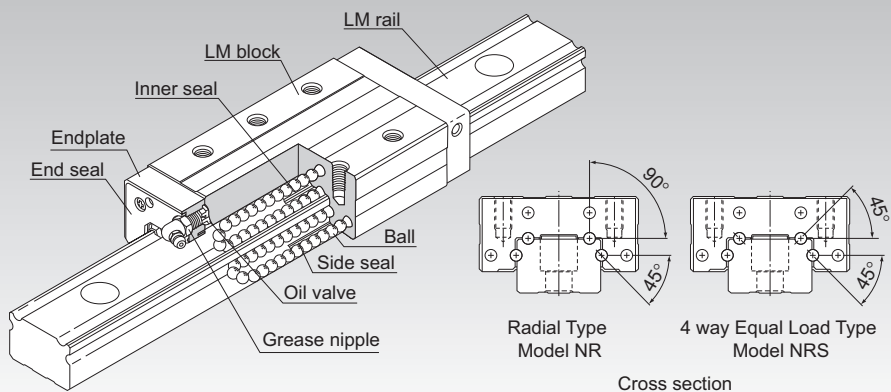


NR/NRS

LM Guide Ultra-heavy Load Type for Machine Tools Model NR/NRS



Point of Selection **A1-10**

Point of Design **A1-432**

Options **A1-455**

Model No. **A1-520**

Precautions on Use **A1-526**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-58**

Equivalent factor in each direction **A1-60**

Radial Clearance **A1-70**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-442**

Permissible Error of the Mounting Surface **A1-448**

Dimensions of Each Model with an Option Attached **A1-467**

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. 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/impact resistance and high damping capacity, all of which are required for machine tools, thus making these models capable of bearing ultra-heavy loads.

* Due to the extremely high rigidity of the LM guides used in models NR/NRS, 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 the machine tool (equipped with NR or NRS) is not cutting a workpiece during operation, the LM Guide travels normally and smoothly. While the machine tool is cutting the workpiece, the cutting force is applied to the LM Guide to increase and the contact area between the balls and the raceway, allowing an appropriate mixture of rolling and sliding motions 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 Rational 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. During the cutting operation, appropriate slip occurs according to the cutting load, the rolling resistance is increased and the damping capacity is increased. Thus, models NR and NRS are highly rational LM Guides.

[High Rigidity]

To increase the rigidity of the LM block and the LM rail, which may deteriorate 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 provides two identically sized models with different characteristics, namely the radial model NR and four-way equal-load model NRS, users can select the model that best suits their specifications.

[Ultra-heavy Load]

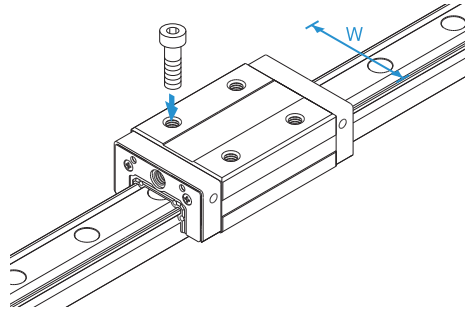
Since the curvature of the raceway is approximated to the ball diameter, the ball contact area under a load is increased and the LM Guide is capable of receiving an ultra-heavy load.

Types and Features

Models NR-R/NRS-R

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

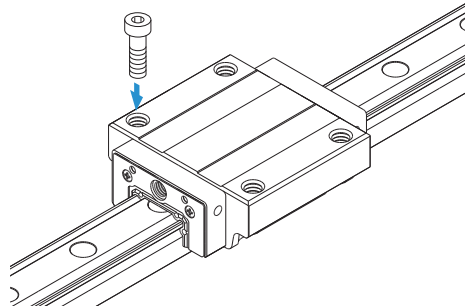
Specification Table⇒ [A1-224/A1-226](#)



Models NR-A/NRS-A

The flange of its LM block has tapped holes.

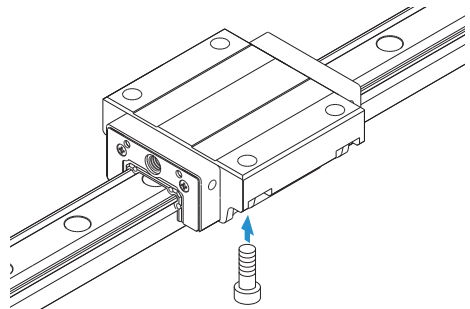
Specification Table⇒ [A1-228/A1-230](#)



Models NR-B/NRS-B

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

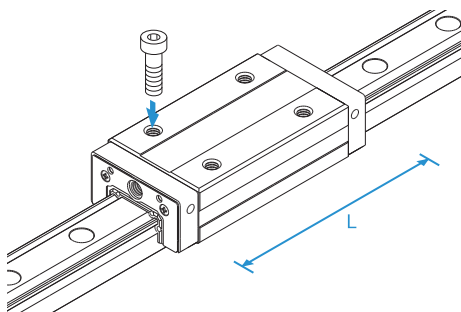
Specification Table⇒ [A1-232/A1-234](#)



Models NR-LR/NRS-LR

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 rated load.

