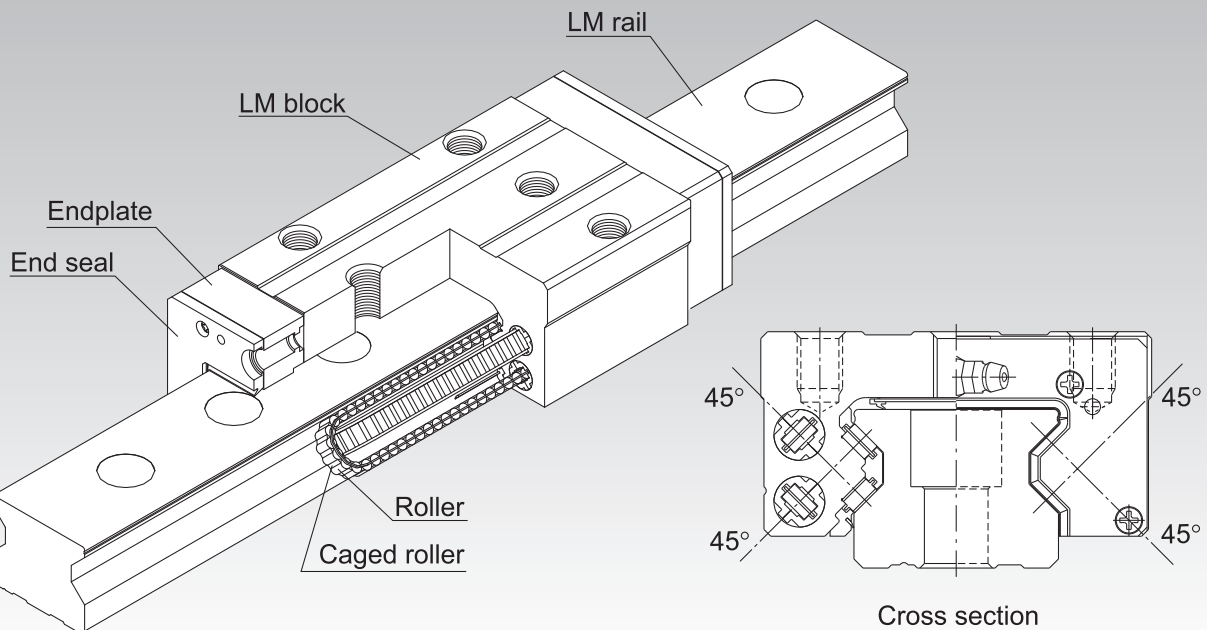


SRN



Caged Roller LM Guide Ultra-high Rigidity Type (Low Center of Gravity) Model SRN



*For the caged roller, see [A1-414](#).

Point of Selection	A1-10
Point of Design	A1-460
Options	A1-485
Model No.	A1-551
Precautions on Use	A1-557
Accessories for Lubrication	A24-1
Mounting Procedure and Maintenance	B1-89
Equivalent Moment Factor	A1-43
Rated Loads in All Directions	A1-60
Equivalent Factor in Each Direction	A1-62
Radial Clearance	A1-74
Accuracy Standards	A1-78
Shoulder Height of the Mounting Base and the Corner Radius	A1-472
Reference Error Tolerance for the Mounting Surface	A1-442
Dimensions of Each Model with Options Attached	A1-499

Structure and Features

SRN is an ultra-high rigidity Roller Guide that uses roller cages to allow low-friction, smooth motion and achieve long-term maintenance-free operation.

[Ultra-high Rigidity]

A higher rigidity is achieved by using highly rigid rollers as the rolling elements and having the overall roller length more than 1.5 times greater than the roller diameter.

[4-way Equal Load]

Since each row of rollers is arranged at a contact angle of 45° so that the LM block receives an equal load rating in all directions (radial, reverse radial and lateral directions), high rigidity is ensured in all directions.

[Smooth Motion through Skewing Prevention]

The roller cage allows rollers to form an evenly spaced line while circulating, thus preventing the rollers from skewing as the block enters an loaded area. As a result, fluctuation of the rolling resistance is minimized, and stable, smooth motion is achieved.

[Long-term Maintenance-free Operation]

Use of roller cages eliminates friction between rollers and increases grease retention, enabling long-term maintenance-free operation to be achieved.

