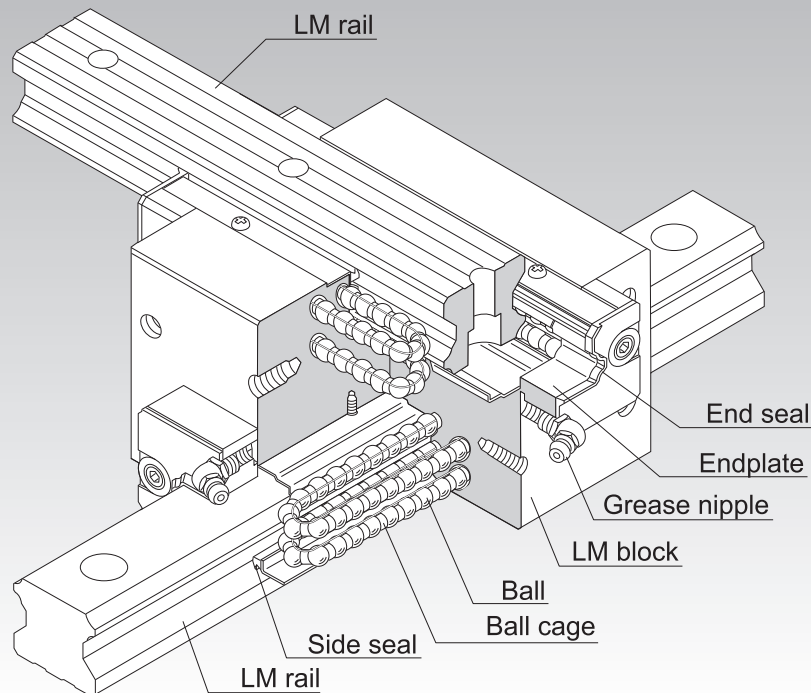


SCR



Caged Ball LM Guide Cross LM Guide Model SCR



*For the ball cage, see [A1-90](#).

| | |
|--|-------------------------------|
| 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 | A1-72 |
| Accuracy Standards | A1-81 |
| Shoulder Height of the Mounting Base and the Corner Radius | A1-470 |
| Reference Error Tolerance for the Mounting Surface | A1-476 |
| Dimensions of Each Model with Options Attached | A1-499 |

Structure and Features

Balls roll in four rows of raceways precision-ground on an LM rail and an LM block, and ball cages and endplates incorporated in the LM block allow the balls to circulate.

This model is an integral type of Caged Ball LM Guide that squares an internal structure similar to model SHS, which has a proven track record and is highly reliable, with another and uses two LM rails in combination. Since an orthogonal LM system can be achieved with model SCR alone, a conventionally required saddle is no longer necessary, the structure for X-Y motion can be simplified and the whole system can be downsized.

[4-way Equal Load]

Each row of balls is placed at a contact angle of 45° so that the rated loads applied to the LM block are uniform in the four directions (radial, reverse radial and lateral directions), enabling the LM Guide to be used in all orientations and in extensive applications.

[High Rigidity]

Since balls are arranged in four rows in a well-balanced manner, this model is stiff against a moment, and smooth straight motion is ensured even a preload is applied to increase the rigidity.

Since the rigidity of the LM block is higher than that of a combination of two LM blocks of the conventional type secured together back-to-back with bolts, this model is optimal for building an X-Y table that requires a high rigidity.

[Compact]