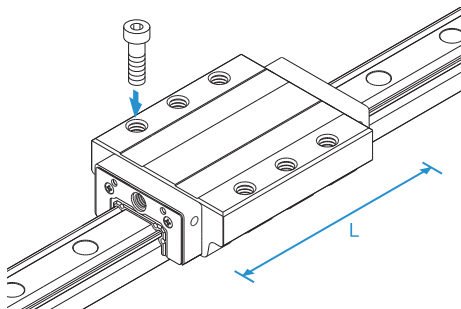
Specification Table⇒ [A1-224](#)/[A1-226](#)



Models NR-LA/NRS-LA

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 rated load.

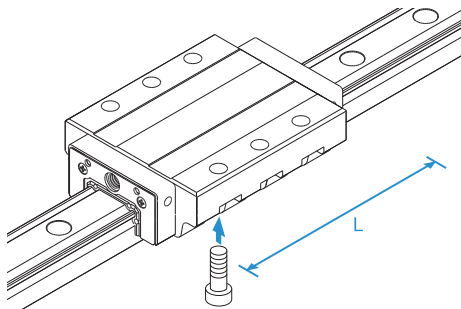
Specification Table⇒ [A1-228](#)/[A1-230](#)



Models NR-LB/NRS-LB

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 rated load.

Specification Table⇒ [A1-232](#)/[A1-234](#)



Characteristics of Models NR and NRS

[Increased Rigidity in Major Load Directions]

The structure with a contact angle of 90° used in model NR differs from that with a 45° contact angle also in rigidity. Under the same radial load P , the displacement in the radial direction with model NR having a contact angle of 90° is 44% less than the 45° .

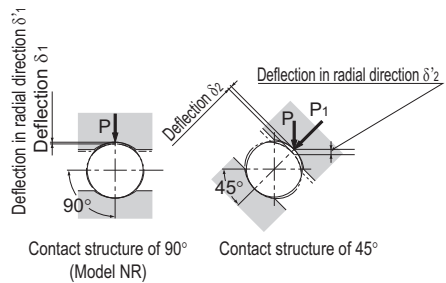


Fig.1 Deflection under a Radial Load

Fig.2 shows the difference in radial load and displacement. Accordingly, where high rigidity in the radial direction is required, model NR is more advantageous.

Load and deflection when contact angles are not the same ($D_a=6.35\text{mm}$)
(deflection per 24 balls)

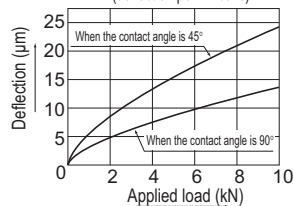
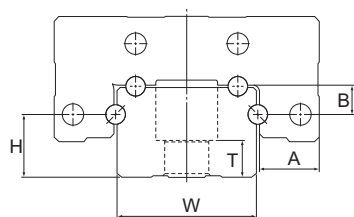


Fig.2 Radial Load and Deflection (normal clearance, no preload)

[Increased Rigidity in the Lateral and Reverse-radial Directions]

Since with LM Guide model NR, the distance "H" between the rail bottom and the lower-groove balls (balls receiving lateral loads) is short, the ratio between the rail width "W" and the distance "H" is small, and the distance "T" between the LM rail mounting bolt seat and the LM rail bottom is short. Accordingly, the deformation of the LM rail under a lateral load is minimal, and the rigidity in the lateral directions is increased. Since the dimension "B" of the LM block is short and the thickness "A" is large, the lateral extension of the LM block under a reverse radial or lateral load is minimized. This structure allows the rigidity in the reverse radial direction to be increased.

In comparison to the old model with the same model number, the ball diameter of NR is smaller and the number of effective balls is approximately 1.3 times greater, thus increasing the static rigidity.



Radial type structure

Fig.3 Cross Section of Model NR

[Comparison of Contact Surface and Internal Stress between Different Contact Structures]

As shown in Fig.4, the contact area and the internal stress of a ball greatly vary depending on the shape of contact surface.

With the conventional roller guide, the effective length is shorter than the apparent value due to the retention of the rollers. Additionally, the change of stress distribution in the contact section caused by a mounting error significantly affects the differential slip.

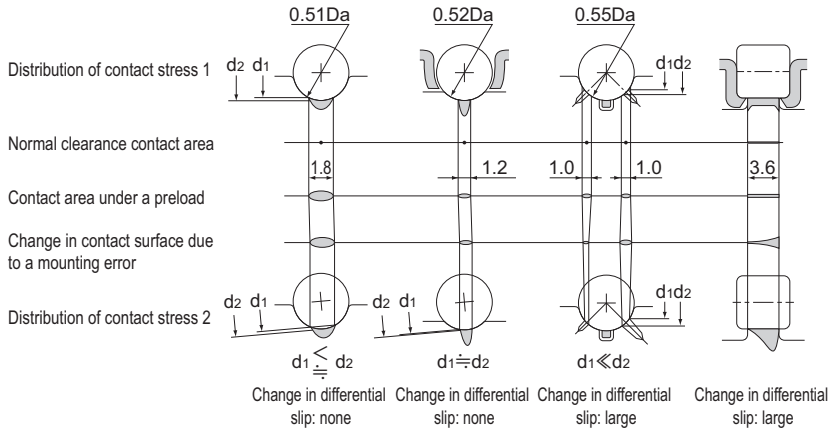
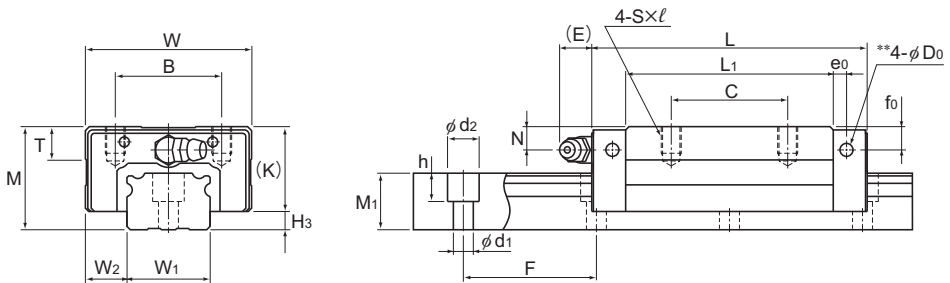