[Low-Profile Low Center of Gravity]

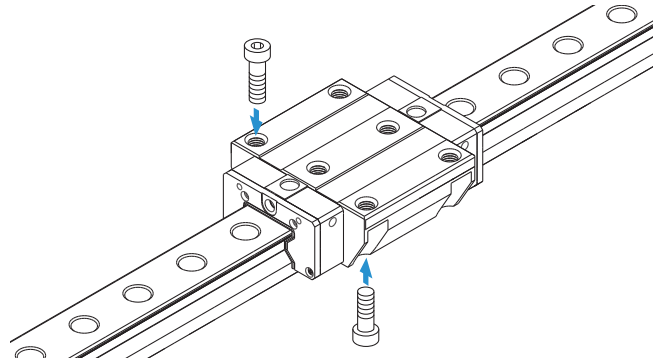
Because it has a lower total height than the Caged Roller LM Guide Model SRG, it is ideal for compact designs.

Types and Features

Model SRN-C

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

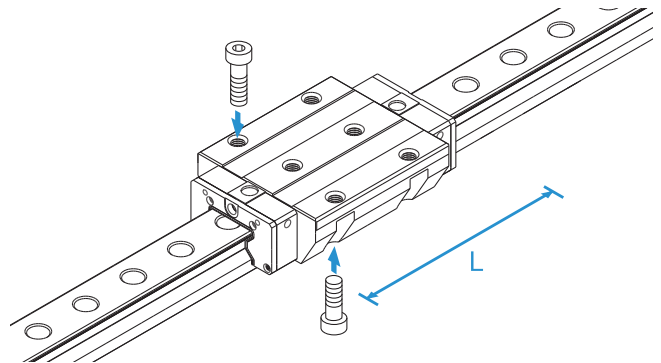
Specification Table⇒ **A1-444**



Model SRN-LC

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

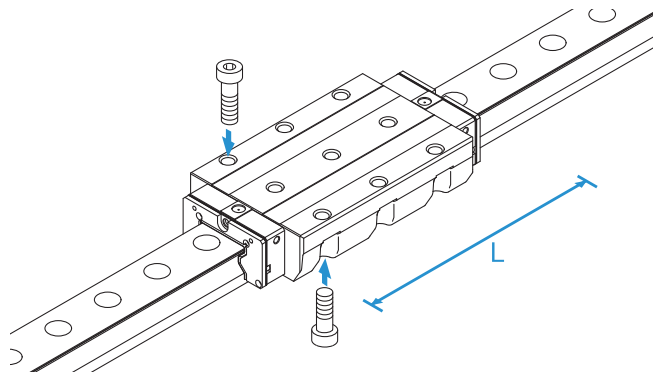
Specification Table⇒ **A1-444**



Model SRN-SLC

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

Specification Table⇒ **A1-444**

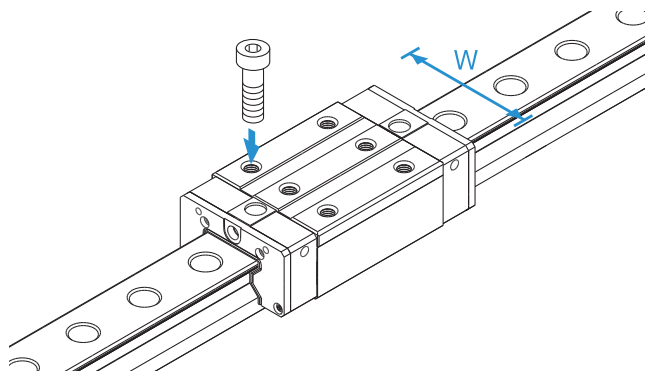


Model SRN-R

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.

