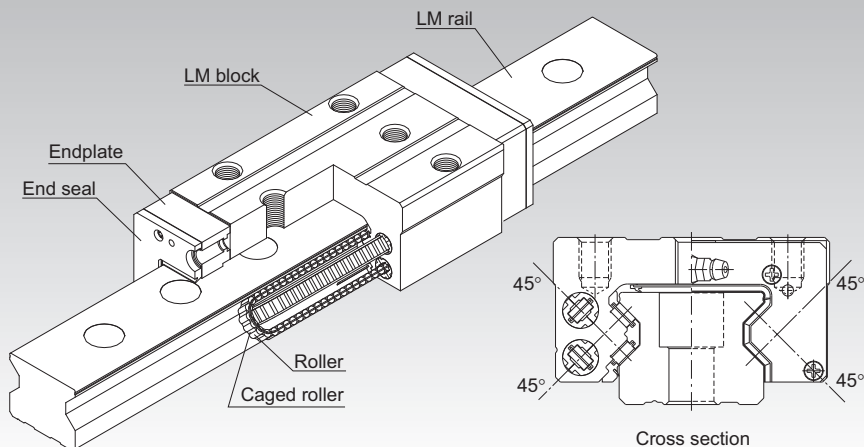


SRN



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



*For the caged roller, see **A1-408**.

Point of Selection **A1-10**

Point of Design **A1-454**

Options **A1-477**

Model No. **A1-543**

Precautions on Use **A1-549**

Accessories for Lubrication **A24-1**

Mounting Procedure and Maintenance **B1-89**

Equivalent moment factor **A1-43**

Rated Loads in All Directions **A1-59**

Equivalent factor in each direction **A1-61**

Radial Clearance **A1-73**

Accuracy Standards **A1-77**

Shoulder Height of the Mounting Base and the Corner Radius **A1-466**

Error Allowance of the Mounting Surface **A1-436**

Dimensions of Each Model with an Option Attached **A1-491**

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]

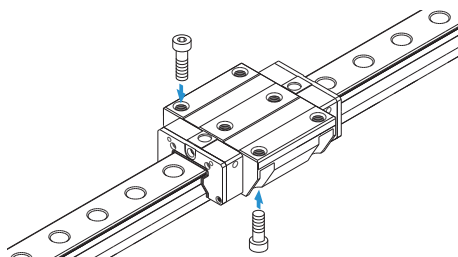
Because it has a lower total height than the Caged Roller LM Guide Model SRG, it is ideal for compact designs.

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.

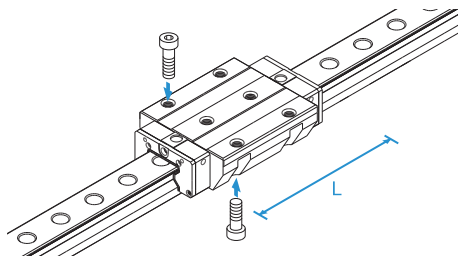
Specification Table⇒ **A1-438**



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.

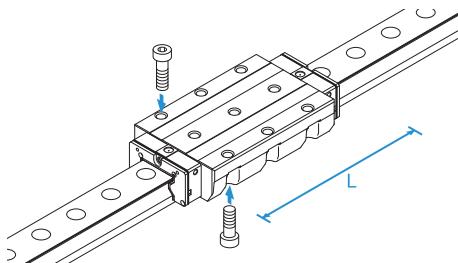
Specification Table⇒ **A1-438**



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⇒ **A1-438**

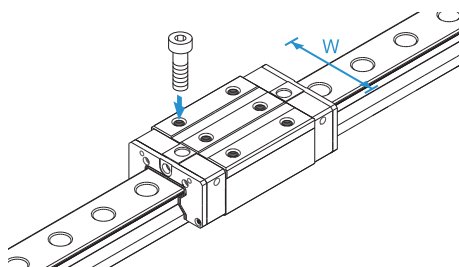


Model SRN-R

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.

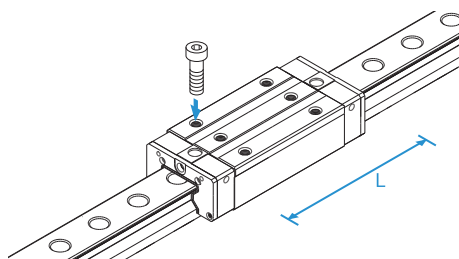
Specification Table⇒ **A1-440**



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.

