.2	0.5
	15R 15LR	3.5	7.6	2.9	PB107	5.1	(SS4)	4.2	0.5
	15SV 15V 15LV	3.5	3.6	2.9	PB107	5.1	(SS4)	0.2	0.5
	20SC 20C 20LC	3	4.7	2.9	PB107	5.1	(SS4)	0.2	0.5
	20SR 20R 20LR	3	4.7	2.9	PB107	5.1	(SS4)	0.2	0.5
	25SC 25C 25LC	5.1	6.8	5.2	M6F	6	(P3)	0.4	1
	25R 25LR	5.1	10.6	5.2	M6F	6	(P3)	4.4	1
	25SV 25V 25LV	5.1	6.8	5.2	M6F	6	(P3)	0.4	1

Model No.		Pilot hole for side nipple			Applicable nipple	Lubrication hole on the top face			
		e_0	f_0	D_0		D_2	(O-ring)	V	e_1
HDR	30SC 30C 30LC	4.8	7.5	5.2	M6F	6	(P3)	0.4	1
	30R 30LR	4.8	10.5	5.2	M6F	6	(P3)	3.4	1
	30SV 30V 30LV	4.8	7.5	5.2	M6F	6	(P3)	0.4	1
	35SC 35C 35LC	5.6	9.5	5.2	M6F	6	(P3)	0.4	1
	35R 35LR	5.6	16.5	5.2	M6F	6	(P3)	7.4	1
	35SV 35V 35LV	5.6	9.5	5.2	M6F	6	(P3)	0.4	1
	45C 45LC	8	10.5	5.2	M6F	10.2	(P7)	0.4	1
	45R 45LR	8	20.5	5.2	M6F	10.2	(P7)	10.4	1
	45V 45LV	8	10.5	5.2	M6F	10.2	(P7)	0.4	1
	55C 55LC	9	12	5.2	M6F	10.2	(P7)	0.4	1
	55R 55LR	9	22	5.2	M6F	10.2	(P7)	10.4	1
	55V 55LV	9	12	5.2	M6F	10.2	(P7)	0.4	1
	65C 65LC	10	19	5.2	M6F	10.2	(P7)	5.2	1
	65R 65LR	10	19	5.2	M6F	10.2	(P7)	5.2	1

HSR-M1

High-Temperature LM Guide Model HSR-M1



Selection Criteria A1-10
Design Highlights A1-516
Options A1-541
Model No. A1-614
Handling Precautions A1-620
Accessories for Lubrication A24-1
Mounting Procedure B1-91

Equivalent Moment Factor A1-45
Rated Loads in All Directions A1-63
Equivalent Factor in Each Direction A1-65
Radial Clearance A1-76
Accuracy Standards A1-81
Shoulder Height of the Mounting Base and the Corner Radius A1-527
Reference Error Tolerance for the Mounting Surface A1-532
Dimensions of Each Model with Options Attached A1-555

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.
Each row of balls is placed at a contact angle of 45° so that the rated loads 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.
The high-temperature type LM Guide is capable of being used at service temperature up to 150℃ thanks to THK's unique technologies in material, heat treatment, and lubrication.

Maximum Service Temperature: 150℃

Use of stainless steel in the end plates and high-temperature rubber in the end seals achieves the maximum service temperature of 150℃.

Dimensional Stability

The product has undergone processing which grants it superb dimensional stability even when heated or cooled (though it does expand some at high temperatures).

Highly Corrosion Resistant

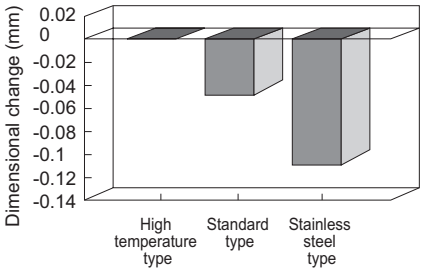
Since the LM block, LM rail, and balls use stainless steel, which is highly corrosion resistant, this model is optimal for clean room applications.