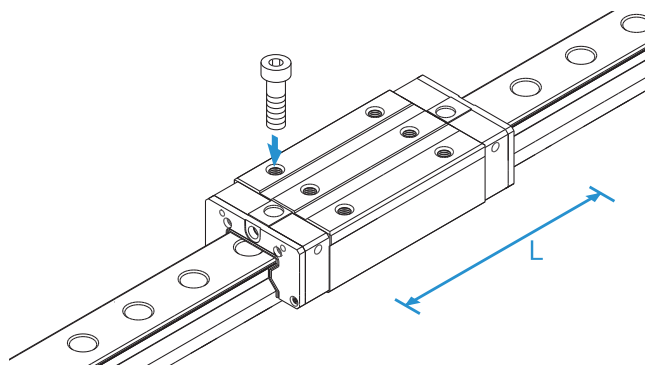
Specification Table⇒ **A1-446**



Model SRN-LR

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

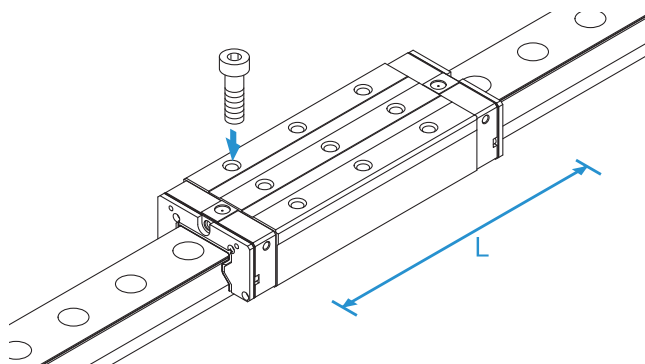
Specification Table⇒ **A1-446**



Model SRN-SLR

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

Specification Table⇒ **A1-446**



Reference Error Tolerance for the Mounting Surface

The Caged Roller LM Guide Model SRN features high rigidity because it uses rollers as its rolling element, and it also features a roller cage, which prevents the rollers from skewing. However, high machining accuracy is required in the mounting surface. If the error on the mounting surface is large, it will affect the rolling resistance and the service life. The following shows the reference error tolerance according to the radial clearance.

Table1 Reference Horizontal Error Tolerance (P) between Two Rails

Unit: mm

Radial clearance	Normal	C1	C0
Model No.			
SRN 35	0.014	0.010	0.007
SRN 45	0.017	0.013	0.009
SRN 55	0.021	0.014	0.011
SRN 65	0.027	0.018	0.014

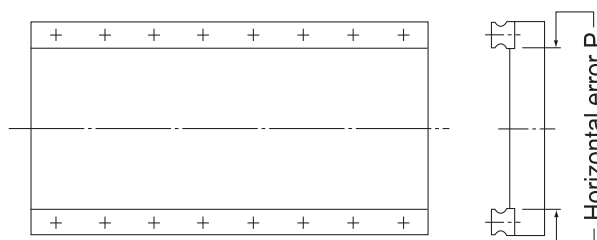


Fig.1

Table2 Reference Vertical Error Tolerance (X) between Two Rails

Unit: mm

Radial clearance	Normal	C1	C0
Reference mounting surface error tolerance X	0.00030a	0.00021a	0.00011a

$X = X_1 + X_2$ X_1 : Level difference on the rail mounting surface
 X_2 : Level difference on the block mounting surface

Example of calculation

Rail span when $a = 500\text{mm}$
 Reference mounting surface error tolerance $X = 0.0003 \times 500 = 0.15$

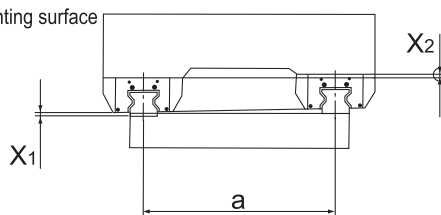


Fig.2

Table3 Reference Vertical Error Tolerance (Y) in the Axial Direction

Unit: mm

Reference mounting surface error tolerance	0.000036b
--------------------------------------------	-----------

