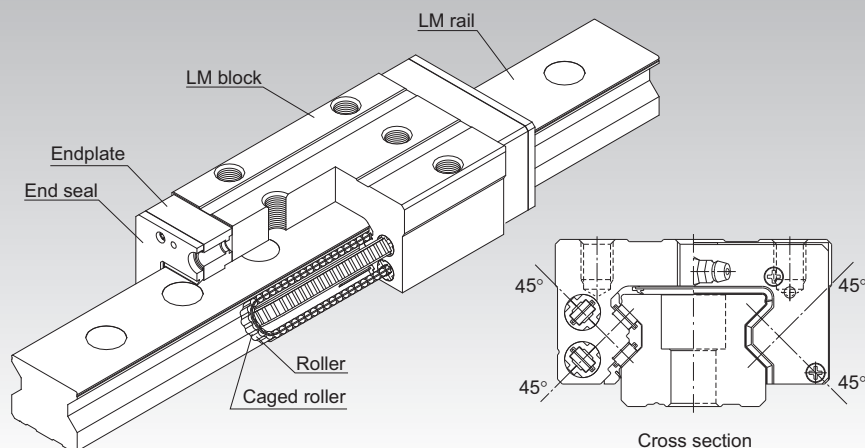


# SRN



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



\*For the caged roller, see **A1-394**.

**Point of Selection** **A1-10**

**Point of Design** **A1-436**

**Options** **A1-459**

**Model No.** **A1-524**

**Precautions on Use** **A1-530**

**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 **A1-72**

Accuracy Standards **A1-76**

Shoulder Height of the Mounting Base and the Corner Radius **A1-448**

Error Allowance of the Mounting Surface **A1-421**

Dimensions of Each Model with an Option Attached **A1-472**

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## Structure and Features

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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]

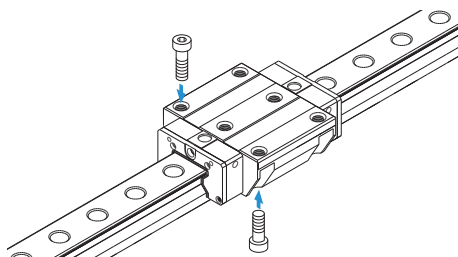
Because it has a lower total height than the Caged Roller LM Guide Model SRG, it is ideal for compact designs.

## 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.

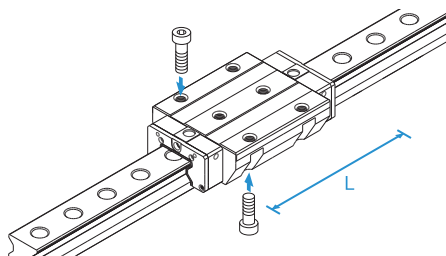
Specification Table⇒ **A1-422**



### 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.

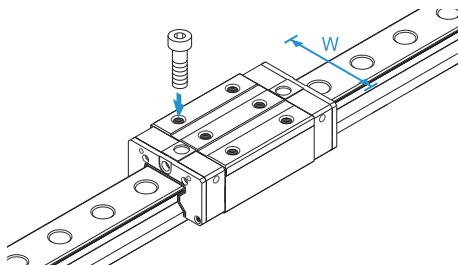
Specification Table⇒ **A1-422**



### 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.

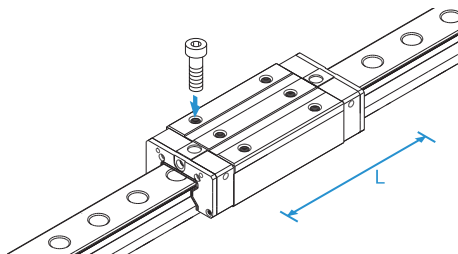
Specification Table⇒ **A1-424**



### 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⇒ **A1-424**



## Error Allowance of the Mounting Surface

The caged roller LM Guide Model SRG features high rigidity since it uses rollers as its rolling element and it also features a 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 maximum permissible value according to the radial clearance.