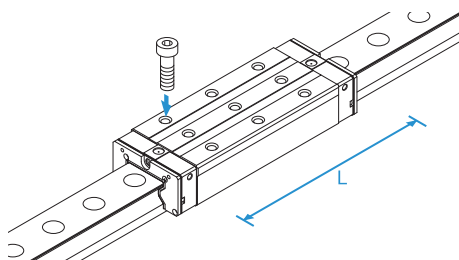
Specification Table⇒ **A1-440**



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⇒ **A1-440**



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 |

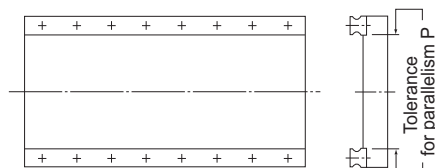


Fig.1

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

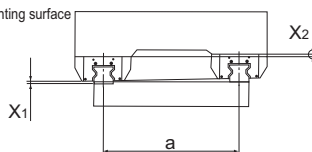


Fig.2

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

Unit: mm

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

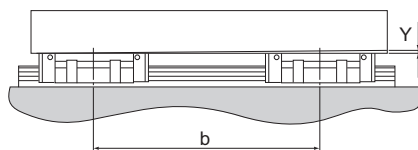
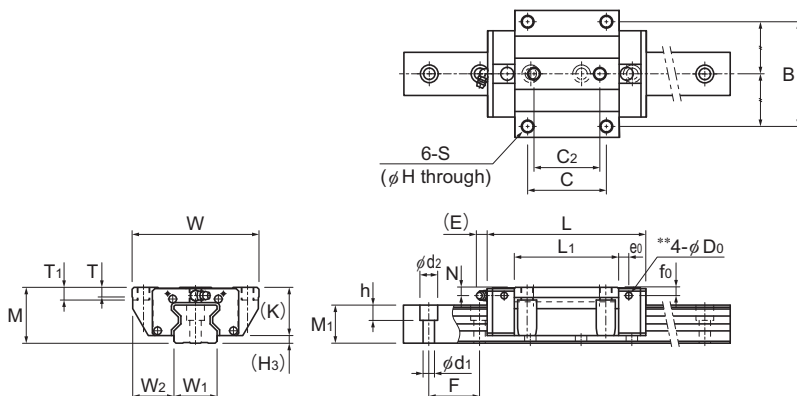


Fig.3

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



Models SRN35 to 65C/LC

| Model No. | Outer dimensions | | | LM block dimensions | | | | | | | | | | | | | | | H ₃ | |
|----------------------------------|------------------|-------|---------------------|---------------------|------------|----------------|-----|------|-------------------------|--------------|----------------|----|-----|----|----------------|----------------|----------------|---------|----------------|---------------|
| | Height | Width | Length | | | | | | | | | | | | | | | | | Grease nipple |
| | M | W | L | B | C | C ₂ | S | H | L ₁ | T | T ₁ | K | N | E | e ₀ | f ₀ | D ₀ | | | |
| 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

With QZ
lubricator

Contamination
protection
accessory
symbol (*1)

LM rail length
(in mm)

With plate
cover

Symbol for No. of
rails used on the
same plane (*4)

