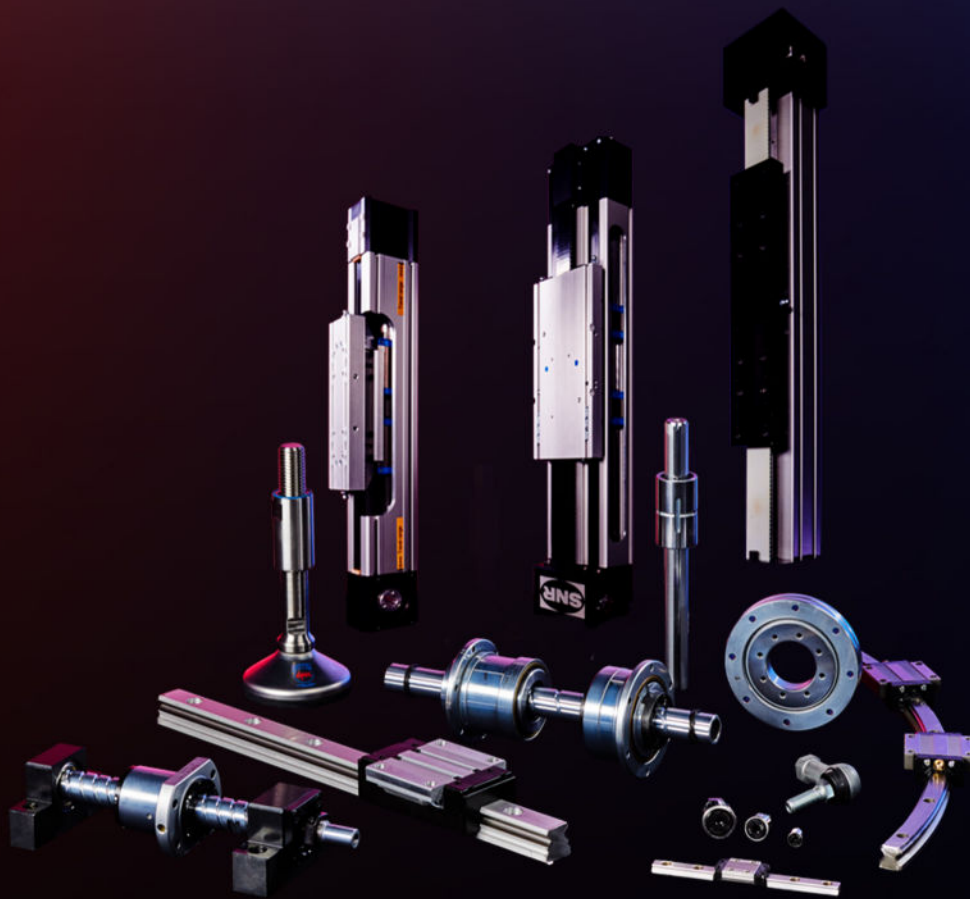


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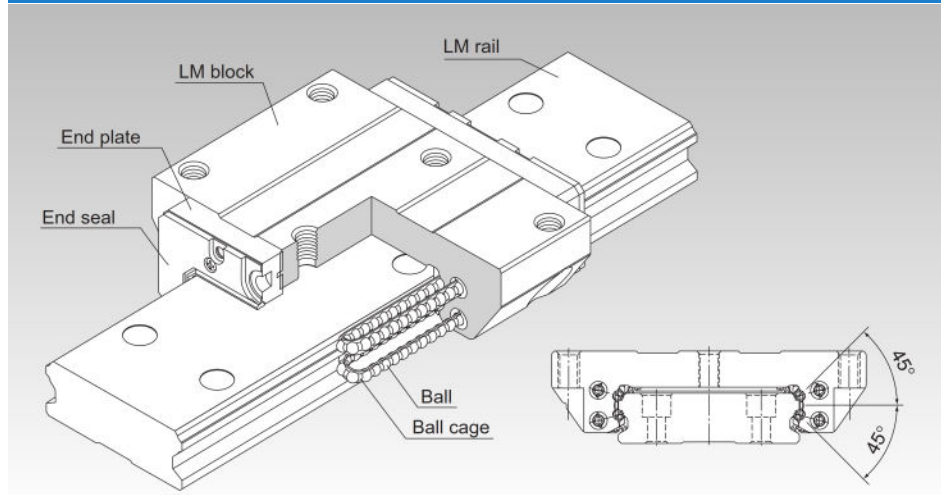
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SHW