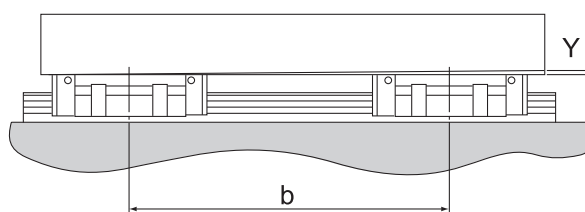
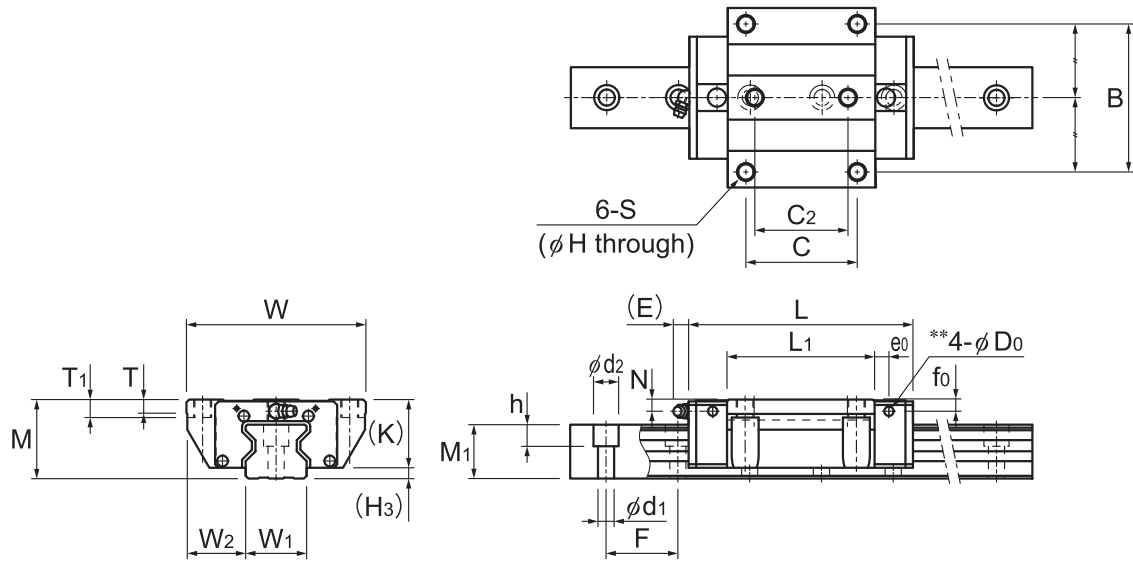


Fig.3

Models SRN-C, SRN-LC and SRN-SLC



Models SRN35 to 65C/LC

Model No.	Outer dimensions			LM block dimensions															Grease nipple	H ₃
	Height	Width	Length	B	C	C ₂	S	H	L ₁	T	T ₁	K	N	E	e ₀	f ₀	D ₀			
	M	W	L																	
SRN 35C SRN 35LC SRN 35SLC	44	100	125 155 180.8	82	62 100	52 —	M10	8.5	82.2 112.2 138	11.6 11.7	10	38	6.5	12	8	7	5.2	B-M6F	6	
SRN 45C SRN 45LC SRN 45SLC	52	120	155 190 231.5	100	80 120	60 —	M12	10.5	107 142 183.5	16.5	15	45	7	12	8.5	7.6	5.2	B-M6F	7	
SRN 55C SRN 55LC SRN 55SLC	63	140	185 235 292	116	95 150	70 —	M14	12.5	129 179.2 236.2	18.2	18	53	8	16	10	9.8	5.2	B-PT1/8	10	
SRN 65C SRN 65LC SRN 65SLC	75	170	244.9 303 380	142	110 200	82 —	M16	14.5	171.7 229.8 306.8	21.2	20	65	14	16	9	13	5.2	B-PT1/8	10	