Table1 Error Allowance in Parallelism (P) between Two Rails

Unit: mm

Radial clearance Model No.	Normal	C1	C0
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

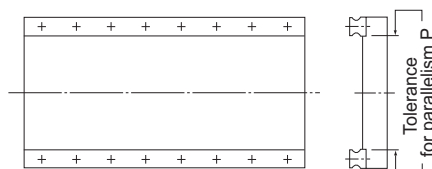


Fig.1

Table2 Error Allowance in Vertical Level (X) between Two Rails

Unit: mm

Radial clearance	Normal	C1	C0
Permissible error on the mounting surface 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  $a = 500\text{mm}$   
 Error allowance               $X = 0.0003 \times 500$   
 of the mounting                 $= 0.15$   
 surface

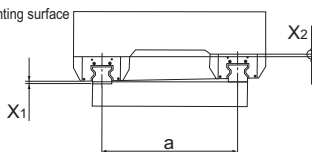


Fig.2

Table3 Error Allowance in Level (Y) in the Axial Direction

Unit: mm

Permissible error on the mounting surface	0.000036b
-------------------------------------------	-----------

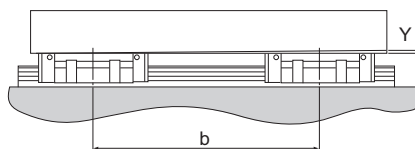
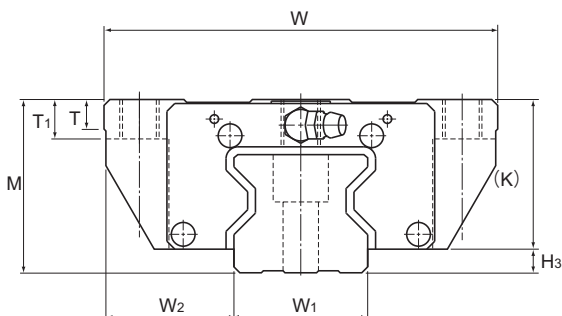


Fig.3

## Models SRN-C and SRN-LC



Model No.	Outer dimensions			LM block dimensions															Grease nipple	H <sub>3</sub>
	Height	Width	Length																	
	M	W	L	B	C	C <sub>2</sub>	S	H	L <sub>1</sub>	T	T <sub>1</sub>	K	N	E	e <sub>0</sub>	f <sub>0</sub>	D <sub>0</sub>			
SRN 35C SRN 35LC	44	100	125 155	82	62	52	M10	8.5	82.2 112.2	7.5	10	38	6.5	12	8	7	5.2	B-M6F	6	
SRN 45C SRN 45LC	52	120	155 190	100	80	60	M12	10.5	107 142	7.5	15	45	7	12	8.5	7.6	5.2	B-M6F	7	
SRN 55C SRN 55LC	63	140	185 235	116	95	70	M14	12.5	129 179.2	10.5	18	53	8	16	10	9.8	5.2	PT1/8	10	
SRN 65LC	75	170	303	142	110	82	M16	14.5	229.8	19.5	20	65	14	16	9	13	5.2	PT1/8	11.5	

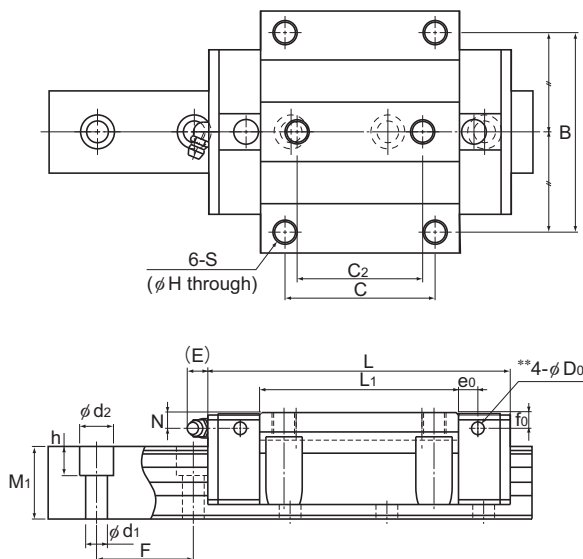
### Model number coding

<b>SRN45</b>	<b>C</b>	<b>2</b>	<b>QZ</b>	<b>KK</b>	<b>C0</b>	<b>+1160L</b>	<b>P</b>	<b>Z</b>	<b>T</b>	<b>-II</b>
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)	With plate cover	Symbol for LM rail jointed use	Accuracy symbol (*3) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)	Symbol for No. of rails used on the same plane (*4)

(\*1) See contamination protection accessory on **A1-496**. (\*2) See **A1-72**. (\*3) See **A1-76**. (\*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.