Fig.4 Comparison of Contact Surface (ϕ 6.350 ball, ϕ 6 x 6 l roller)

Models NR-R and NR-LR



Model NR-R

Model No.	Outer dimensions			LM block dimensions													Grease nipple	H ₃
	Height	Width	Length	B	C	S × l	L ₁	T	K	N	f ₀	E	e ₀	D ₀				
	M	W	L	B	C	S × l	L ₁	T	K	N	f ₀	E	e ₀	D ₀				
NR 25XR NR 25XLR	31	50	82.8 102	32	35 50	M6 × 8	62.4 81.6	9.7	25.5	7	7	12	4	3.9	B-M6F	5.5		
NR 30R NR 30LR	38	60	98 120.5	40	40 60	M8 × 10	70.9 93.4	9.7	31	7	7	12	5	3.9	B-M6F	7		
NR 35R NR 35LR	44	70	109.5 135	50	50 72	M8 × 12	77.9 103.4	11.7	35	8	8	12	6	5.2	B-M6F	9		
NR 45R NR 45LR	52	86	139 171	60	60 80	M10 × 17	105 137	14.7	40.5	10	8	16	7	5.2	B-PT1/8	11.5		
NR 55R NR 55LR	63	100	162.8 200	65	75 95	M12 × 18	123.6 160.8	17.5	49	11	10	16	8	5.2	B-PT1/8	14		
NR 65R NR 65LR	75	126	185.6 245.6	76	70 110	M16 × 20	143.6 203.6	21.5	60	16	15	16	9	8.2	B-PT1/8	15		
NR 75R NR 75LR	83	145	218 274	95	80 130	M18 × 25	170.2 226.2	25.3	68	18	17	16	9	8.2	B-PT1/8	15		
NR 85R NR 85LR	90	156	246.7 302.8	100	80 140	M18 × 25	194.9 251	27.3	73	20	20	16	10	8.2	B-PT1/8	17		
NR 100R NR 100LR	105	200	286.2 326.2	130	150 200	M18 × 27	223.4 263.4	34.3	85	23	23	10	12	8.2	B-PT1/4	20		

Model number coding

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

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

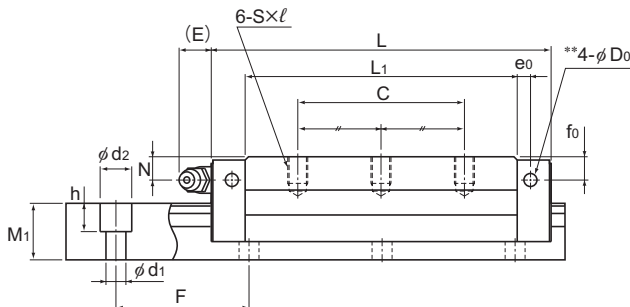
With plate cover or steel tape (*4)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**.

(*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)

Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NR-LR

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width W ₁ 0 -0.05	Height M ₁	Pitch F	Length* Max	d ₁ × d ₂ × h	C	C ₀	M _A		M _B		M _C	LM block	LM rail	
							1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m	
25	12.5	17	40	6 × 9.5 × 8.5	3000	33 44	84.6 113	0.771 1.26	3.86 6.29	0.469 0.775	2.33 3.82	0.91 1.21	0.43 0.55	3.1
28	16	21	80	7 × 11 × 9	3000	48.7 64.9	122 162	1.26 2.18	6.63 10.6	0.778 1.33	4.05 6.47	1.47 1.95	0.74 1	4.3
34	18	24.5	80	9 × 14 × 12	3000	63.1 85.7	155 210	1.75 3.14	9.47 15.5	1.08 1.92	5.8 9.43	2.24 3.03	1.1 1.4	6.2
45	20.5	29	105	14 × 20 × 17	3090	96 126	231 303	3.37 5.93	17.7 28	2.07 3.59	10.8 16.9	4.45 5.82	2 2.8	9.8
53	23.5	36.5	120	16 × 23 × 20	3060	131 170	310 402	5.39 8.87	27.8 43.8	3.3 5.41	16.9 26.6	6.98 9.05	3.3 4.3	14.5
63	31.5	43	150	18 × 26 × 22	3000	189 260	436 600	8.76 16.8	44.7 79.9	5.39 10.1	27.3 48	11.6 15.9	6 8.7	20.3
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

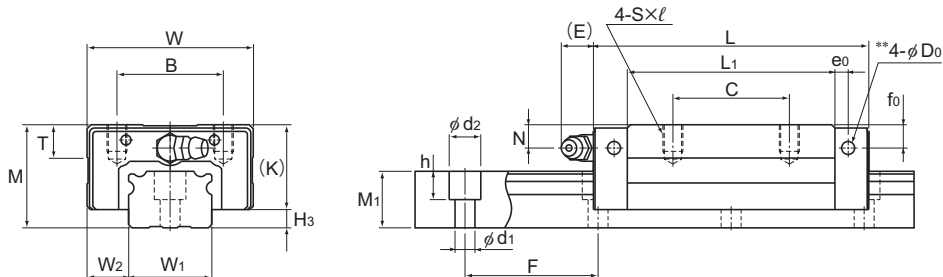
Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-236**.)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Models NRS-R and NRS-LR