No. of LM blocks
used on the same
rail

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

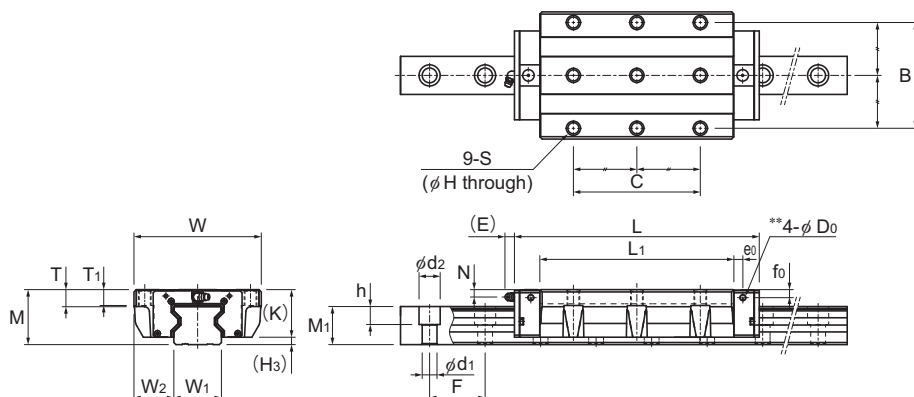
Symbol for LM rail
jointed use

Accuracy symbol (*3)
Precision grade (P)/Super precision grade (SP)
Ultra precision grade (UP)

(*1) See contamination protection accessory on **A1-516**. (*2) See **A1-73**. (*3) See **A1-77**. (*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 | 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 | $d_1 \times d_2 \times h$ | 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 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 | 1.5 2.3 2.8 | 6.9 |
| 45 | 37.5 | 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 | 3.1 4.1 5.4 | 11.3 |
| 53 | 43.5 | 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 | 5.1 7.1 9.4 | 15.8 |
| 63 | 53.5 | 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 | 10.4 13.9 18.5 | 21.3 |

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-442**.)

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 **A1-491** or **A1-512**)

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 **A1-444**)

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

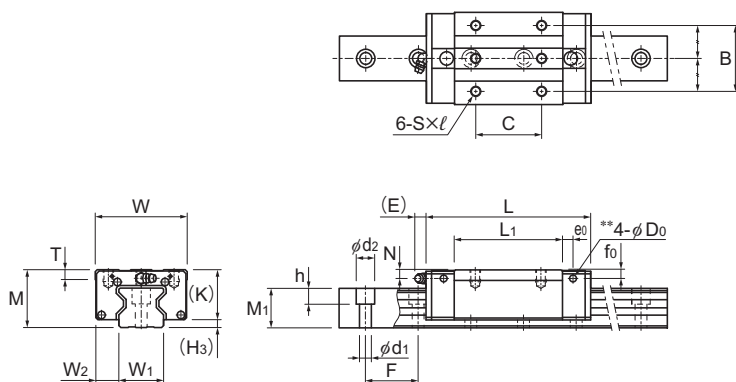
The conversion to basic dynamic load rating for a nominal life of 50 km can be obtained from the following equation.

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

C_{50} : 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 | | | | | | | | | | | | H ₃ |
|----------------------------------|------------------|-------|---------------------|---------------------|------------------|--------|-------------------------|------|----|-----|----|----------------|----------------|----------------|---------------|----------------|
| | Height | Width | Length | B | C | S×ℓ | L ₁ | T | K | N | E | e ₀ | f ₀ | D ₀ | Grease nipple | |
| | 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 |

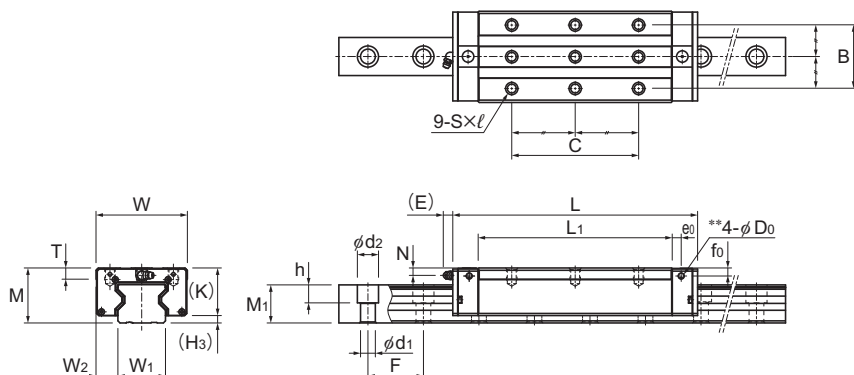
Model number coding

| | | | | | | | | | | |
|--------------|------------------|--|--------------------|--|---|------------------------|------------------|--|--------------------------------|---|
| 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) | With plate cover | Accuracy symbol (*3) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP) | Symbol for LM rail jointed use | Symbol for No. of rails used on the same plane (*4) |