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width		Height	Pitch		Length*	C	C <sub>0</sub>	M <sub>A</sub>		M <sub>B</sub>		M <sub>C</sub>	LM block	LM rail
W <sub>1</sub> 0 -0.05	W <sub>2</sub>	M <sub>1</sub>	F	d <sub>1</sub> × d <sub>2</sub> × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
34	33	30	40	9 × 14 × 12	3000	59.1 76	119 165	1.66 3.13	10.1 17	1.66 3.13	10.1 17	2.39 3.31	1.6 2	6.9
45	37.5	36	52.5	14 × 20 × 17	3090	91.9 115	192 256	3.49 6.13	20 32.2	3.49 6.13	20 32.2	4.98 6.64	3 3.6	11.3
53	43.5	43	60	16 × 23 × 20	3060	131 167	266 366	5.82 10.8	33 57	5.82 10.8	33 57	8.19 11.2	4.9 6.4	15.8
63	53.5	49	75	18 × 26 × 22	3000	278	599	22.7	120	22.7	120	22.1	12.7	21.3

Note) The greasing hole on the top face and the pilot hole of the side nipple\*\* are not drilled through in order to prevent foreign material from entering the block.

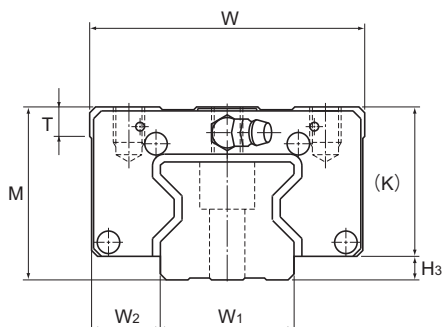
See **A1-427** for details.

The maximum length under "Length\*" indicates the standard maximum length of an LM rail. (See **A1-426**.)

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 SRN-R and SRN-LR



Model No.	Outer dimensions			LM block dimensions												Grease nipple	H <sub>3</sub>
	Height	Width	Length														
	M	W	L	B	C	S×ℓ	L <sub>1</sub>	T	K	N	E	e <sub>0</sub>	f <sub>0</sub>	D <sub>0</sub>			
SRN 35R SRN 35LR	44	70	125 155	50	50 72	M8×9	82.2 112.2	7.5	38	6.5	12	8	7	5.2	B-M6F	6	
SRN 45R SRN 45LR	52	86	155 190	60	60 80	M10×11	107 142	7.5	45	7	12	8.5	7.6	5.2	B-M6F	7	
SRN 55R SRN 55LR	63	100	185 235	75	75 95	M12×13	129 179.2	10.5	53	8	16	10	9.8	5.2	PT1/8	10	
SRN 65LR	75	126	303	76	120	M16×16	229.8	19.5	65	14	16	9	13	5.2	PT1/8	11.5	

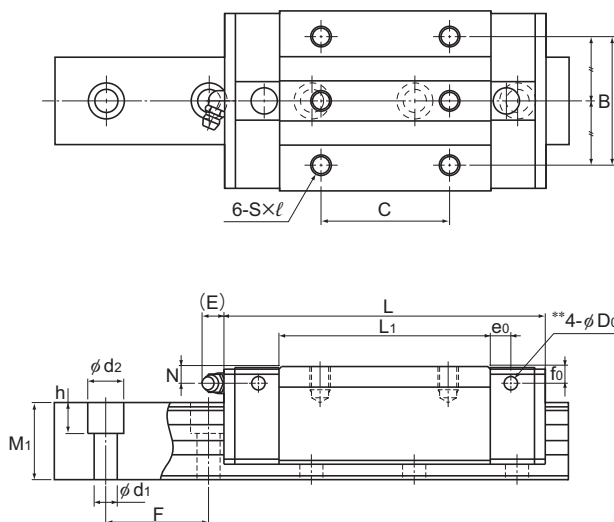
### Model number coding

<b>SRN45</b>	<b>LR</b>	<b>2</b>	<b>QZ</b>	<b>KK</b>	<b>C0</b>	<b>+1200L</b>	<b>P</b>	<b>Z</b>	<b>T</b>	<b>-II</b>
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 **A1-496**. (\*2) See **A1-72**. (\*3) See **A1-76**. (\*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.