Model NRS-R

Model No.	Outer dimensions			LM block dimensions													Grease nipple	H ₃
	Height	Width	Length	B	C	S×ℓ	L ₁	T	K	N	f ₀	E	e ₀	D ₀				
	M	W	L	B	C	S×ℓ	L ₁	T	K	N	f ₀	E	e ₀	D ₀				
NRS 25XR NRS 25XLR	31	50	82.8 102	32	35 50	M6×8	62.4 81.6	9.7	25.5	7	7	12	4	3.9	B-M6F	5.5		
NRS 30R NRS 30LR	38	60	98 120.5	40	40 60	M8×10	70.9 93.4	9.7	31	7	7	12	5	3.9	B-M6F	7		
NRS 35R NRS 35LR	44	70	109.5 135	50	50 72	M8×12	77.9 103.4	11.7	35	8	8	12	6	5.2	B-M6F	9		
NRS 45R NRS 45LR	52	86	139 171	60	60 80	M10×17	105 137	14.7	40.5	10	8	16	7	5.2	B-PT1/8	11.5		
NRS 55R NRS 55LR	63	100	162.8 200	65	75 95	M12×18	123.6 160.8	17.5	49	11	10	16	8	5.2	B-PT1/8	14		
NRS 65R NRS 65LR	75	126	185.6 245.6	76	70 110	M16×20	143.6 203.6	21.5	60	16	15	16	9	8.2	B-PT1/8	15		
NRS 75R NRS 75LR	83	145	218 274	95	80 130	M18×25	170.2 226.2	25.3	68	18	17	16	9	8.2	B-PT1/8	15		
NRS 85R NRS 85LR	90	156	246.7 302.8	100	80 140	M18×25	194.9 251	27.3	73	20	20	16	10	8.2	B-PT1/8	17		
NRS 100R NRS 100LR	105	200	286.2 326.2	130	150 200	M18×27	223.4 263.4	34.3	85	23	23	10	12	8.2	B-PT1/4	20		

Model number coding

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

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)/Light preload (C1)
Medium preload (C0)

With plate cover or steel tape (*4)

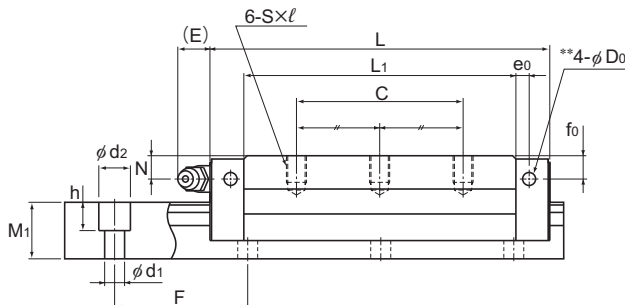
Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**.

(*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)

Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NRS-LR

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width W ₁ 0 -0.05	Height M ₁	Pitch F	Length* Max	d ₁ × d ₂ × h	C	C ₀	M _A		M _B		M _C	LM block kg	LM rail kg/m		
							1 block	Double blocks	1 block	Double blocks	1 block				
25	12.5	17	40	6 × 9.5 × 8.5	3000	25.9 34.5	59.8 79.7	0.568 0.926	2.84 4.6	0.568 0.926	2.84 4.6	0.633 0.846	0.43 0.55	3.1	
28	16	21	80	7 × 11 × 9	3000	38.2 51	86.1 115	0.926 1.6	4.86 7.83	0.926 1.6	4.86 7.83	1.02 1.36	0.74 1	4.3	
34	18	24.5	80	9 × 14 × 12	3000	49.5 67.2	109 148	1.28 2.29	6.92 11.3	1.28 2.29	6.92 11.3	1.54 2.09	1.1 1.4	6.2	
45	20.5	29	105	14 × 20 × 17	3000	75.3 98.8	163 214	2.47 4.34	13 20.5	2.47 4.34	13 20.5	3.09 4.06	2 2.8	9.8	
53	23.5	36.5	120	16 × 23 × 20	3000	103 133	220 284	3.97 6.49	20.5 32	3.97 6.49	20.5 32	4.86 6.28	3.3 4.3	14.5	
63	31.5	43	150	18 × 26 × 22	3000	148 204	309 425	6.45 12.3	32.9 58.6	6.45 12.3	32.9 58.6	8.11 11.1	6 8.7	20.3	
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	

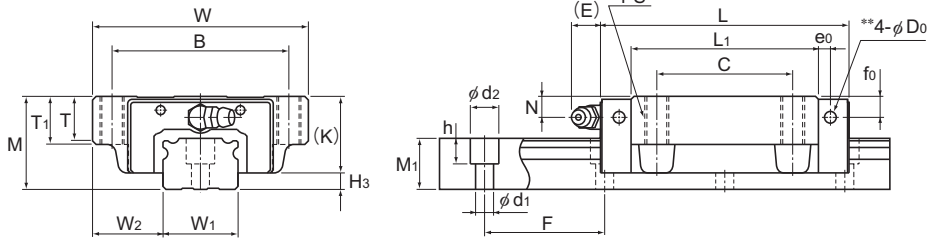
Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-236**.)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Models NR-A and NR-LA



