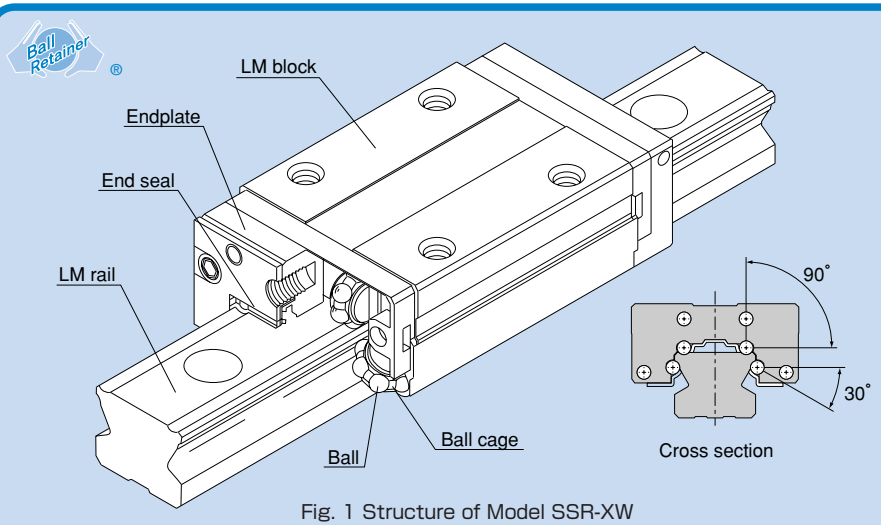


Fig. 1 Structure of Model SSR-XW

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.
Use of the ball cage eliminates friction between balls and increases grease retention, thus to achieve low noise, high speed and long-term maintenance-free operation.

●Compact, radial type

The compact design with a low sectional height and the ball contact structure at 90° make SSR an optimal model for horizontal guides.

●Superb planar running accuracy

Use of a ball contact structure at 90° in the radial direction reduces displacement in the radial direction under a radial load and achieves highly accurate, smooth linear motion.

●Self-adjustment capability

The self-adjustment capability through front-to-front configuration of THK 's unique circular-arc grooves (DF set) enables a mounting error to be absorbed even under a preload, thus to achieve stable accuracy.

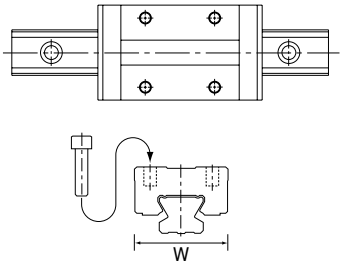
●Stainless steel type also available as standard

A stainless steel type with its LM block, LM rail and balls all made of stainless steel, which is superbly corrosion resistant, is also available as standard.

Types and Features

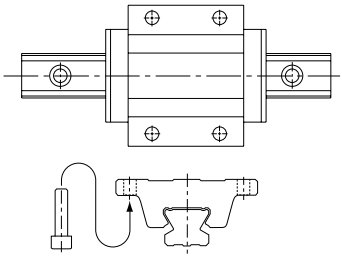
Model SSR-XW

With this type, the LM block has a smaller width (W) and tapped holes.



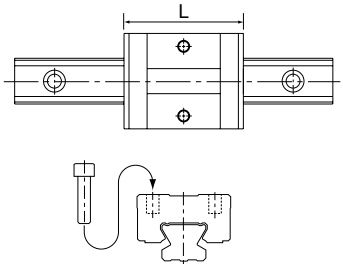
Model SSR-XTB

Since the LM block can be mounted from the bottom, this type is optimal for applications where through holes for mounting bolts cannot be drilled on the table.



Model SSR-XV

This type has the same sectional shape as SSR-XW but has a shorter overall LM block length (L).



Rated Loads in All Directions

Model SSR is capable of receiving loads in all four directions: radial, reverse-radial and lateral directions.
Its basic dynamic load rating is represented by the symbol in the radial direction indicated in Fig. 2, and the actual value is provided in the dimensional table for SSR. The values in the reverse-radial and lateral directions are obtained from table 1.