High-Temperature Grease

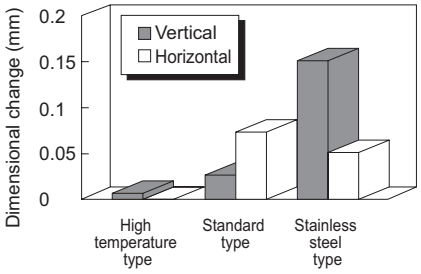
This model uses high-temperature grease that shows little grease-based fluctuation in rolling resistance even if the temperature changes from normal to high.

● Dimensional Stability Data

Since this model has been treated for dimensional stability, its dimensional change after being cooled or heated is only minimal.



Overall LM Rail Length

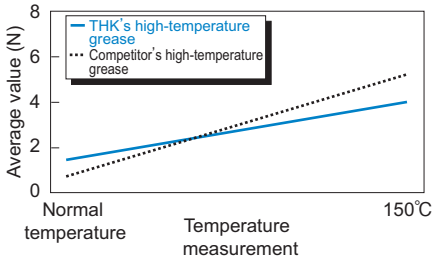


Curvature of the LM Rail

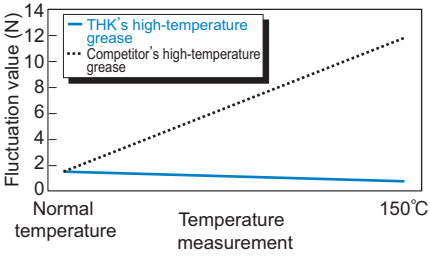
Notes: The above data on overall length and curvature indicate dimensional change when the LM rail is cooled to normal temperature after being heated at 150℃ for 100 hours.
The samples consist of high-temperature, standard, and stainless steel types of model HSR25 + 580L.

● Rolling Resistance Data in Relation to Grease

This model uses high-temperature grease that shows little grease-based fluctuation in rolling resistance even if the temperature changes from normal to high.



Average Value



Fluctuation Value

For the measurements above, model HSR25M1R1C1 is used.

● Thermal Characteristics of LM Rail and LM Block Materials

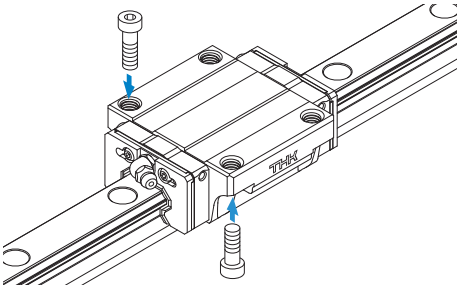
Specific heat capacity: 0.481 J/(g•K)
Thermal conductivity: 20.67 W/(m•K)
Average coefficient of linear expansion: 11.8×10^{-6}/℃

Types and Features

Model HSR-M1C

Dimensional Table⇒A1-388

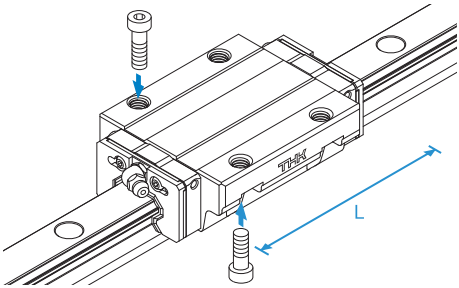
The flange of the LM block has tapped holes.
It can be mounted from the top or the bottom.
It is used in places where the table cannot have through holes for mounting bolts.



Model HSR-M1LC

Dimensional Table⇒A1-388

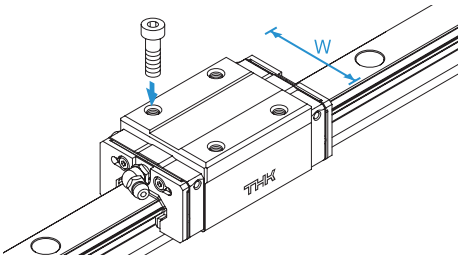
The LM block has the same cross-sectional shape as the Model HSR-M1C, but it has a longer overall LM block length (L) and a greater load rating.