Wide-Rail Caged Ball LM Guide Model SHW



*For the ball cage, see **A1-90**.

| | |
|--|---------------|
| Selection Criteria | A1-10 |
| Design Highlights | A1-478 |
| Options | A1-503 |
| Model No. | A1-571 |
| Handling Precautions | A1-577 |
| 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 | A1-73 |
| Accuracy Standards | A1-79 |
| Shoulder Height of the Mounting Base and the Corner Radius | A1-491 |
| Reference Error Tolerance for the Mounting Surface | A1-495 |
| Dimensions of Each Model with Options Attached | A1-517 |

Structure and Features

Balls roll in four rows of raceways precision-ground on the LM rail and LM block and are circulated by ball cages and end plates incorporated in the LM block.

This is a wide and highly rigid LM Guide that uses ball cages to achieve low noise, long-term maintenance free operation, and high speed.

Wide with a Low Center of Gravity

The Model SHW, which has a wide LM rail and a low center of gravity, is optimal for locations requiring compactness and a large M_c moment rigidity.

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.

Self-Adjustment Capability

The self-adjustment capability of the front-to-front configuration of THK's unique circular-arc grooves (DF set) enables mounting error to be absorbed even under a preload, thus achieving highly accurate, smooth linear motion.

Low Dust Generation

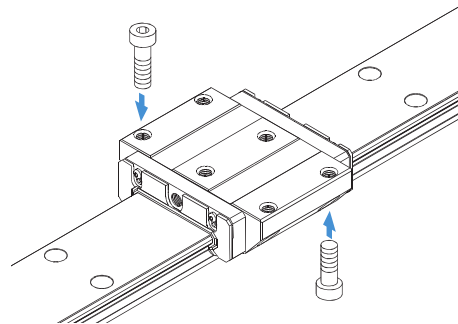
Use of ball cages eliminates friction between balls and retains lubricant, thus achieving low dust generation.

Types and Features

Model SHW-CA

The flange of the LM block has tapped holes.
It can be mounted from the top or the bottom.

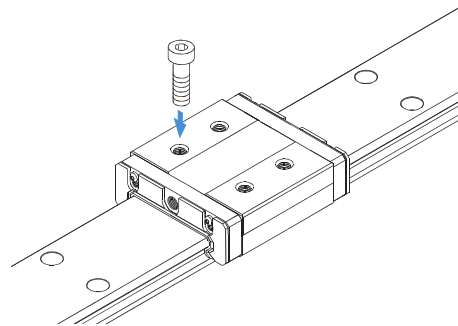
Dimensional Table⇒[A1-144](#)



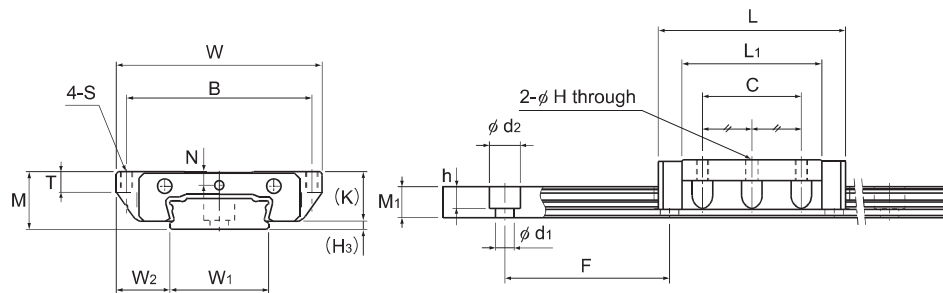
Models SHW-CR/HR

The LM block has tapped holes.