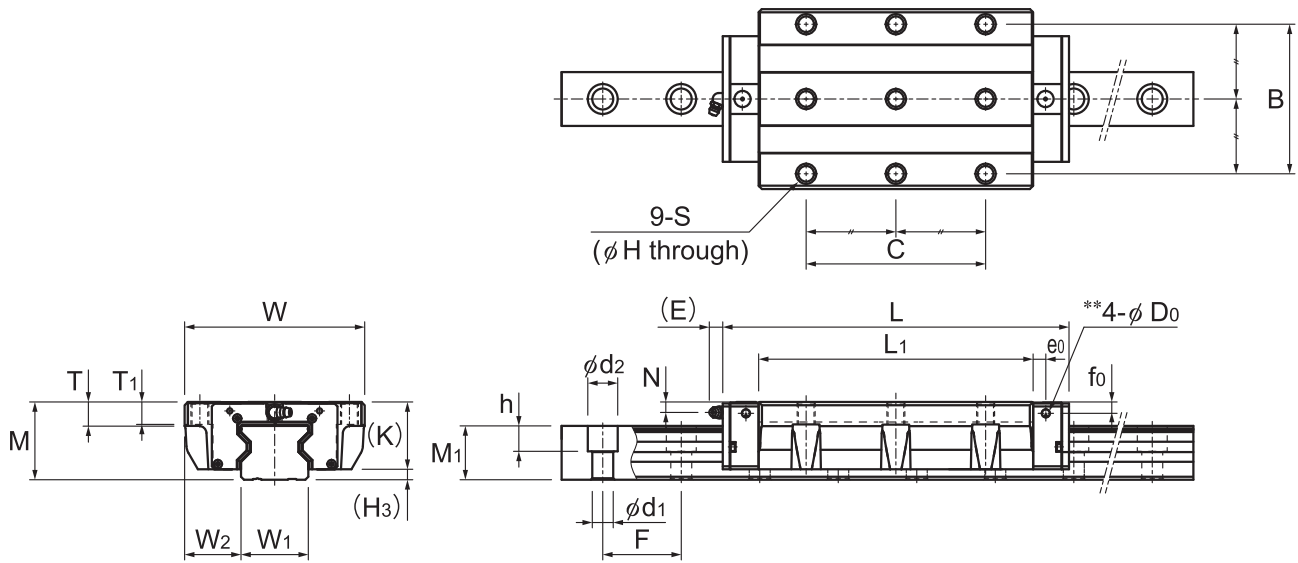
Model number coding

SRN45	C	2	QZ	KK	C0	+1160L	P	Z	T	-II
Model number	Type of LM block	No. of LM blocks used on the same rail	With QZ lubricator	Contamination protection accessory symbol (*1)	Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)	LM rail length (in mm)	Accuracy symbol (*3) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)	With plate cover	Symbol for LM rail jointed use	Symbol for No. of rails used on the same plane (*4)

(*1) See contamination protection accessory on **A1-524**. (*2) See **A1-74**. (*3) See **A1-78**. (*4) 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. When desiring a grease nipple for a model attached with QZ, contact THK.



Models SRN35 to 65SLC

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 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				
34	33	30	40	9 × 14 × 12	3000	59.1	119	1.66	10.1	1.66	10.1	2.39	1.5	6.9	
						76	165	3.13	17	3.13	17	3.31			2.3
						87.9	199	4.53	23.9	4.53	23.9	4.09			2.8
45	37.5	36	52.5	14 × 20 × 17	3090	91.9	192	3.49	20	3.49	20	4.98	3.1	11.3	
						115	256	6.13	32.2	6.13	32.2	6.64			4.1
						139	328	9.99	50.0	9.99	50.0	8.91			5.4
53	43.5	43	60	16 × 23 × 20	3060	131	266	5.82	33	5.82	33	8.19	5.1	15.8	
						167	366	10.8	57	10.8	57	11.2			7.1
						210	488	19.1	93.7	19.1	93.7	15.6			9.4
63	53.5	49	75	18 × 26 × 22	3000	219	441	12.5	72.8	12.5	72.8	16.8	10.4	21.3	
						278	599	22.7	120	22.7	120	22.1			13.9
						352	811	41.3	202	41.3	202	30.9			18.5

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-448**.)

Static permissible moment* 1 block: the static permissible moment with one LM block

Double blocks: static permissible moment when two LM blocks are in close contact with each other

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**)

Total block length L

: The total block length L shown in the table is the length with the dust proof parts, code UU or SS.

If other contamination protection accessories or lubricant equipment are installed, the total block length will increase.

(See **A1-499** or **A1-520**)

The removing/mounting jig is not provided as standard. Contact THK before use.

** A pilot hole for side nipples, when a grease nipple for a model equipped with LaCS or QZ Lubricator is needed.

Pilot holes for side nipples are not drilled through for models other than those stated above.

For grease nipple mount machining, contact THK. (See **A1-450**)

Note2) The basic dynamic load rating of the roller guide is a value based on a nominal life of 100 km.