Model HSR-M1R

Dimensional Table⇒A1-390

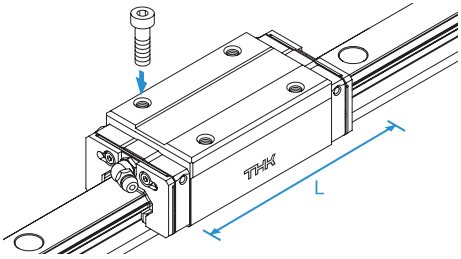
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for table width is limited.



Model HSR-M1LR

Dimensional Table⇒A1-390

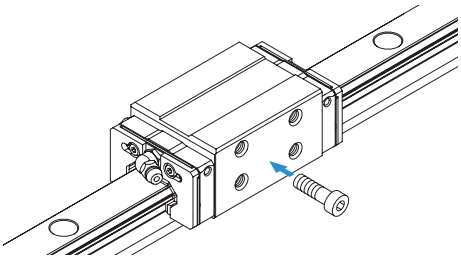
The LM block has the same cross-sectional shape as model HSR-M1R, but has a longer overall LM block length (L) and a greater load rating.



Model HSR-M1YR

Dimensional Table⇒A1-392

When using two units of LM Guide facing each other, the previous model required much time to machine the table, and it was difficult to achieve the desired accuracy and adjust the clearance. The tapped holes on the side of the HSR-M1YR block simplify the structure, which drastically reduces labor time and increases accuracy.



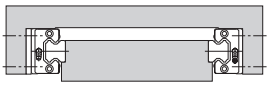


Fig. 1: Conventional Structure

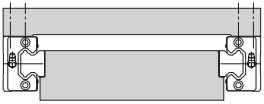
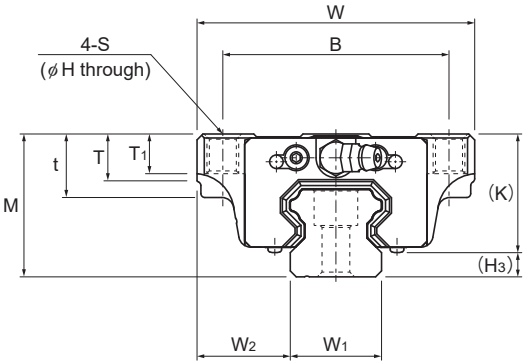


Fig. 2: Mounting Structure for Model HSR-M1YR

Service Life

When using this product in temperatures higher than 100°C, always multiply the basic dynamic load rating by the temperature coefficient when calculating the rated service life. See A1-69 for details.

Models HSR-M1C and HSR-M1LC



Model No.	Outer dimensions			LM block dimensions												Pilot hole for side nipple			
	Height	Width	Length[1]												Grease nipple				
	M	W	L	B	C	S	H	L_1	t	T	T_1	K	N	E		e_0	f_0	D_0[2]	H_3
HSR 15M1C HSR 15M1LC	24	47	59.6 77.6	38	30	M5	4.4	38.8 56.8	11	7	7	19.3	4.3	5.5	PB1021B	3.2	3.9	3	4.7
HSR 20M1C HSR 20M1LC	30	63	76 92	53	40	M6	5.4	50.8 66.8	10	9.5	10	26	5	12	B-M6F	3.1	3.4	3	4
HSR 25M1C HSR 25M1LC	36	70	83.9 103	57	45	M8	6.8	59.5 78.6	16	11	10	30.5	6	12	B-M6F	3.5	4	3	5.5
HSR 30M1C HSR 30M1LC	42	90	98.8 121.4	72	52	M10	8.5	70.4 93	18	9	10	35	7	12	B-M6F	5.2	6.2	5.2	7
HSR 35M1C HSR 35M1LC	48	100	112 137.4	82	62	M10	8.5	80.4 105.8	21	12	13	40.5	8	12	B-M6F	5.5	5.6	5.2	7.5