Dimensional Table⇒[A1-146](#)



Model SHW-CA



Models SHW12CAM and SHW14CAM

| Model No. | Outer dimensions | | | LM block dimensions | | | | | | | | H ₃ |
|-----------|------------------|-------|--------|---------------------|----|-----|-----|----------------|----|------|-----|----------------|
| | Height | Width | Length | B | C | S | H | L ₁ | T | K | N | |
| | M | W | L | | | | | | | | | |
| SHW 12CAM | 12 | 40 | 37 | 35 | 18 | M3 | 2.5 | 27 | 4 | 10 | 2.8 | 2 |
| SHW 14CAM | 14 | 50 | 45.5 | 45 | 24 | M3 | 2.5 | 34 | 5 | 12 | 3.3 | 2 |
| SHW 17CAM | 17 | 60 | 51 | 53 | 26 | M4 | 3.3 | 38 | 6 | 14.5 | 4 | 2.5 |
| SHW 21CA | 21 | 68 | 59 | 60 | 29 | M5 | 4.4 | 43.6 | 8 | 17.7 | 5 | 3.3 |
| SHW 27CA | 27 | 80 | 72.8 | 70 | 40 | M6 | 5.3 | 56.6 | 10 | 23.5 | 6 | 3.5 |
| SHW 35CA | 35 | 120 | 107 | 107 | 60 | M8 | 6.8 | 83 | 14 | 31 | 7.6 | 4 |
| SHW 50CA | 50 | 162 | 141 | 144 | 80 | M10 | 8.6 | 107 | 18 | 46 | 14 | 4 |

Note) The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel. The stainless steel provides excellent corrosion and environmental resistance.

Model number coding

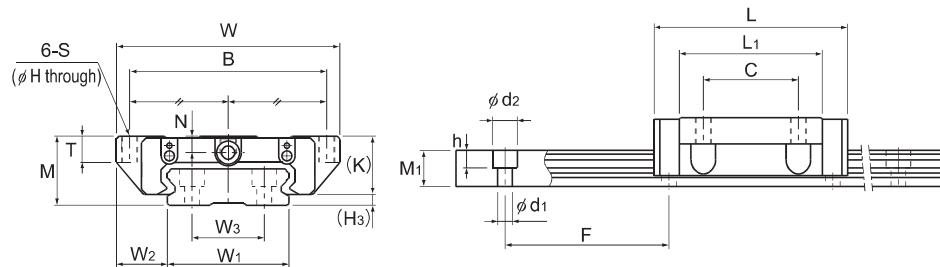
SHW17 CA 2 QZ UU C1 M +580L P M - II

| Model number | Type of LM block | With QZ Lubricator | Contamination protection accessory symbol (*1) | Stainless steel LM block | LM rail length (in mm) | Stainless steel LM rail | Symbol for No. of rails used on the same plane (*4) |
|--------------|------------------|--|---|--------------------------|------------------------|--|---|
| SHW17 | CA | 2 | QZ | UU | C1 | M | +580L |
| | | No. of LM blocks used on the same rail | Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0) | | | Accuracy symbol (*3) Normal grade (No Symbol)/High accuracy grade (H) Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP) | |

(*1) See contamination protection accessory on **A1-543**. (*2) See **A1-73**. (*3) See **A1-79**. (*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 SHW17CAM and SHW21 to 50CA