Model NR-A

Model No.	Outer dimensions			LM block dimensions													Grease nipple	H ₃
	Height	Width	Length	B	C	S × ℓ	L ₁	T	T ₁	K	N	f ₀	E	e ₀	D ₀			
	M	W	L															
NR 25XA NR 25XLA	31	72	82.8 102	59	45	M8×16	62.4 81.6	14.8	16	25.5	7	7	12	4	3.9	B-M6F	5.5	
NR 30A NR 30LA	38	90	98 120.5	72	52	M10×18	70.9 93.4	16.8	18	31	7	7	12	5	3.9	B-M6F	7	
NR 35A NR 35LA	44	100	109.5 135	82	62	M10×20	77.9 103.4	18.8	20	35	8	8	12	6	5.2	B-M6F	9	
NR 45A NR 45LA	52	120	139 171	100	80	M12×22	105 137	20.5	22	40.5	10	8	16	7	5.2	B-PT1/8	11.5	
NR 55A NR 55LA	63	140	162.8 200	116	95	M14×24	123.6 160.8	22.5	24	49	11	10	16	8	5.2	B-PT1/8	14	
NR 65A NR 65LA	75	170	185.6 245.6	142	110	M16×28	143.6 203.6	26	28	60	16	15	16	9	8.2	B-PT1/8	15	
NR 75A NR 75LA	83	195	218 274	165	130	M18×30	170.2 226.2	28	30	68	18	17	16	9	8.2	B-PT1/8	15	
NR 85A NR 85LA	90	215	246.7 302.8	185	140	M20×34	194.9 251	32	34	73	20	20	16	10	8.2	B-PT1/8	17	
NR 100A NR 100LA	105	260	286.2 326.2	220	150 200	M20×38	223.4 263.4	35	38	85	23	23	10	12	8.2	B-PT1/4	20	

Model number coding

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

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

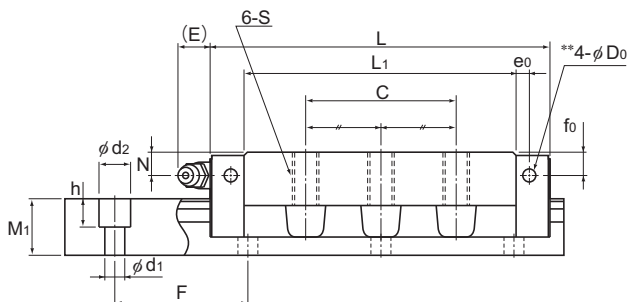
With plate cover or steel tape (*4)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**.

(*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)

Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NR-LA

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width W ₁ 0 -0.05	W ₂	Height M ₁	Pitch F	d ₁ × d ₂ × h	Length* Max	C kN	C ₀ kN	M _A		M _B		M _C	LM block kg	LM rail kg/m
								1 block	Double blocks	1 block	Double blocks	1 block		
25	23.5	17	40	6 × 9.5 × 8.5	3000	33 44	84.6 113	0.771 1.26	3.86 6.29	0.469 0.775	2.33 3.82	0.91 1.21	0.58 0.77	3.1
28	31	21	80	7 × 11 × 9	3000	48.7 64.9	122 162	1.26 2.18	6.63 10.6	0.778 1.33	4.05 6.47	1.47 1.95	1.1 1.4	4.3
34	33	24.5	80	9 × 14 × 12	3000	63.1 85.7	155 210	1.75 3.14	9.47 15.5	1.08 1.92	5.8 9.43	2.24 3.03	1.5 1.9	6.2
45	37.5	29	105	14 × 20 × 17	3000	96 126	231 303	3.37 5.93	17.7 28	2.07 3.59	10.8 16.9	4.45 5.82	2.7 3.5	9.8
53	43.5	36.5	120	16 × 23 × 20	3000	131 170	310 402	5.39 8.87	27.8 43.8	3.3 5.41	16.9 26.6	6.98 9.05	4.4 5.7	14.5
63	53.5	43	150	18 × 26 × 22	3000	189 260	436 600	8.76 16.8	44.7 79.9	5.39 10.1	27.3 48	11.6 15.9	7.6 10.9	20.3
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

Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product.

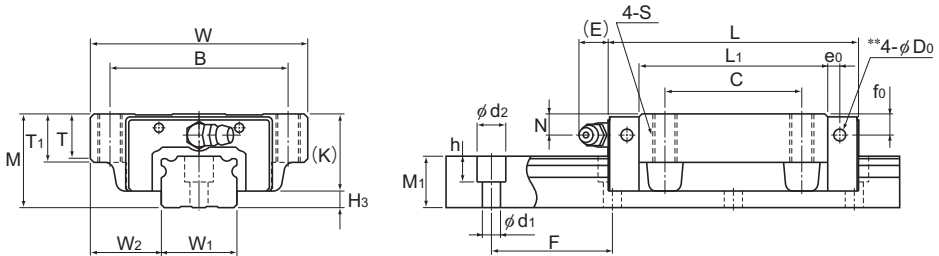
THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-236**.)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Models NRS-A and NRS-LA