Unit: mm

LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
Width	Height	Pitch		Length*	C	C <sub>0</sub>	M <sub>A</sub>		M <sub>B</sub>		M <sub>C</sub>		LM block	LM rail
W <sub>1</sub> 0 -0.05	W <sub>2</sub>	M <sub>1</sub>	F	d <sub>1</sub> × d <sub>2</sub> × h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
34	18	30	40	9 × 14 × 12	3000	59.1 76	119 165	1.66 3.13	10.1 17	1.66 3.13	10.1 17	2.39 3.31	1.1 1.4	6.9
45	20.5	36	52.5	14 × 20 × 17	3090	91.9 115	192 256	3.49 6.13	20 32.2	3.49 6.13	20 32.2	4.98 6.64	1.9 2.5	11.3
53	23.5	43	60	16 × 23 × 20	3060	131 167	266 366	5.82 10.8	33 57	5.82 10.8	33 57	8.19 11.2	3.2 4.5	15.8
63	31.5	49	75	18 × 26 × 22	3000	278	599	22.7	120	22.7	120	22.1	9.4	21.3

Note) The greasing hole on the top face and the pilot hole of the side nipple\*\* are not drilled through in order to prevent foreign material from entering the block.

See **A1-427** for details.

The maximum length under "Length\*" indicates the standard maximum length of an LM rail. (See **A1-426**.)

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

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 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.

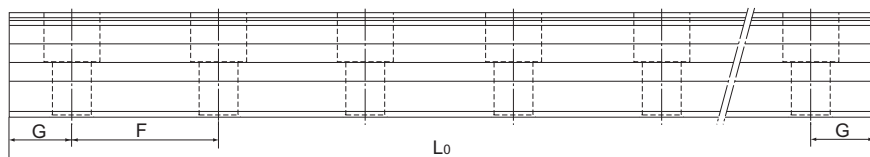


Table4 Standard Length and Maximum Length of the LM Rail for Model SRN

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	20	22.5	30	35
Max length	3000	3090	3060	3000

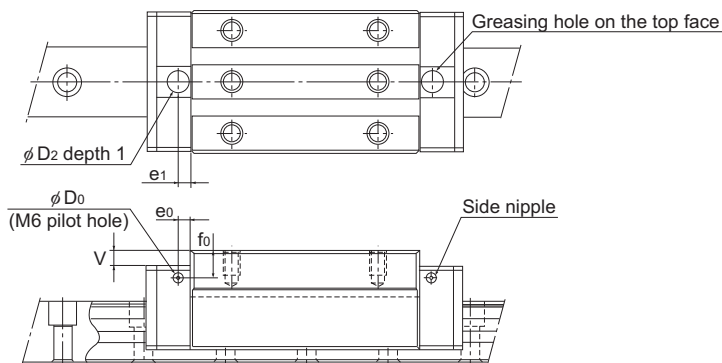
Note1) The maximum length varies with accuracy grades. Contact THK for details.

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

## 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	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	35LC	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	35R	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	35LR	8	7.0	5.2	M6F	10.2	(P7)	0.4	6
	45C	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
	45LC	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
	45R	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
	45LR	8.5	7.6	5.2	M6F	10.2	(P7)	0.4	7
SRN	55C	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
	55LC	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
	55R	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
	55LR	10	9.8	5.2	M6F	10.2	(P7)	0.4	11
SRN	65LC	9	13	5.2	M6F	10.2	(P7)	0.4	10
	65LR	9	13	5.2	M6F	10.2	(P7)	0.4	10

Note) 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.