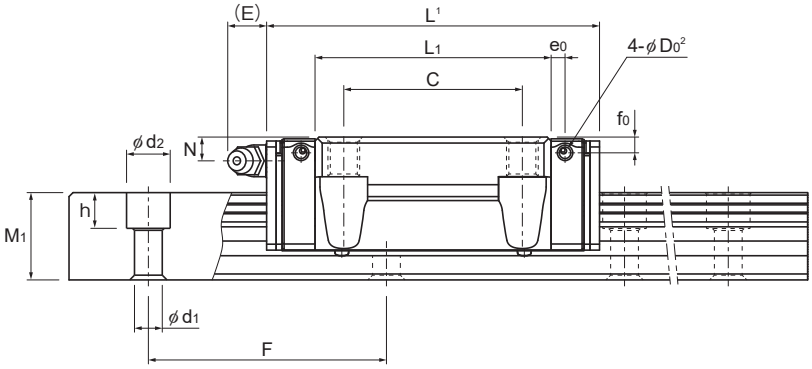
Model number coding

HSR25 M1 C 2 UU C1 +1240L P T -II

- HSR25: Model number
- M1: Type of LM block
  - Symbol for high temperature type LM Guide
- C: Contamination protection accessory symbol
- 2: No. of LM blocks used on the same rail
- UU: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- C1: Accuracy symbol
  - Normal grade (No Symbol)/High Accuracy grade (H)
  - Precision grade (P)/Super Precision grade (SP)
  - Ultra Precision grade (UP)
- +1240L: LM rail length (in mm)
- P: Symbol for LM rail jointed use
- T: Symbol for No. of rails used on the same plane
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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



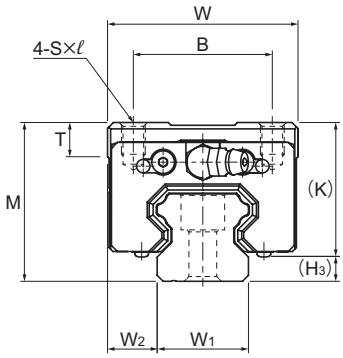
Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m 4					Mass	
	Width		Height	Pitch		Length 3	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	16	15	60	4.5×7.5×5.3	1240	10.9 14.2	15.7 22.9	0.0945 0.194	0.527 0.984	0.0945 0.194	0.527 0.984	0.0998 0.145	0.23 0.32	1.5
	20	21.5	18	60	6×9.5×8.5	1480	19.8 23.9	27.4 35.8	0.218 0.363	1.2 1.87	0.218 0.363	1.2 1.87	0.235 0.307	0.42 0.54	2.3
	23	23.5	22	60	7×11×9	1500	27.6 35.2	36.4 51.6	0.324 0.627	1.8 3.04	0.324 0.627	1.8 3.04	0.366 0.518	0.68 0.84	3.3
	28	31	26	80	9×14×12	1500	40.5 48.9	53.7 70.2	0.599 0.995	3.1 4.89	0.599 0.995	3.1 4.89	0.652 0.852	1.25 1.45	4.8
	34	33	29	80	9×14×12	1500	53.9 65	70.2 91.7	0.895 1.49	4.51 7.13	0.895 1.49	4.51 7.13	1.05 1.37	1.81 2.21	6.6

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
The length L of the high-temperature type LM Guide model HSR-M1 is longer than the normal type of model HSR. (Dimension L_1 is the same.)
[2] The side nipple pilot holes will not be through holes. For grease nipple mount machining, contact THK.
[3] The maximum length indicates the standard maximum length of an LM rail. (See A1-394.)
[4] 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⇒A1-541