Model NRS-A

Model No.	Outer dimensions			LM block dimensions													Grease nipple	H ₃
	Height	Width	Length	B	C	S × ℓ	L ₁	T	T ₁	K	N	f ₀	E	e ₀	D ₀			
	M	W	L															
NRS 25XA NRS 25XLA	31	72	82.8 102	59	45	M8 × 16	62.4 81.6	14.8	16	25.5	7	7	12	4	3.9	B-M6F	5.5	
NRS 30A NRS 30LA	38	90	98 120.5	72	52	M10 × 18	70.9 93.4	16.8	18	31	7	7	12	5	3.9	B-M6F	7	
NRS 35A NRS 35LA	44	100	109.5 135	82	62	M10 × 20	77.9 103.4	18.8	20	35	8	8	12	6	5.2	B-M6F	9	
NRS 45A NRS 45LA	52	120	139 171	100	80	M12 × 22	105 137	20.5	22	40.5	10	8	16	7	5.2	B-PT1/8	11.5	
NRS 55A NRS 55LA	63	140	162.8 200	116	95	M14 × 24	123.6 160.8	22.5	24	49	11	10	16	8	5.2	B-PT1/8	14	
NRS 65A NRS 65LA	75	170	185.6 245.6	142	110	M16 × 28	143.6 203.6	26	28	60	16	15	16	9	8.2	B-PT1/8	15	
NRS 75A NRS 75LA	83	195	218 274	165	130	M18 × 30	170.2 226.2	28	30	68	18	17	16	9	8.2	B-PT1/8	15	
NRS 85A NRS 85LA	90	215	246.7 302.8	185	140	M20 × 34	194.9 251	32	34	73	20	20	16	10	8.2	B-PT1/8	17	
NRS 100A NRS 100LA	105	260	286.2 326.2	220	150 200	M20 × 38	223.4 263.4	35	38	85	23	23	10	12	8.2	B-PT1/4	20	

Model number coding

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

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

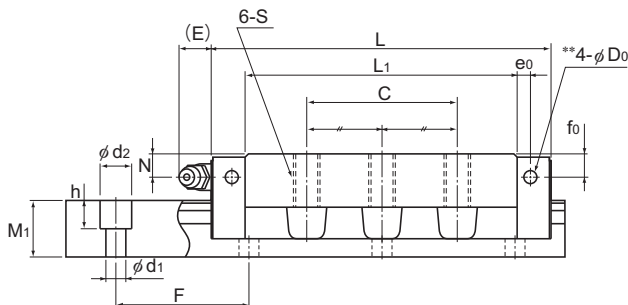
With plate cover or steel tape (*4)
Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**.

(*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)

Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NRS-LA

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*						Mass	
Width W ₁ 0 -0.05	Height M ₁	Pitch F	Length* Max	C	C ₀	M _A		M _B		M _C	LM block kg	LM rail kg/m			
						1 block	Double blocks	1 block	Double blocks	1 block					
25	23.5	17	40	6×9.5×8.5	3000	25.9 34.5	59.8 79.7	0.568 0.926	2.84 4.6	0.568 0.926	2.84 4.6	0.633 0.846	0.58 0.77	3.1	
28	31	21	80	7×11×9	3000	38.2 51	86.1 115	0.926 1.6	4.86 7.83	0.926 1.6	4.86 7.83	1.02 1.36	1.1 1.4	4.3	
34	33	24.5	80	9×14×12	3000	49.5 67.2	109 148	1.28 2.29	6.92 11.3	1.28 2.29	6.92 11.3	1.54 2.09	1.5 1.9	6.2	
45	37.5	29	105	14×20×17	3000	75.3 98.8	163 214	2.47 4.34	13 20.5	2.47 4.34	13 20.5	3.09 4.06	2.7 3.5	9.8	
53	43.5	36.5	120	16×23×20	3000	103 133	220 284	3.97 6.49	20.5 32	3.97 6.49	20.5 32	4.86 6.28	4.4 5.7	14.5	
63	53.5	43	150	18×26×22	3000	148 204	309 425	6.45 12.3	32.9 58.6	6.45 12.3	32.9 58.6	8.11 11.1	7.6 10.9	20.3	
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	

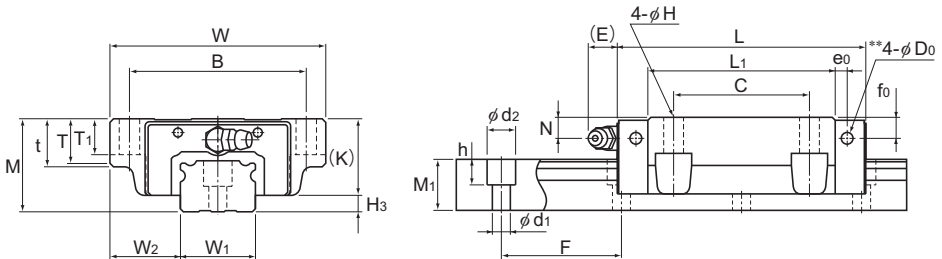
Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-236**.)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Models NR-B and NR-LB