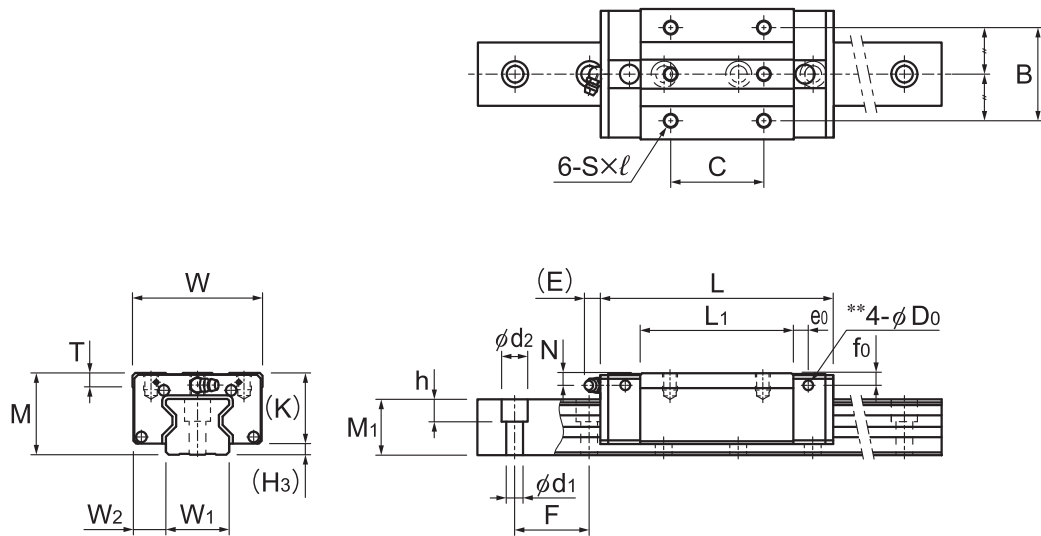
The conversion to basic dynamic load rating for a nominal life of 50 km can be obtained from the following equation.

$$C_{50} = C \times 1.23$$

C₅₀ : The basic dynamic load rating for a nominal load of 50 km

C : The basic dynamic load rating in the dimensional table

Models SRN-R, SRN-LR and SRN-SLR



Models SRN35 to 65R/LR

Model No.	Outer dimensions			LM block dimensions												Grease nipple	H ₃
	Height	Width	Length	B	C	S × l	L ₁	T	K	N	E	e ₀	f ₀	D ₀			
	M	W	L														
SRN 35R SRN 35LR SRN 35SLR	44	70	125 155 180.8	50	50 72 100	M8 × 9	82.2 112.2 138	10.8	38	6.5	12	8	7	5.2	B-M6F	6	
SRN 45R SRN 45LR SRN 45SLR	52	86	155 190 231.5	60	60 80 120	M10 × 11	107 142 183.5	10.8	45	7	12	8.5	7.6	5.2	B-M6F	7	
SRN 55R SRN 55LR SRN 55SLR	63	100	185 235 292	75	75 95 150	M12 × 13	129 179.2 236.2	13.8	53	8	16	10	9.8	5.2	B-PT1/8	10	
SRN 65R SRN 65LR SRN 65SLR	75	126	244.9 303 380	76	70 120 200	M16 × 16	171.7 229.8 306.8	19.5	65	14	16	9	13	5.2	B-PT1/8	10	

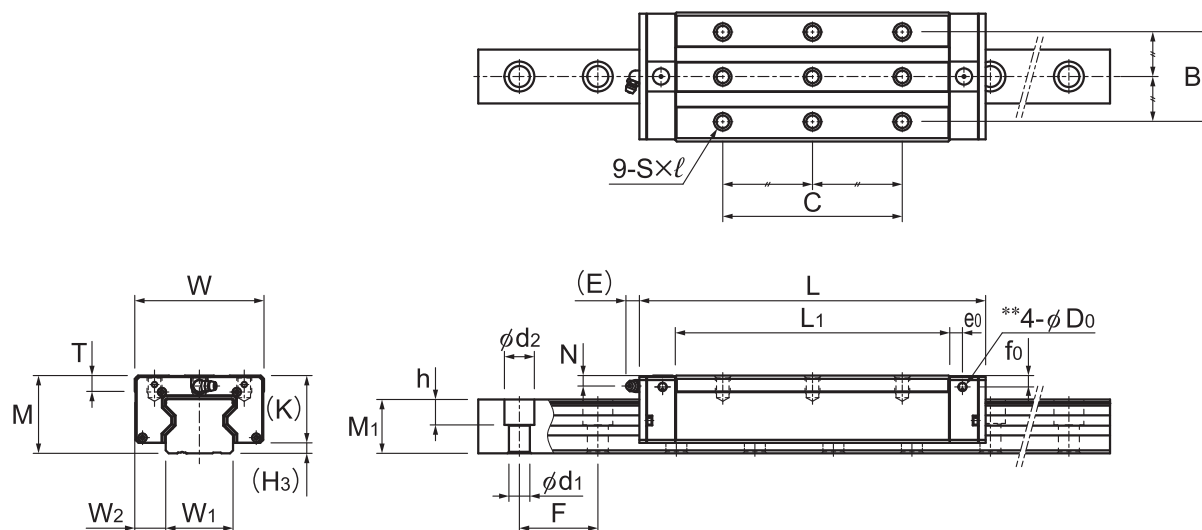
Model number coding

SRN45	LR	2	QZ	KK	C0	+1200L	P	Z	T	- II
Model number	Type of LM block	No. of LM blocks used on the same rail	With QZ lubricator	Contamination protection accessory symbol (*1)	Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0)	LM rail length (in mm)	Accuracy symbol (*3) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)	With plate cover	Symbol for LM rail jointed use	Symbol for No. of rails used on the same plane (*4)