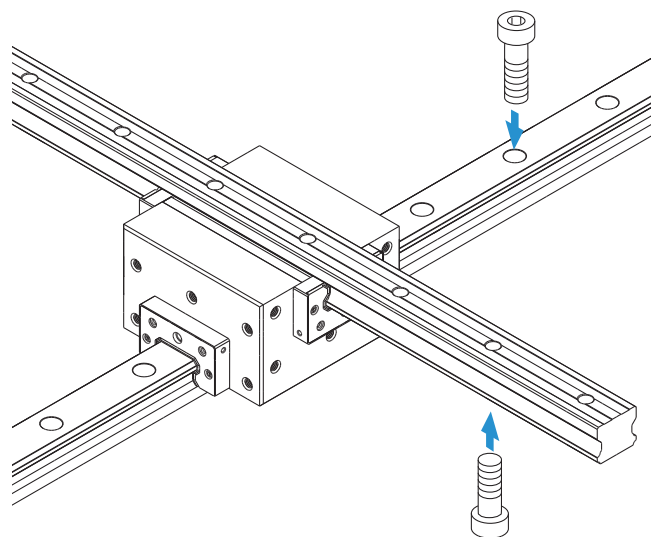
This model is an integral type of Caged Ball LM Guide that squares an internal structure similar to model SHS, which has a proven track record and is highly reliable, with another and uses two LM rails in combination. Since an orthogonal LM Guide can be achieved with model SCR alone, a conventionally required saddle is no longer necessary, the structure for X-Y motion can be simplified and the whole system can be downsized.

Types and Features


Model SCR

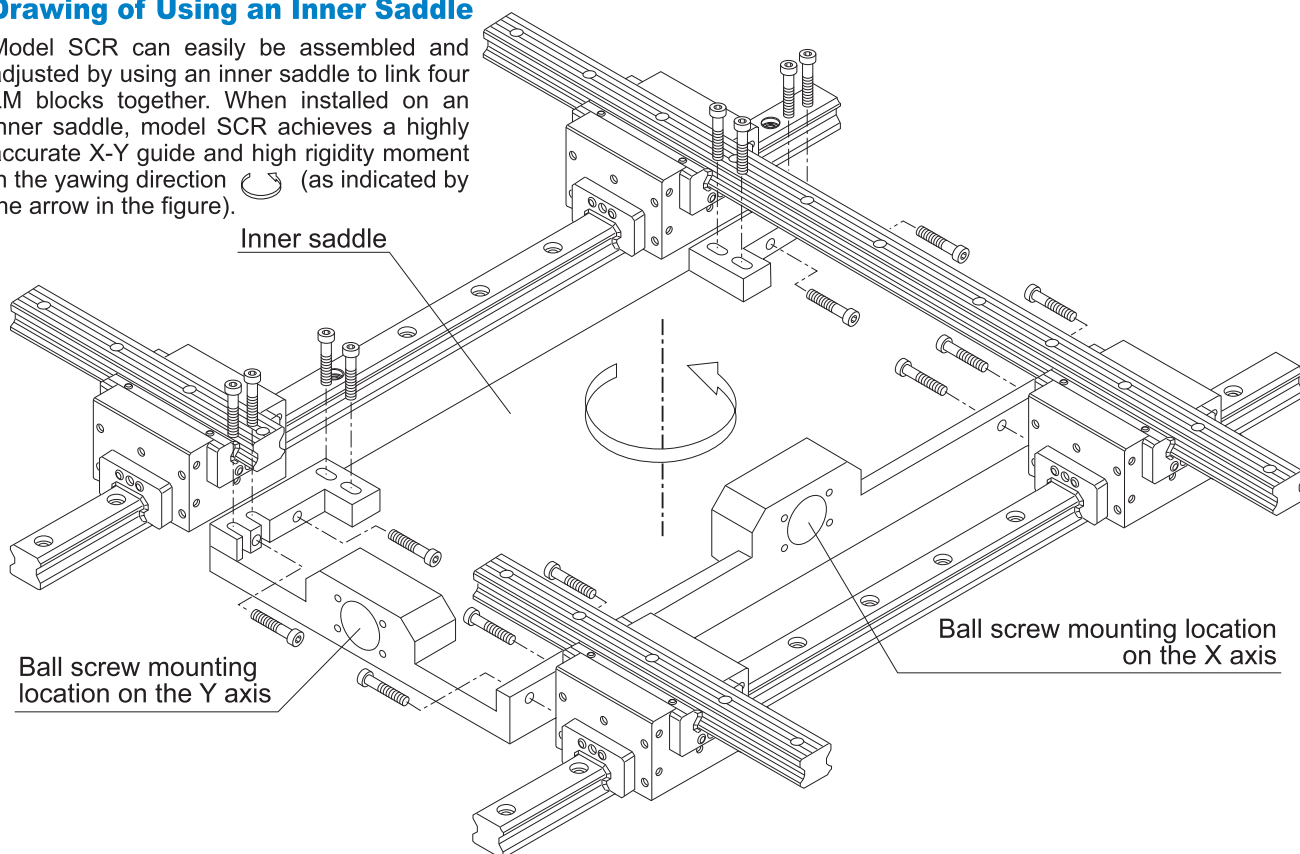
Specification Table⇒ **A1-170**

This model is a standard type.