Models HSR-M1R and HSR-M1LR



Model No.	Outer dimensions			LM block dimensions								Grease nipple	Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E		e_0	f_0	D_0[2]	H_3
HSR 15M1R HSR 15M1LR	28	34	59.6 77.6	26	26 34	M4×5	38.8 56.8	6	23.3	8.3	5.5	PB1021B	3.2	7.9	3	4.7
HSR 20M1R HSR 20M1LR	30	44	76 92	32	36 50	M5×6	50.8 66.8	8	26	5	12	B-M6F	3.1	3.4	3	4
HSR 25M1R HSR 25M1LR	40	48	83.9 103	35	35 50	M6×8	59.5 78.6	8	34.5	10	12	B-M6F	3.5	8	3	5.5
HSR 30M1R HSR 30M1LR	45	60	98.8 121.4	40	40 60	M8×10	70.4 93	8	38	10	12	B-M6F	5.2	9.2	5.2	7
HSR 35M1R HSR 35M1LR	55	70	112 137.4	50	50 72	M8×12	80.4 105.8	10	47.5	15	12	B-M6F	5.5	12.6	5.2	7.5

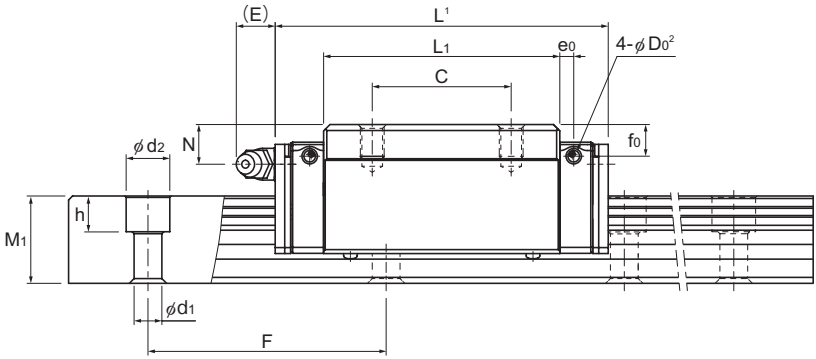
Model number coding

HSR35 M1 R 2 UU C0 +1080L P T -II

- HSR35: Model number
- M1: Type of LM block — Symbol for high temperature type LM Guide
- R: No. of LM blocks used on the same rail
- 2: Contamination protection accessory symbol
- UU: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1080L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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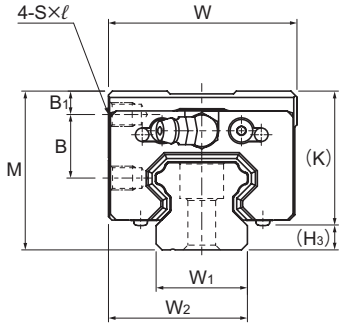
Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m 4					Mass	
	Width		Height	Pitch		Length 3	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	9.5	15	60	4.5×7.5×5.3	1240	10.9 14.2	15.7 22.9	0.0945 0.194	0.527 0.984	0.0945 0.194	0.527 0.984	0.0998 0.145	0.21 0.29	1.5
	20	12	18	60	6×9.5×8.5	1480	19.8 23.9	27.4 35.8	0.218 0.363	1.2 1.87	0.218 0.363	1.2 1.87	0.235 0.307	0.32 0.42	2.3
	23	12.5	22	60	7×11×9	1500	27.6 35.2	36.4 51.6	0.324 0.627	1.8 3.04	0.324 0.627	1.8 3.04	0.366 0.518	0.63 0.76	3.3
	28	16	26	80	9×14×12	1500	40.5 48.9	53.7 70.2	0.599 0.995	3.1 4.89	0.599 0.995	3.1 4.89	0.652 0.852	1.05 1.25	4.8
	34	18	29	80	9×14×12	1500	53.9 65	70.2 91.7	0.895 1.49	4.51 7.13	0.895 1.49	4.51 7.13	1.05 1.37	1.71 2.21	6.6

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
The length L of the high-temperature type LM Guide model HSR-M1 is longer than the normal type of model HSR. (Dimension L_1 is the same.)
[2] The side nipple pilot holes will not be through holes. For grease nipple mount machining, contact THK.
[3] The maximum length indicates the standard maximum length of an LM rail. (See A1-394.)
[4] 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⇒A1-541