(*1) See contamination protection accessory on **A1-524**. (*2) See **A1-74**. (*3) See **A1-78**. (*4) 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. When desiring a grease nipple for a model attached with QZ, contact THK.



Models SRN35 to 65SLR

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 kg	LM rail kg/m		
	W ₁ 0 -0.05						W ₂	M ₁	F	d ₁ × d ₂ × h	Max			kN	kN
	34	18	30	40	9 × 14 × 12	3000	59.1 76 87.9	119 165 199	1.66 3.13 4.53	10.1 17 23.9	1.66 3.13 4.53	10.1 17 23.9	2.39 3.31 4.09	1.1 1.5 1.8	6.9
	45	20.5	36	52.5	14 × 20 × 17	3090	91.9 115 139	192 256 328	3.49 6.13 9.99	20 32.2 50.0	3.49 6.13 9.99	20 32.2 50.0	4.98 6.64 8.91	2 2.6 3.4	11.3
	53	23.5	43	60	16 × 23 × 20	3060	131 167 210	266 366 488	5.82 10.8 19.1	33 57 93.7	5.82 10.8 19.1	33 57 93.7	8.19 11.2 15.6	3.3 4.6 5	15.8
	63	31.5	49	75	18 × 26 × 22	3000	219 278 352	441 599 811	12.5 22.7 41.3	72.8 120 202	12.5 22.7 41.3	72.8 120 202	16.8 22.1 30.9	7.1 9.4 12.6	21.3

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See [A1-448](#).)

Static permissible moment* 1 block: the static permissible moment with one LM block

Double blocks: static permissible moment when two LM blocks are in close contact with each other

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](#))

Total block length L

: The total block length L shown in the table is the length with the dust proof parts, code UU or SS.

If other contamination protection accessories or lubricant equipment are installed, the total block length will increase.

(See [A1-499](#) or [A1-520](#))

The removing/mounting jig is not provided as standard. Contact THK before use.

** A pilot hole for side nipples, when a grease nipple for a model equipped with LaCS or QZ Lubricator is needed.

Pilot holes for side nipples are not drilled through for models other than those stated above.

For grease nipple mount machining, contact THK. (See [A1-450](#))

Note2) The basic dynamic load rating of the roller guide is a value based on a nominal life of 100 km.

The conversion to basic dynamic load rating for a nominal life of 50 km can be obtained from the following equation.

$$C_{50} = C \times 1.23$$

C₅₀ : The basic dynamic load rating for a nominal load of 50 km

C : The basic dynamic load rating in the dimensional table

Standard Length and Maximum Length of the LM Rail

Table4 shows the standard lengths and the maximum lengths of model SRN variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used. Contact THK for details. For special rail lengths, it is recommended to use a value corresponding to the G,g dimension from the table. As the G,g dimension increases, this portion becomes less stable, and the accuracy performance is severely impacted.