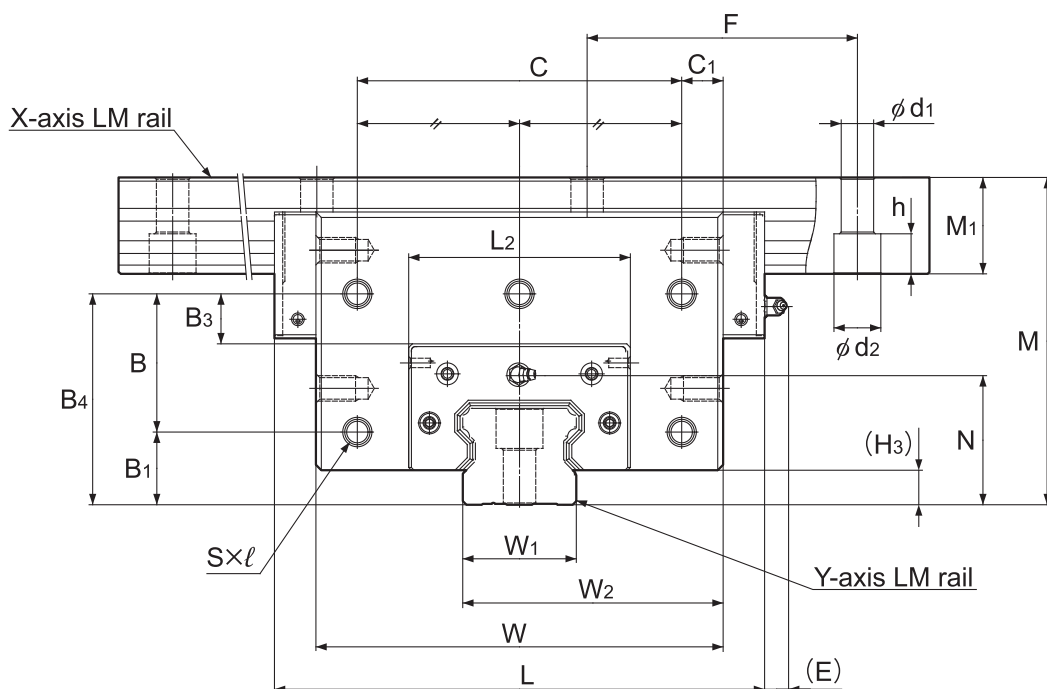


Drawing of Using an Inner Saddle

Model SCR can easily be assembled and adjusted by using an inner saddle to link four LM blocks together. When installed on an inner saddle, model SCR achieves a highly accurate X-Y guide and high rigidity moment in the yawing direction  (as indicated by the arrow in the figure).