Model HSR-M1YR



Model No.	Outer dimensions			LM block dimensions								Grease nipple	Pilot hole for side nipple			H_3
	Height M	Width W	Length[1] L	B_1	B	C	S×ℓ	L_1	K	N	E		e_0	f_0	D_0[2]	
HSR 15M1YR	28	33.5	59.6	4.3	11.5	18	M4×5	38.8	23.3	8.3	5.5	PB1021B	3.2	7.9	3	4.7
HSR 20M1YR	30	43.5	76	4	11.5	25	M5×6	50.8	26	5	12	B-M6F	3.1	3.4	3	4
HSR 25M1YR	40	47.5	83.9	6	16	30	M6×6	59.5	34.5	10	12	B-M6F	3.5	8	3	5.5
HSR 30M1YR	45	59.5	98.8	8	16	40	M6×9	70.4	38	10	12	B-M6F	5.2	9.2	5.2	7
HSR 35M1YR	55	69.5	112	8	23	43	M8×10	80.4	47.5	15	12	B-M6F	5.5	12.6	5.2	7.5

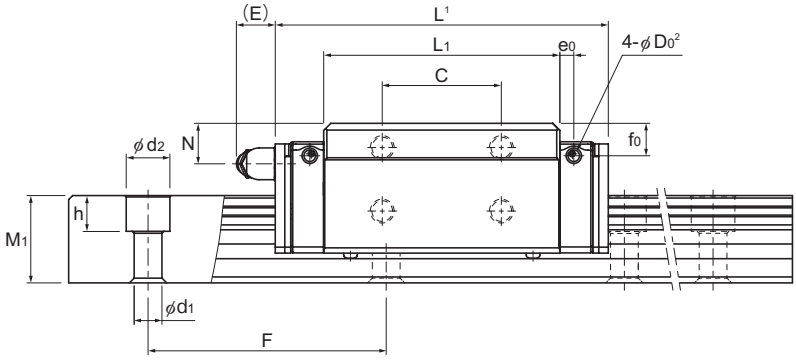
Model number coding

HSR25 M1 YR 2 UU C0 +1240L P T -II

- HSR25: Model number
- M1: Symbol for high temperature type LM Guide
- YR: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1240L: LM rail length (in mm)
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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Unit: mm

	LM rail dimensions						Basic load rating		Static permissible moment kN·m 4						Mass	
	Width		Height	Pitch		Length 3	C	C_0	M_A		M_B		M_C		LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block		kg	kg/m
	15	24	15	60	4.5×7.5×5.3	1240	10.9	15.7	0.0945	0.527	0.0945	0.527	0.0998		0.21	1.5
	20	31.5	18	60	6×9.5×8.5	1480	19.8	27.4	0.218	1.2	0.218	1.2	0.235		0.32	2.3
	23	35	22	60	7×11×9	1500	27.6	36.4	0.324	1.8	0.324	1.8	0.366		0.63	3.3
	28	43.5	26	80	9×14×12	1500	40.5	53.7	0.599	3.1	0.599	3.1	0.652		1.05	4.8
	34	51.5	29	80	9×14×12	1500	53.9	70.2	0.895	4.51	0.895	4.51	1.05		1.71	6.6

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
The length L of the high-temperature type LM Guide model HSR-M1 is longer than the normal type of model HSR. (Dimension L_1 is the same.)
[2] The side nipple pilot holes will not be through holes. For grease nipple mount machining, contact THK.
[3] The maximum length indicates the standard maximum length of an LM rail. (See A1-394.)
[4] 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⇒A1-541

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model HSR-M1 variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used. Contact THK for details.
For special rail lengths, it is recommended to use a value corresponding to the G and g dimensions from the table. As the G and g dimensions increase, this portion becomes less stable, and the accuracy performance is severely impacted.