(*1) See contamination protection accessory on **A1-516**. (*2) See **A1-73**. (*3) See **A1-77**. (*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 $\text{kN}\cdot\text{m}$ * | | | | | 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 | $d_1 \times d_2 \times h$ | 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 | 119 | 1.66 | 10.1 | 1.66 | 10.1 | 2.39 | 1.1 | 6.9 |
| | | | | | | 76 | 165 | 3.13 | 17 | 3.13 | 17 | 3.31 | 1.5 | |
| | | | | | | 87.9 | 199 | 4.53 | 23.9 | 4.53 | 23.9 | 4.09 | 1.8 | |
| 45 | 20.5 | 36 | 52.5 | 14×20×17 | 3090 | 91.9 | 192 | 3.49 | 20 | 3.49 | 20 | 4.98 | 2 | 11.3 |
| | | | | | | 115 | 256 | 6.13 | 32.2 | 6.13 | 32.2 | 6.64 | 2.6 | |
| | | | | | | 139 | 328 | 9.99 | 50.0 | 9.99 | 50.0 | 8.91 | 3.4 | |
| 53 | 23.5 | 43 | 60 | 16×23×20 | 3060 | 131 | 266 | 5.82 | 33 | 5.82 | 33 | 8.19 | 3.3 | 15.8 |
| | | | | | | 167 | 366 | 10.8 | 57 | 10.8 | 57 | 11.2 | 4.6 | |
| | | | | | | 210 | 488 | 19.1 | 93.7 | 19.1 | 93.7 | 15.6 | 5 | |
| 63 | 31.5 | 49 | 75 | 18×26×22 | 3000 | 219 | 441 | 12.5 | 72.8 | 12.5 | 72.8 | 16.8 | 7.1 | 21.3 |
| | | | | | | 278 | 599 | 22.7 | 120 | 22.7 | 120 | 22.1 | 9.4 | |
| | | | | | | 352 | 811 | 41.3 | 202 | 41.3 | 202 | 30.9 | 12.6 | |

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-442**.)

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 **A1-491** or **A1-512**)

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 **A1-444**)

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.

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

C_{50} :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.

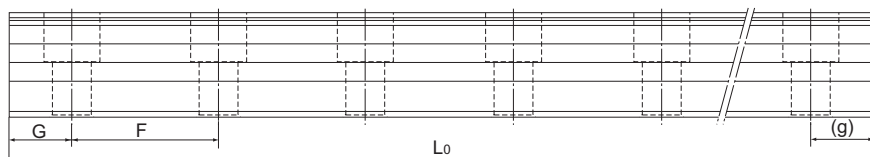


Table4 Standard Length and Maximum Length of the LM Rail for Model SRN

Unit: mm

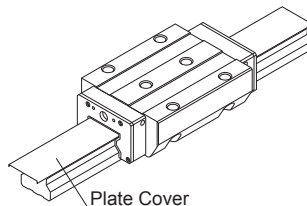
| Model No. | SRN 35 | SRN 45 | SRN 55 | SRN 65 |
|---|--------|--------|--------|--------|
| LM rail standard length (L ₀) | 280 | 570 | 780 | 1270 |
| | 360 | 675 | 900 | 1570 |
| | 440 | 780 | 1020 | 2020 |
| | 520 | 885 | 1140 | 2620 |
| | 600 | 990 | 1260 | |
| | 680 | 1095 | 1380 | |
| | 760 | 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.)

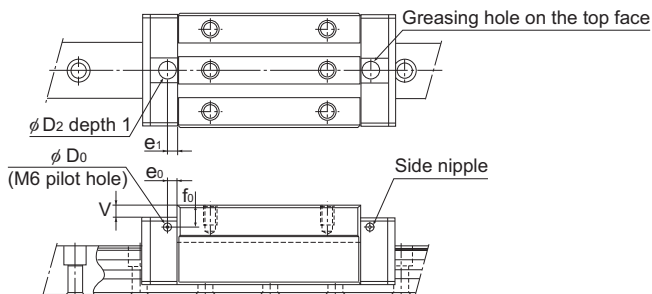
Note 2) The LM block must be removed from the LM rail when mounting. When doing this, a removing/mounting jig (see **A1-541**) is required. Please contact THK for details.

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.