Model SCR



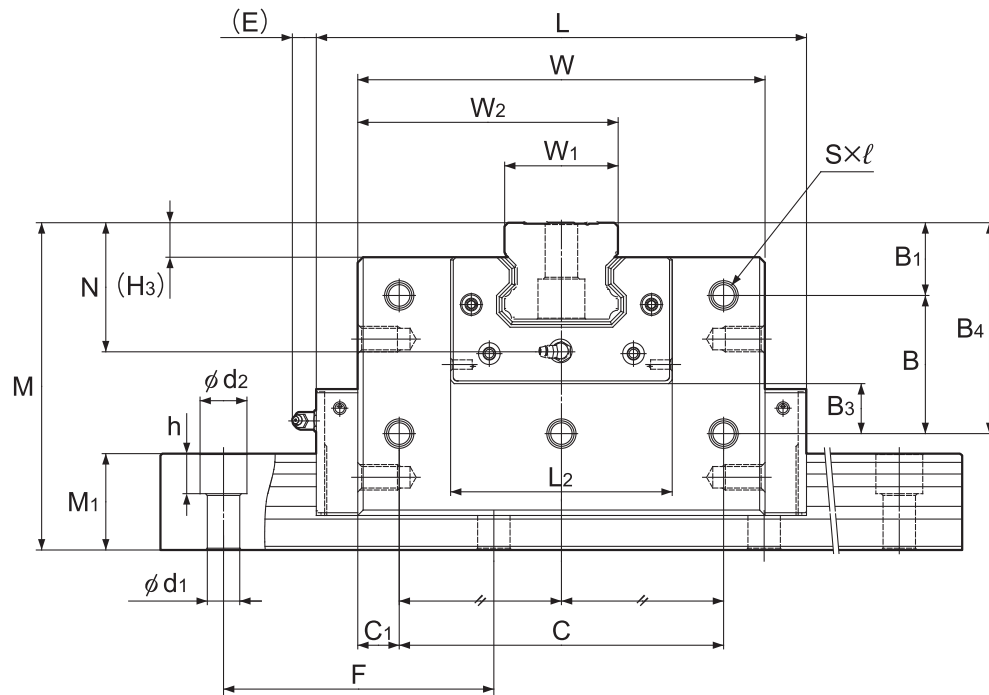
| Model No. | Outer dimensions | | | LM block dimensions | | | | | | | | | | |
|-----------|------------------|-------|--------|---------------------|----------------|----------------|----|-----|----------------|------------|----------------|----------------|------|-----|
| | Height | Width | Length | B ₁ | B ₃ | B ₄ | B | C | C ₁ | S × l | L ₂ | H ₃ | N | E |
| | M | W | L | | | | | | | | | | | |
| SCR 15S | 47 | 48 | 64.4 | — | 11.3 | 34.8 | — | 20 | 14 | 2×2-M4×6 | 33.4 | 3 | 18.5 | 5.5 |
| SCR 20S | 57 | 59 | 79 | — | 13 | 42.5 | — | 30 | 14.5 | 2×2-M5×8 | 43 | 4.6 | 23.5 | 12 |
| SCR 20 | 57 | 78 | 98 | 13 | 7.5 | 37 | 24 | 56 | 11 | 2×5-M5×8 | 43 | 4.6 | 23.5 | 12 |
| SCR 25 | 70 | 88 | 109 | 18 | 9 | 44 | 26 | 64 | 12 | 2×5-M6×10 | 47.4 | 5.8 | 28.5 | 12 |
| SCR 30 | 82 | 105 | 131 | 21 | 12 | 53 | 32 | 76 | 14.5 | 2×5-M6×10 | 58 | 7 | 34 | 12 |
| SCR 35 | 95 | 123 | 152 | 24 | 14 | 61 | 37 | 90 | 16.5 | 2×5-M8×14 | 68 | 7.5 | 40 | 12 |
| SCR 45 | 118 | 140 | 174 | 30 | 16.5 | 75 | 45 | 110 | 15 | 2×5-M10×15 | 84.6 | 8.9 | 49.5 | 16 |
| SCR 65 | 180 | 226 | 272 | 40 | 27.5 | 116 | 76 | 180 | 23 | 2×5-M14×22 | 123 | 19 | 71 | 16 |

Model number coding

| | | | | | | |
|------------------------|--------------|--------------------|--|--|--------------------------------------|---|
| 4 | SCR25 | QZ | KKHH | C0 | +1200/1000L | P |
| Total No. of LM blocks | Model number | With QZ Lubricator | Contamination protection accessory symbol (*1) | Radial clearance symbol (*2) Normal (No symbol)/Light preload (C1) Medium preload (C0) | LM rail length on the X axis (in mm) | LM rail length on the Y axis (in mm) |
| | | | | | | Accuracy symbol (*3) Precision grade (P) Super precision grade (SP) Ultra precision grade (UP) |

(*1) See contamination protection accessory on **A1-524**. (*2) See **A1-72**. (*3) See **A1-81**.