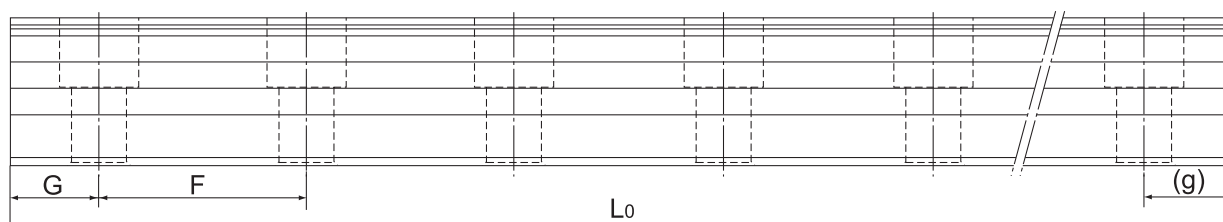


Table4 Standard Length and Maximum Length of the LM Rail for Model SRN

Unit: mm

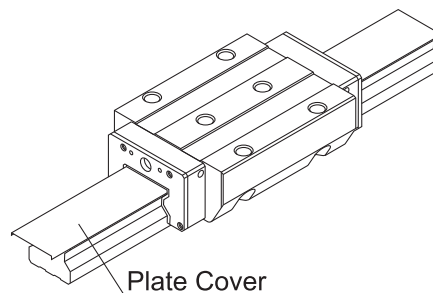
Model No.	SRN 35	SRN 45	SRN 55	SRN 65
LM rail standard length (L ₀)	280	570	780	1270
	360	675	900	1570
	440	780	1020	2020
	520	885	1140	2620
	600	990	1260	
	680	1095	1380	
	760	1200	1500	
	840	1305	1620	
	920	1410	1740	
	1000	1515	1860	
	1080	1620	1980	
	1160	1725	2100	
	1240	1830	2220	
	1320	1935	2340	
	1400	2040	2460	
	1480	2145	2580	
	1560	2250	2700	
	1640	2355	2820	
	1720	2460	2940	
	1800	2565	3060	
	1880	2670		
	1960	2775		
2040	2880			
2200	2985			
2360	3090			
2520				
2680				
2840				
3000				
Standard pitch F	40	52.5	60	75
G,g	20	22.5	30	35
Max length	3000	3090	3060	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.

Plate Cover

By covering the LM rail's mounting holes with ultra-thin stainless steel (SUS304) plates, the sealability of the end seals increase drastically, helping prevent foreign materials and liquid from entering from the top of the LM rail. Contact THK for further details regarding mounting.



Note 1) The Model SRN with plate cover is not a standard specification. (Please note it is not possible to add just the plate cover afterwards.)

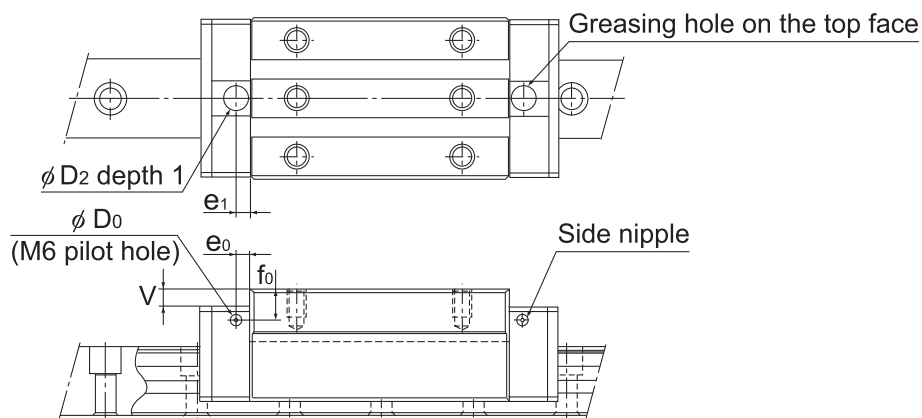
Note 2) The LM block must be removed from the LM rail when mounting. When doing this, a removing/mounting jig (see **A1-549**) is required. Please contact THK for details.

Note 3) Plate covers are available for models SRN 35 to 65.

Greasing Hole

[Greasing Hole for Model SRN]

Model SRN allows lubrication from both the side and top faces of the LM block. The greasing hole of standard types is not drilled through in order to prevent foreign material from entering the LM block. When using the greasing hole, contact THK.



Unit: mm

Model No.		Pilot hole for side nipple			Applicable nipple	Greasing hole on the top face			
		e_0	f_0	D_0		D_2	(O-ring)	V	e_1
SRN	35C 35LC 35SLC	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	35R 35LR 35SLR	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	45C 45LC 45SLC	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
	45R 45LR 45SLR	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
	55C 55LC 55SLC	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
	55R 55LR 55SLR	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
	65C 65LC 65SLC	9	13	5.2	M6F	10.2	(P7)	0.4	10
	65R 65LR 65SLR	9	13	5.2	M6F	10.2	(P7)	0.4	10

Note1) The greasing interval is longer than that of full-roller types because of the roller cage effect. However, the actual greasing interval may vary depending on the service environment, such as a high load and high speed. Contact THK for details.

Note2) Upper surface lubrication is for oil lubrication only. Contact THK if you are considering using the greasing hole on the top face for grease lubrication.