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 | W ₃ | M ₁ | | | | F | d ₁ × d ₂ × h | Max | kN | kN | | | 1 block | Double blocks |
| | 18 | 11 | — | 6.6 | 40 | 4.5 × 7.5 × 5.3 | 1230 | 4.31 | 5.66 | 0.0228 | 0.12 | 0.0228 | 0.12 | 0.0405 | 0.05 | 0.8 |
| | 24 | 13 | — | 7.5 | 40 | 4.5 × 7.5 × 5.3 | 1430 | 7.05 | 8.98 | 0.0466 | 0.236 | 0.0466 | 0.236 | 0.0904 | 0.1 | 1.23 |
| | 33 | 13.5 | 18 | 8.6 | 40 | 4.5 × 7.5 × 5.3 | 1800 | 7.65 | 10.18 | 0.0591 | 0.298 | 0.0591 | 0.298 | 0.164 | 0.15 | 1.9 |
| | 37 | 15.5 | 22 | 11 | 50 | 4.5 × 7.5 × 5.3 | 3000 | 8.24 | 12.8 | 0.0806 | 0.434 | 0.0806 | 0.434 | 0.229 | 0.24 | 2.9 |
| | 42 | 19 | 24 | 15 | 60 | 4.5 × 7.5 × 5.3 | 3000 | 16 | 22.7 | 0.187 | 0.949 | 0.187 | 0.949 | 0.455 | 0.47 | 4.5 |
| | 69 | 25.5 | 40 | 19 | 80 | 7 × 11 × 9 | 3000 | 35.5 | 49.2 | 0.603 | 3 | 0.603 | 3 | 1.63 | 1.4 | 9.6 |
| | 90 | 36 | 60 | 24 | 80 | 9 × 14 × 12 | 3000 | 70.2 | 91.4 | 1.46 | 7.37 | 1.46 | 7.37 | 3.97 | 3.7 | 15 |

Note) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See [A1-148](#).)

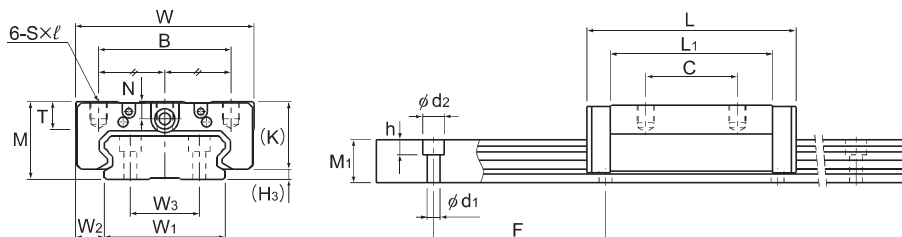
Static permissible moment* 1 block: the static permissible moment with one LM block

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

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 [A1-517](#) or [A1-539](#))

Models SHW-CR and SHW-HR



Models SHW27 to 50CR

| Model No. | Outer dimensions | | | LM block dimensions | | | | | | | H ₃ |
|-----------|------------------|-------|--------|---------------------|----|----------|----------------|----|------|-----|----------------|
| | Height | Width | Length | B | C | S × l | L ₁ | T | K | N | |
| | M | W | L | | | | | | | | |
| SHW 12CRM | 12 | 30 | 37 | 21 | 12 | M3 × 3.5 | 27 | 4 | 10 | 2.8 | 2 |
| SHW 12HRM | 12 | 30 | 50.4 | 21 | 24 | M3 × 3.5 | 40.4 | 4 | 10 | 2.8 | 2 |
| SHW 14CRM | 14 | 40 | 45.5 | 28 | 15 | M3 × 4 | 34 | 5 | 12 | 3.3 | 2 |
| SHW 17CRM | 17 | 50 | 51 | 29 | 15 | M4 × 5 | 38 | 6 | 14.5 | 4 | 2.5 |
| SHW 21CR | 21 | 54 | 59 | 31 | 19 | M5 × 6 | 43.6 | 8 | 17.7 | 5 | 3.3 |
| SHW 27CR | 27 | 62 | 72.8 | 46 | 32 | M6 × 6 | 56.6 | 10 | 23.5 | 6 | 3.5 |
| SHW 35CR | 35 | 100 | 107 | 76 | 50 | M8 × 8 | 83 | 14 | 31 | 7.6 | 4 |
| SHW 50CR | 50 | 130 | 141 | 100 | 65 | M10 × 15 | 107 | 18 | 46 | 14 | 4 |

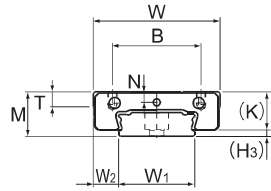
Note) The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel. The stainless steel provides excellent corrosion and environmental resistance.