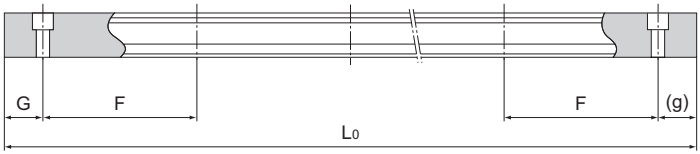


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model HSR-M1

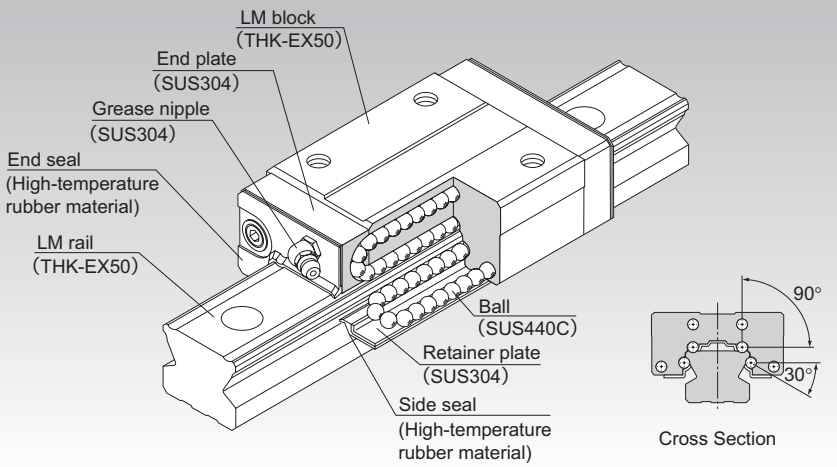
Unit: mm

Model No.	HSR 15M1	HSR 20M1	HSR 25M1	HSR 30M1	HSR 35M1
LM rail standard lengths (L_0)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480
Standard pitch F	60	60	60	80	80
G, g	20	20	20	20	20
Max length	1240	1480	1500	1500	1500

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

SR-M1

High-Temperature LM Guide Model SR-M1



Selection Criteria A1-10
Design Highlights A1-516
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Accessories for Lubrication A24-1
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Shoulder Height of the Mounting Base and the Corner Radius A1-525
Reference Error Tolerance for the Mounting Surface A1-532
Dimensions of Each Model with Options Attached A1-555

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 it is a compactly designed model that has a low cross-sectional height and a ball contact structure that is suited to large loads in the radial direction, this model is optimal for horizontal guide units.
High-Temperature LM Guide Model SR-M1 is capable of being used at service temperatures up to 150℃ thanks to THK's unique technologies in material, heat treatment, and lubrication.

Maximum Service Temperature: 150℃

Use of stainless steel in the end plates and high-temperature rubber in the end seals achieves the maximum service temperature of 150℃.

Dimensional Stability

The product has undergone processing which grants it superb dimensional stability even when heated or cooled (though it does expand some at high temperatures).

Highly Corrosion Resistant

Since the LM block, LM rail, and balls use stainless steel, which is highly corrosion resistant, this model is optimal for clean room applications.

High-Temperature Grease

This model uses high-temperature grease that shows little grease-based fluctuation in rolling resistance even if the temperature changes from normal to high.

Thermal Characteristics of LM Rail and LM Block Materials

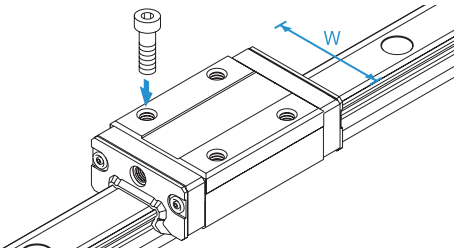
- Specific heat capacity: 0.481 J/(g•K)
- Thermal conductivity: 20.67 W/(m•K)
- Average coefficient of linear expansion: 11.8×10^{-6}/℃

Types and Features

Model SR-M1W

Dimensional Table⇒A1-400

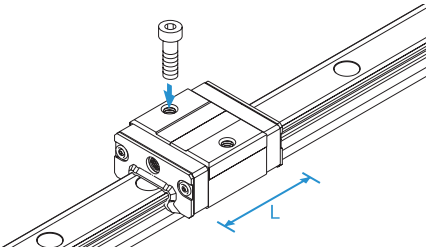
With this type, the LM block has a smaller width (W) and tapped holes.



