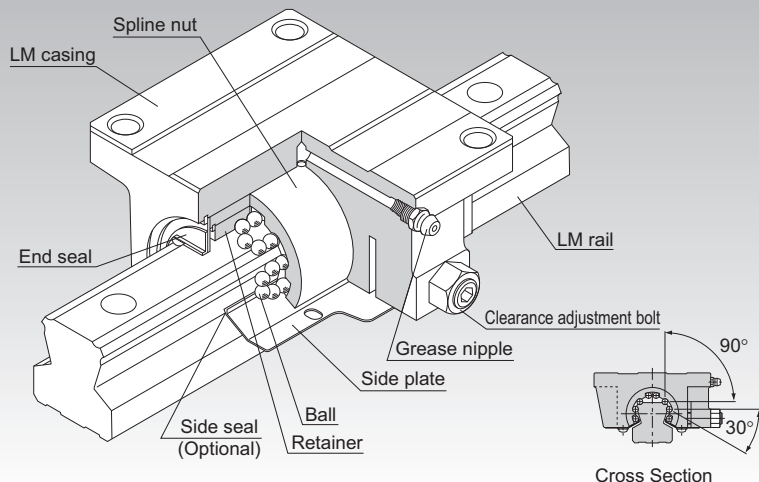


NSR-TBC

Self-Aligning LM Guide Model NSR-TBC



Selection Criteria **A1-10**

Design Highlights **A1-482**

Options **A1-507**

Model No. **A1-577**

Handling Precautions **A1-583**

Accessories for Lubrication **A24-1**

Mounting Procedure **B1-89**

Equivalent Moment Factor **A1-43**

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

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

Radial Clearance **A1-75**

Accuracy Standards **A1-79**

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

Reference Error Tolerance for the Mounting Surface **A1-499**

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

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

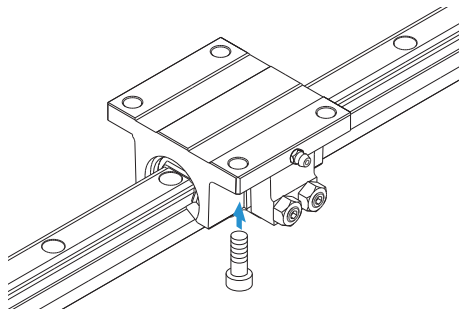
Model NSR-TBC is highly capable of performing self-adjustment and self-alignment. As a result, even if two rails are not mounted with precision, the LM casing absorbs the error and does not allow it to affect the traveling performance or reduce the machine's functionality.

Types and Features

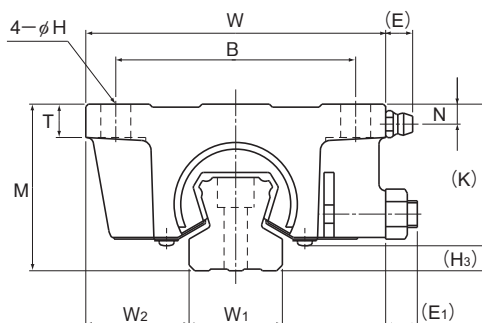
Model NSR-TBC

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

Dimensional Table⇒ **A1-352**



Model NSR-TBC



Model No.	Outer dimensions			LM casing dimensions								H ₃	
	Height	Width	Length ¹	B	C	H	T	K	N	E	E ₁		Grease nipple
	M	W	L										
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

Model number

No. of LM cases
used on the same
rail

Contamination
protection
accessory
symbol

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

LM rail length
(in mm)

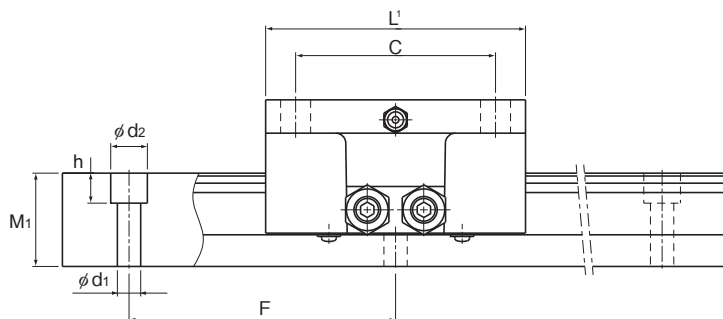
Symbol for
LM rail
jointed use

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

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 [A1-547](#) for contamination protection accessories, see [A1-75](#) for radial clearance symbol. See [A1-79](#) for accuracy symbol. See [A1-13](#) for symbol for number of rails used on the same plane.



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 × d ₂ × 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 **A1-354**.)

³ The basic load rating is for a load in the radial direction.

Use **A1-61** on Table 7 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

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.

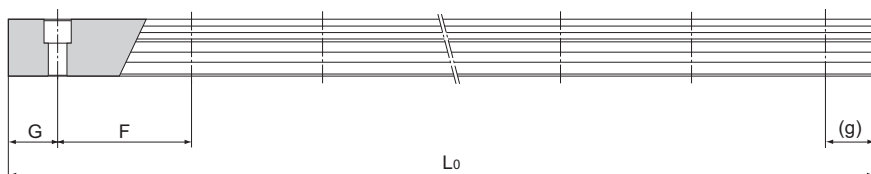


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model NSR-TBC

Unit: mm

Model No.	NSR 20TBC	NSR 25TBC	NSR 30TBC	NSR 40TBC	NSR 50TBC	NSR 70TBC
LM rail standard lengths (L_0)	220	280	280	570	780	1270
	280	440	440	885	1020	1570
	340	600	600	1200	1260	2020
	460	760	760	1620	1500	2620
	640	1000	1000	2040	1980	
	820	1240	1240	2460	2580	
	1000	1640	1640	2985	2940	
	1240	2040	2040			
	1600	2520	2520			
		3000	3000			
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.