Model NR-B

Model No.	Outer dimensions			LM block dimensions															Grease nipple	H ₃
	Height	Width	Length	B	C	H	L ₁	t	T	T ₁	K	N	f ₀	E	e ₀	D ₀				
	M	W	L																	
NR 25XB NR 25XLB	31	72	82.8 102	59	45	7	62.4 81.6	16	14.8	12	25.5	7	7	12	4	3.9	B-M6F	5.5		
NR 30B NR 30LB	38	90	98 120.5	72	52	9	70.9 93.4	18	16.8	14	31	7	7	12	5	3.9	B-M6F	7		
NR 35B NR 35LB	44	100	109.5 135	82	62	9	77.9 103.4	20	18.8	16	35	8	8	12	6	5.2	B-M6F	9		
NR 45B NR 45LB	52	120	139 171	100	80	11	105 137	22	20.5	20	40.5	10	8	16	7	5.2	B-PT1/8	11.5		
NR 55B NR 55LB	63	140	162.8 200	116	95	14	123.6 160.8	24	22.5	22	49	11	10	16	8	5.2	B-PT1/8	14		
NR 65B NR 65LB	75	170	185.6 245.6	142	110	16	143.6 203.6	28	26	25	60	16	15	16	9	8.2	B-PT1/8	15		
NR 75B NR 75LB	83	195	218 274	165	130	18	170.2 226.2	30	28	26	68	18	17	16	9	8.2	B-PT1/8	15		
NR 85B NR 85LB	90	215	246.7 302.8	185	140	18	194.9 251	34	32	28	73	20	20	16	10	8.2	B-PT1/8	17		
NR 100B NR 100LB	105	260	286.2 326.2	220	150	20	223.4 263.4	38	35	32	85	23	23	10	12	8.2	B-PT1/4	20		

Model number coding

NR35 B 2 QZ DDHH C0 +1080L P Z T - II

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

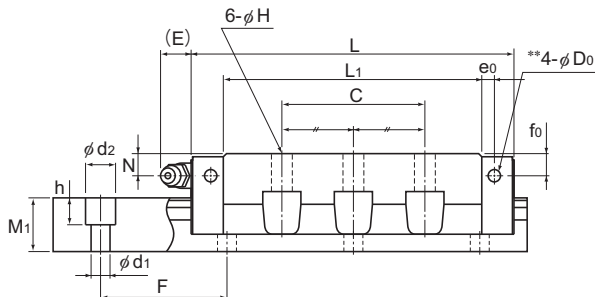
With plate cover or steel tape (*4)

Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**. (*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)

Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NR-LB

Unit: mm

	LM rail dimensions					Basic load rating		Static permissible moment kN·m*					Mass		
	Width	Height	Pitch	Length*	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 × d ₂ × h	Max	kN	kN			1 block	Double blocks
	25	23.5	17	40	6 × 9.5 × 8.5	3000	33 44	84.6 113	0.771 1.26	3.86 6.29	0.469 0.775	2.33 3.82	0.91 1.21	0.58 0.77	3.1
	28	31	21	80	7 × 11 × 9	3000	48.7 64.9	122 162	1.26 2.18	6.63 10.6	0.778 1.33	4.05 6.47	1.47 1.95	1.1 1.4	4.3
	34	33	24.5	80	9 × 14 × 12	3000	63.1 85.7	155 210	1.75 3.14	9.47 15.5	1.08 1.92	5.8 9.43	2.24 3.03	1.5 1.9	6.2
	45	37.5	29	105	14 × 20 × 17	3000	96 126	231 303	3.37 5.93	17.7 28	2.07 3.59	10.8 16.9	4.45 5.82	2.7 3.5	9.8
	53	43.5	36.5	120	16 × 23 × 20	3000	131 170	310 402	5.39 8.87	27.8 43.8	3.3 5.41	16.9 26.6	6.98 9.05	4.4 5.7	14.5
	63	53.5	43	150	18 × 26 × 22	3000	189 260	436 600	8.76 16.8	44.7 79.9	5.39 10.1	27.3 48	11.6 15.9	7.6 10.9	20.3
	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

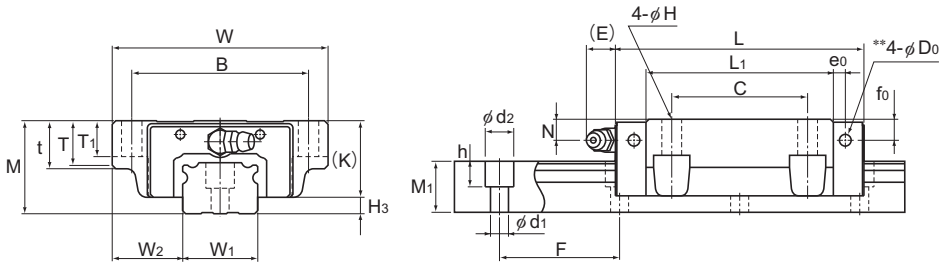
Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See [A1-236](#).)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Models NRS-B and NRS-LB