Model SR-M1V

Dimensional Table⇒A1-400

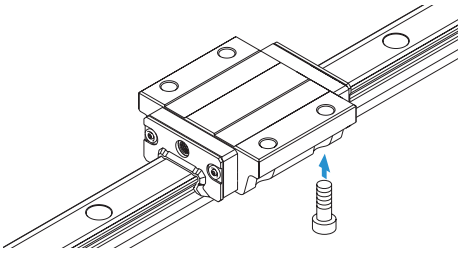
This is a space-saving type whose LM block has the same cross-sectional shape as model SR-M1W, but has a smaller overall LM block length (L).



Model SR-M1TB

Dimensional Table⇒A1-402

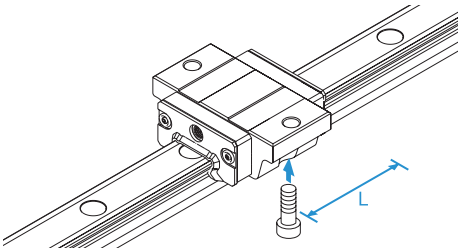
The LM block has the same height as model SR-M1W and can be mounted from the bottom.



Model SR- M1SB

Dimensional Table⇒A1-402

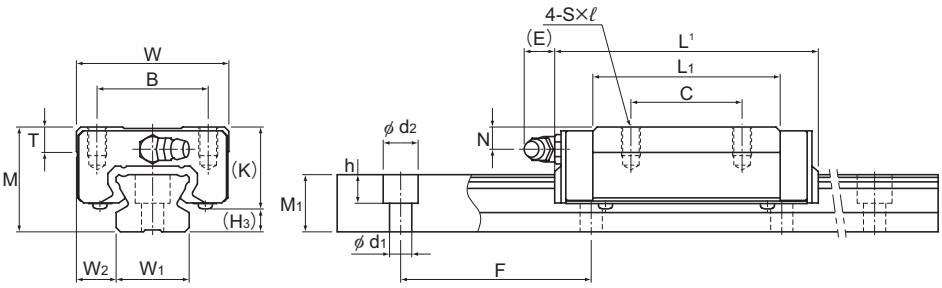
This is a space-saving type whose LM block has the same cross-sectional shape as model SR-M1TB, but has a smaller overall LM block length (L).



Service Life

When using this product in temperatures higher than 100°C, always multiply the basic dynamic load rating by the temperature coefficient when calculating the rated service life. See A1-69 for details.

Models SR-M1W and SR-M1V



Model SR-M1W

Model No.	Outer dimensions			LM block dimensions									
	Height	Width	Length¹									Grease nipple	
	M	W	L	B	C	S×ℓ	L₁	T	K	N	E		H₃
SR 15M1V SR 15M1W	24	34	40.4 57	26	— 26	M4×7	22.9 39.5	6	19.5	6	5.5	PB1021B	4.5
SR 20M1V SR 20M1W	28	42	47.3 66.2	32	— 32	M5×8	27.8 46.7	7.5	22	6	12	B-M6F	6
SR 25M1V SR 25M1W	33	48	59.2 83	35	— 35	M6×9	35.2 59	8	26	7	12	B-M6F	7
SR 30M1V SR 30M1W	42	60	67.9 96.8	40	— 40	M8×12	40.4 69.3	9	32.5	8	12	B-M6F	9.5
SR 35M1V SR 35M1W	48	70	77.6 111	50	— 50	M8×12	45.7 79	13	36.5	8.5	12	B-M6F	11.5

Model number coding

SR30 M1 W 2 UU C0 +1160L Y P T -II

- SR30: Model number
- M1: Symbol for high temperature type LM Guide
- W: Type of LM block
- 2: No. of LM blocks used on the same rail
- UU: Contamination protection accessory symbol
- C0: Radial clearance symbol — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1160L: LM rail length (in mm)
- Y: Applied to only 15 and 25
- P: Accuracy symbol — Normal grade (No Symbol)/High Accuracy grade (H), Precision grade (P)/Super Precision grade (SP), Ultra Precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).
See **A1-584** for contamination protection accessories. See **A1-76** for radial clearance symbol. See **A1-81** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.

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