Model number coding

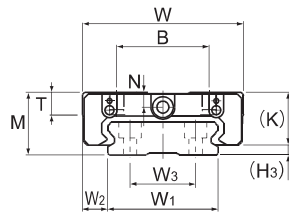
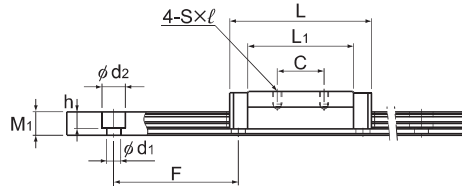
| Model number | Type of LM block | With QZ Lubricator | Contamination protection accessory symbol (*1) | Stainless steel LM block | LM rail length (in mm) | LM rail is made of stainless steel | Symbol for No. of rails used on the same plane (*4) |
|--------------|------------------|--|--|---|------------------------|--|---|
| SHW17 | CR | 2 | QZ | KKHH | C1 | M | +820L P M - II |
| | | No. of LM blocks used on the same rail | | Radial clearance symbol (*2) Normal (No symbol) Light preload (C1) Medium preload (C0) | | Accuracy symbol (*3) Normal grade (No Symbol) High accuracy grade (H) Precision grade (P) Super precision grade (SP) Ultra precision grade (UP) | |

(*1) See contamination protection accessory on **A1-543**. (*2) See **A1-73**. (*3) See **A1-79**. (*4) See **A1-13**.

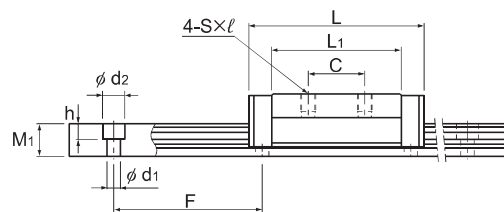
Note) Those models equipped with QZ Lubricator cannot have a grease nipple. When desiring a grease nipple for a model attached with QZ, contact THK.



Models SHW12CRM, SHW12HRM, and SHW14CRM



Models SHW17CRM and SHW21CR



Unit: mm

| | LM rail dimensions | | | | | | | Basic load rating | | Static permissible moment kN·m* | | | | | Mass | |
|--|------------------------------|----------------|----------------|----------------|-------|-----------------|-------------------------------------|-------------------|----------------|---------------------------------|----------------|---------------|----------------|---------------|---------|------|
| | Width | W ₂ | W ₃ | Height | Pitch | Length* | C | C ₀ | M _A | | M _B | | M _C | LM block | LM rail | |
| | W ₁ 0 -0.05 | | | M ₁ | F | | d ₁ × d ₂ × h | Max | kN | kN | 1 block | Double blocks | 1 block | Double blocks | 1 block | kg |
| | 18 | 6 | — | 6.6 | 40 | 4.5 × 7.5 × 5.3 | 1230 | 4.31 | 5.66 | 0.0228 | 0.12 | 0.0228 | 0.12 | 0.0405 | 0.04 | 0.8 |
| | 18 | 6 | — | 6.6 | 40 | 4.5 × 7.5 × 5.3 | 1230 | 5.56 | 8.68 | 0.0511 | 0.246 | 0.0511 | 0.246 | 0.0621 | 0.06 | 0.8 |
| | 24 | 8 | — | 7.5 | 40 | 4.5 × 7.5 × 5.3 | 1430 | 7.05 | 8.98 | 0.0466 | 0.236 | 0.0466 | 0.236 | 0.0904 | 0.08 | 1.23 |
| | 33 | 8.5 | 18 | 8.6 | 40 | 4.5 × 7.5 × 5.3 | 1800 | 7.65 | 10.18 | 0.0591 | 0.298 | 0.0591 | 0.298 | 0.164 | 0.13 | 1.9 |
| | 37 | 8.5 | 22 | 11 | 50 | 4.5 × 7.5 × 5.3 | 3000 | 8.24 | 12.8 | 0.0806 | 0.434 | 0.0806 | 0.434 | 0.229 | 0.19 | 2.9 |
| | 42 | 10 | 24 | 15 | 60 | 4.5 × 7.5 × 5.3 | 3000 | 16 | 22.7 | 0.187 | 0.949 | 0.187 | 0.949 | 0.455 | 0.36 | 4.5 |
| | 69 | 15.5 | 40 | 19 | 80 | 7 × 11 × 9 | 3000 | 35.5 | 49.2 | 0.603 | 3 | 0.603 | 3 | 1.63 | 1.2 | 9.6 |
| | 90 | 20 | 60 | 24 | 80 | 9 × 14 × 12 | 3000 | 70.2 | 91.4 | 1.46 | 7.37 | 1.46 | 7.37 | 3.97 | 3 | 15 |

Note) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-148**.)