Model NRS-B

Model No.	Outer dimensions			LM block dimensions															Grease nipple	H ₃
	Height	Width	Length	B	C	H	L ₁	t	T	T ₁	K	N	f ₀	E	e ₀	D ₀				
	M	W	L	B	C	H	L ₁	t	T	T ₁	K	N	f ₀	E	e ₀	D ₀				
NRS 25XB NRS 25XLB	31	72	82.8 102	59	45	7	62.4 81.6	16	14.8	12	25.5	7	7	12	4	3.9	B-M6F	5.5		
NRS 30B NRS 30LB	38	90	98 120.5	72	52	9	70.9 93.4	18	16.8	14	31	7	7	12	5	3.9	B-M6F	7		
NRS 35B NRS 35LB	44	100	109.5 135	82	62	9	77.9 103.4	20	18.8	16	35	8	8	12	6	5.2	B-M6F	9		
NRS 45B NRS 45LB	52	120	139 171	100	80	11	105 137	22	20.5	20	40.5	10	8	16	7	5.2	B-PT1/8	11.5		
NRS 55B NRS 55LB	63	140	162.8 200	116	95	14	123.6 160.8	24	22.5	22	49	11	10	16	8	5.2	B-PT1/8	14		
NRS 65B NRS 65LB	75	170	185.6 245.6	142	110	16	143.6 203.6	28	26	25	60	16	15	16	9	8.2	B-PT1/8	15		
NRS 75B NRS 75LB	83	195	218 274	165	130	18	170.2 226.2	30	28	26	68	18	17	16	9	8.2	B-PT1/8	15		
NRS 85B NRS 85LB	90	215	246.7 302.8	185	140	18	194.9 251	34	32	28	73	20	20	16	10	8.2	B-PT1/8	17		
NRS 100B NRS 100LB	105	260	286.2 326.2	220	150 200	20	223.4 263.4	38	35	32	85	23	23	10	12	8.2	B-PT1/4	20		

Model number coding

NRS45 B 2 QZ KKHH C0 +2040L P Z T - II

Model number

Type of LM block

With QZ Lubricator

Contamination protection accessory symbol (*1)

LM rail length (in mm)

Symbol for LM rail jointed use

Symbol for No. of rails used on the same plane (*5)

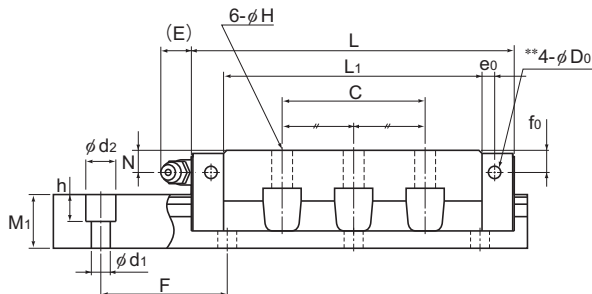
No. of LM blocks used on the same rail

Radial clearance symbol (*2)
Normal (No symbol)
Light preload (C1)
Medium preload (C0)

With plate cover or steel tape (*4)
Accuracy symbol (*3)
Normal grade (No Symbol)/High accuracy grade (H)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-492** (*2) See **A1-70**. (*3) See **A1-76**. (*4) Specify the plate cover or the steel tape. (*5) See **A1-13**.

Note) 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.)
Those models equipped with QZ Lubricator cannot have a grease nipple.



Model NRS-LB

Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width	Height	Pitch		Length*	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 × d ₂ × h Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m	
25	23.5	17	40	6 × 9.5 × 8.5	3000	25.9 34.5	59.8 79.7	0.568 0.926	2.84 4.6	0.568 0.926	2.84 4.6	0.633 0.846	0.58 0.77	3.1
28	31	21	80	7 × 11 × 9	3000	38.2 51	86.1 115	0.926 1.6	4.86 7.83	0.926 1.6	4.86 7.83	1.02 1.36	1.1 1.4	4.3
34	33	24.5	80	9 × 14 × 12	3000	49.5 67.2	109 148	1.28 2.29	6.92 11.3	1.28 2.29	6.92 11.3	1.54 2.09	1.5 1.9	6.2
45	37.5	29	105	14 × 20 × 17	3000	75.3 98.8	163 214	2.47 4.34	13 20.5	2.47 4.34	13 20.5	3.09 4.06	2.7 3.5	9.8
53	43.5	36.5	120	16 × 23 × 20	3000	103 133	220 284	3.97 6.49	20.5 32	3.97 6.49	20.5 32	4.86 6.28	4.4 5.7	14.5
63	53.5	43	150	18 × 26 × 22	3000	148 204	309 425	6.45 12.3	32.9 58.6	6.45 12.3	32.9 58.6	8.11 11.1	7.6 10.9	20.3
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

Note) Pilot holes for side nipples** are not drilled through in order to prevent foreign material from entering the product. THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See [A1-236](#).)

Static permissible moment*: 1 block: static permissible moment value with 1 LM block

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

Standard Length and Maximum Length of the LM Rail

Table1 shows the standard lengths and the maximum lengths of models NR/NRS variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used. Contact THK for details. For the G dimension when a special length is required, we recommend selecting the corresponding G value from the table. The longer the G dimension is, the less stable the G area may become after installation, thus causing an adverse impact to accuracy.

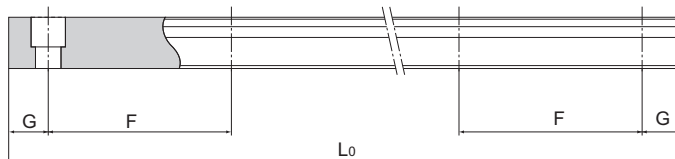


Table1 Standard Length and Maximum Length of the LM Rail for Models NR/NRS

Unit: mm

Model No.	NR/NRS25X	NR/NRS30	NR/NRS35	NR/NRS45	NR/NRS55	NR/NRS65	NR/NRS75	NR/NRS85	NR/NRS100
LM rail standard length (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					
	1470	1880	1880	2670					
	1550	1960	1960	2775					
	1590	2040	2040	2880					
	1710	2200	2200	2985					
1830	2360	2360							
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	15	20	20	22.5	30	35	40	45	40
Max length	3000	3000	3000	3000	3000	3000	3000	3000	3000

Note1) The maximum length varies with accuracy grades. Contact THK for details.

Note2) If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