Note) Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.

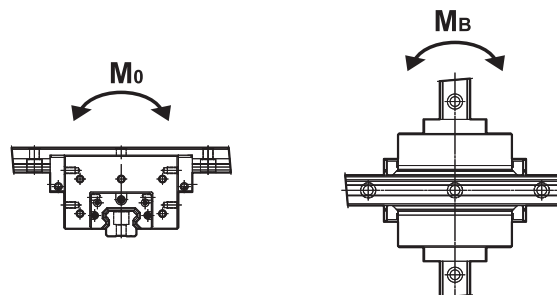


Unit: mm

| | Grease nipple | LM rail dimensions | | | | | Basic load rating | | Static permissible moment* | | Mass | |
|--|---------------|------------------------------|-------|-----------------|--------------|--|-------------------|-------------|----------------------------|---------------|----------------|-----------------|
| | | Width W_1 0 -0.05 | W_2 | Height M_1 | Pitch F | Mounting hole $d_1 \times d_2 \times h$ | C kN | C_0 kN | M_0 kN·m | M_B kN·m | LM block kg | LM rail kg/m |
| | PB1021B | 15 | 31.5 | 13 | 60 | 4.5×7.5×5.3 | 14.2 | 24.2 | 0.16 | 0.175 | 0.54 | 1.3 |
| | B-M6F | 20 | 39.5 | 16.5 | 60 | 6×9.5×8.5 | 22.3 | 38.4 | 0.334 | 0.334 | 0.88 | 2.3 |
| | B-M6F | 20 | 49 | 16.5 | 60 | 6×9.5×8.5 | 28.1 | 50.3 | 0.473 | 0.568 | 1.7 | 2.3 |
| | B-M6F | 23 | 55.5 | 20 | 60 | 7×11×9 | 36.8 | 64.7 | 0.696 | 0.848 | 3.4 | 3.2 |
| | B-M6F | 28 | 66.5 | 23 | 80 | 9×14×12 | 54.2 | 88.8 | 1.15 | 1.36 | 4.6 | 4.5 |
| | B-M6F | 34 | 78.5 | 26 | 80 | 9×14×12 | 72.9 | 127 | 2.01 | 2.34 | 6.8 | 6.2 |
| | B-PT1/8 | 45 | 92.5 | 32 | 105 | 14×20×17 | 100 | 166 | 3.46 | 3.46 | 10.8 | 10.4 |
| | B-PT1/8 | 63 | 144.5 | 53 | 150 | 18×26×22 | 253 | 408 | 11.9 | 13.3 | 44.5 | 23.7 |

Note) Static permissible moment*
Total block length L

1 block: the static permissible moment with one LM block
: 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](#))



Standard Length and Maximum Length of the LM Rail

Table1 shows the standard and maximum lengths of the SCR model rail. If a rail length longer than the listed max length is required, rails may be jointed to meet the overall length. 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.