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

: 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 **A1-517** or **A1-539**)

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model SHW 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.

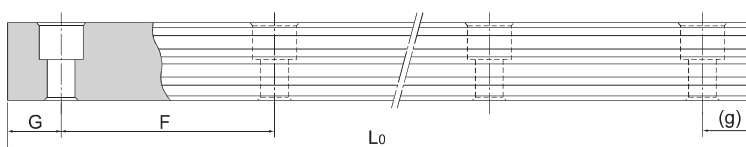


Table 1: Standard Lengths and Maximum Lengths of LM Rails for Model SHW

Unit: mm

| Model No. | SHW 12 | SHW 14 | SHW 17 | SHW 21 | SHW 27 | SHW 35 | SHW 50 |
|--|--------|--------|--------|--------|--------|--------|--------|
| LM rail standard lengths (L ₀) | 70 | 70 | 110 | 130 | 160 | 280 | 280 |
| | 110 | 110 | 190 | 230 | 280 | 440 | 440 |
| | 150 | 150 | 310 | 380 | 340 | 760 | 760 |
| | 190 | 190 | 470 | 480 | 460 | 1000 | 1000 |
| | 230 | 230 | 550 | 580 | 640 | 1240 | 1240 |
| | 270 | 270 | | 780 | 820 | 1560 | 1640 |
| | 310 | 310 | | | | | 2040 |
| | 390 | 390 | | | | | |
| | 470 | 470 | | | | | |
| | | 550 | | | | | |
| | 670 | | | | | | |
| Standard pitch F | 40 | 40 | 40 | 50 | 60 | 80 | 80 |
| G, g | 15 | 15 | 15 | 15 | 20 | 20 | 20 |
| Max length | 1230 | 1430 | 1800 | 3000 | 3000 | 3000 | 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.

Note3) Models SHW12, 14 and 17 are made of stainless steel.

Lubrication Hole

Grease Nipple and Lubrication Hole for Model SHW

Model SHW does not have a grease nipple as standard. Installation of a grease nipple and the drilling of a lubrication hole is performed at THK. When ordering SHW, indicate that the desired model requires a grease nipple or lubrication hole. (For lubrication hole dimensions and supported grease nipple types and dimensions, see Table 2).

When using SHW under harsh conditions, use QZ Lubricator* (optional) or Laminated Contact Scraper LaCS* (optional).

Note1) Grease nipple is not available for models SHW12 and SHW14. They can have a lubrication hole.

Note2) Using a lubrication hole other than for greasing may cause damage.

Note3) For QZ Lubricator*, see **A1-536**. For Laminated Contact Scraper LaCS*, see **A1-510**.

Note4) When desiring a grease nipple for a model attached with QZ Lubricator, contact THK.

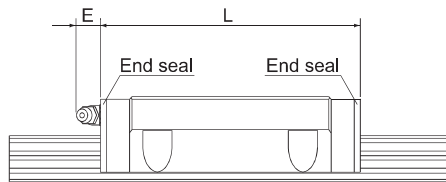


Fig. 1: Dimensions of the Grease Nipple for Model SHW

Note) For the L dimension, see the corresponding specification table.

Table 2: Table of Grease Nipple and Lubrication Hole Dimensions

Unit: mm

| Model No. | E | Grease nipple or lubrication hole |
|-----------|----|-----------------------------------|
| SHW | 12 | — ϕ 2.2 drilled hole |
| | 14 | — ϕ 2.2 drilled hole |
| | 17 | 5 PB107 |
| | 21 | 5.5 PB1021B |
| | 27 | 12 B-M6F |
| | 35 | 12 B-M6F |
| | 50 | 16 B-PT1/8 |



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