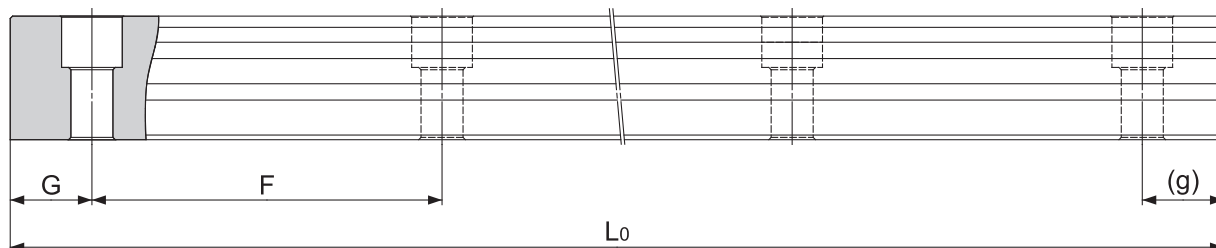


Table1 Standard Length and Maximum Length of the LM Rail for Model SCR

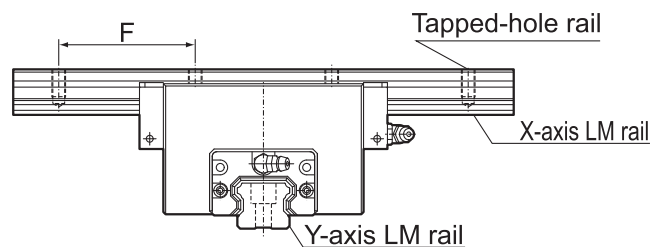
Unit: mm

| Model No. | SCR 15 | SCR 20 | SCR 25 | SCR 30 | SCR 35 | SCR 45 | SCR 65 |
|---|--------|--------|--------|--------|--------|--------|--------|
| LM rail standard length (L ₀) | 160 | 220 | 220 | 280 | 280 | 570 | 1270 |
| | 220 | 280 | 280 | 360 | 360 | 675 | 1570 |
| | 280 | 340 | 340 | 440 | 440 | 780 | 2020 |
| | 340 | 400 | 400 | 520 | 520 | 885 | 2620 |
| | 400 | 460 | 460 | 600 | 600 | 990 | |
| | 460 | 520 | 520 | 680 | 680 | 1095 | |
| | 520 | 580 | 580 | 760 | 760 | 1200 | |
| | 580 | 640 | 640 | 840 | 840 | 1305 | |
| | 640 | 700 | 700 | 920 | 920 | 1410 | |
| | 700 | 760 | 760 | 1000 | 1000 | 1515 | |
| | 760 | 820 | 820 | 1080 | 1080 | 1620 | |
| | 820 | 940 | 940 | 1160 | 1160 | 1725 | |
| | 940 | 1000 | 1000 | 1240 | 1240 | 1830 | |
| | 1000 | 1060 | 1060 | 1320 | 1320 | 1935 | |
| | 1060 | 1120 | 1120 | 1400 | 1400 | 2040 | |
| | 1120 | 1180 | 1180 | 1480 | 1480 | 2145 | |
| | 1180 | 1240 | 1240 | 1560 | 1560 | 2250 | |
| | 1240 | 1360 | 1300 | 1640 | 1640 | 2355 | |
| | 1360 | 1480 | 1360 | 1720 | 1720 | 2460 | |
| | 1480 | 1600 | 1420 | 1800 | 1800 | 2565 | |
| 1600 | 1720 | 1480 | 1880 | 1880 | 2670 | | |
| | 1840 | 1540 | 1960 | 1960 | 2775 | | |
| | 1960 | 1600 | 2040 | 2040 | 2880 | | |
| | 2080 | 1720 | 2200 | 2200 | 2985 | | |
| | 2200 | 1840 | 2360 | 2360 | 3090 | | |
| | | 1960 | 2520 | 2520 | | | |
| | | 2080 | 2680 | 2680 | | | |
| | | 2200 | 2840 | 2840 | | | |
| | | 2320 | 3000 | 3000 | | | |
| | | 2440 | | | | | |
| Standard pitch F | 60 | 60 | 60 | 80 | 80 | 105 | 150 |
| G,g | 20 | 20 | 20 | 20 | 20 | 22.5 | 35 |
| Max length | 3000 | 3000 | 3000 | 3000 | 3000 | 3090 | 3000 |

Tapped-hole LM Rail Type of Model SCR

The model SCR variations include a type with its LM rail bottom tapped. With the X-axis LM rail having tapped holes, this model can be secured with bolts from the top.

Table2 Dimensions of the LM Rail Tap Unit: mm



| Model No. | Tap diamete | Tap depth |
|-----------|-------------|-----------|
| 15 | M5 | 8 |
| 20 | M6 | 10 |
| 25 | M6 | 12 |
| 30 | M8 | 15 |
| 35 | M8 | 17 |
| 45 | M12 | 20 |
| 65 | M20 | 30 |

Model number coding

4 SCR35 KKHH C0 +1000LP/1000L P K

Symbol for
tapped-hole LM rail type