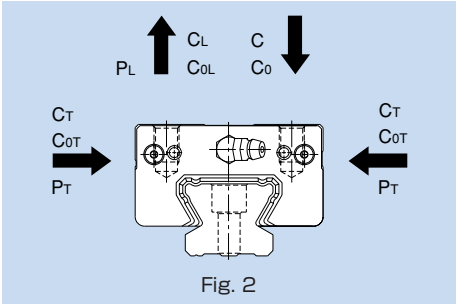


Fig. 2

Table 1 Rated Load of Model SSR in All Directions

Direction	Basic dynamic load rating	Basic static load rating
Radial direction	C	C_0
Reverse-radial direction	C_L=0.50C	C_{0L}=0.50C_0
Lateral direction	C_T=0.53C	C_{0T}=0.43C_0

Equivalent Load

When the LM block of model SSR receives a reverse-radial direction and a lateral direction simultaneously, the equivalent load is obtained in the equation below.

$$P_E = X \cdot P_L + Y \cdot P_T$$

where
P_E : Equivalent load (N)
・Reverse-radial direction
・Lateral direction
P_L : Reverse-radial direction (N)
P_T : Lateral direction (N)
X, Y : Equivalent factor (see table 2)

Table 2 Equivalent Factor of Model SSR

P_E	X	Y
Equivalent load in reverse-radial direction	1	1.155
Equivalent load in lateral direction	0.866	1

Options

Dust Prevention Accessories

THK offers various dust prevention accessories for model SSR.
When a dust prevention accessory is required, specify the desired item with the corresponding symbol provided in table 3 (for details of dust prevention accessories, see pages a-24 and a-25).
For supported model numbers for dust prevention accessories and overall LM block length with dust prevention accessories attached (dimension L), see page a-100.

Table 3 Symbols of Dust Prevention Accessories for Model SSR

Symbol	Dust prevention accessory
UU	With end seal
SS	With end seal + side seal
DD	With double seals + side seal
ZZ	With end seal + side seal + metal scraper
KK	With double seals + side seal + metal scraper
SSHH	With end seal + side seal + LaCS
DDHH	With double seals + side seal + LaCS
ZZHH	With end seal + side seal + metal scraper + LaCS
KKHH	With double seals + side seal + metal scraper + LaCS

For model SSR, a light sliding-resistance contact seal LiCS, which is highly stable in sliding resistance, is also available. For details, contact THK.

Seal resistance value

For the maximum seal resistance value per LM block when a lubricant is applied on seal SSR ··· UU, refer to the corresponding value provided in table 4.

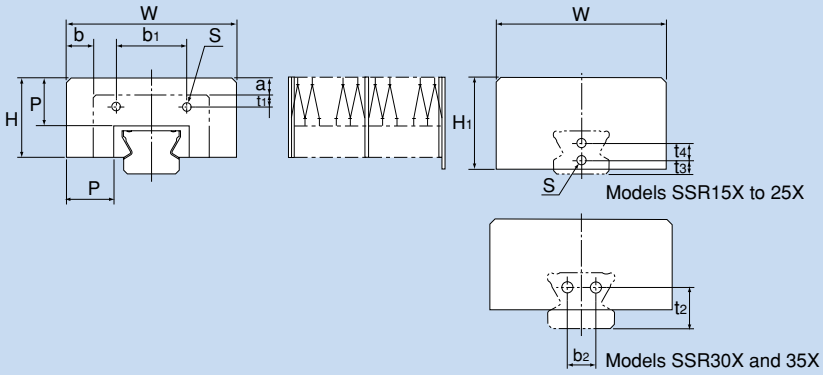
Table 4 Maximum Seal Resistance Value of Seal SSR ··· UU

Unit: N

Model No.	Seal resistance value
SSR 15X	2.0
SSR 20X	2.6
SSR 25X	3.5
SSR 30X	4.9
SSR 35X	6.3

●Dedicated Bellows JSSR-X for Model SSR

The table below shows the dimensions of dedicated bellows JSSR-X for model SSR. Specify the corresponding model number of the desired bellows from the table.



Unit: mm

Model No.	Major dimensions														A (Lmax/Lmin)	Supported model
	W	H	H_1	P	b_1	t_1	b_2	t_2	t_3	t_4	Mounting bolt S	a	b XW/XV	b XTB		
JSSR 15X	51	24	26	15	20.5	4.7	—	—	8	—	M3×5 ℓ	5	8.5	−0.5	5	SSR 15X
JSSR 20X	58	26	30	15	25	4.2	—	—	6	6	M3×5 ℓ	4	8	−0.5	5	SSR 20X
JSSR 25X	71	33	38	20	29	5	—	—	6	7	M3×5 ℓ	7	11.5	−1	7	SSR 25X
JSSR 30X	76	37.5	37.5	20	35	9	12	17	—	—	M4×6 ℓ	3	8	—	7	SSR 30X
JSSR 35X	84	39	39	20	44	7	14	20	—	—	M5×10 ℓ	2	7	—	7	SSR 35X

Note 1: When desiring to use the dedicated bellows other than in horizontal mount (i.e., vertical, wall and inverted mount), or when desiring a heat-resistant type of bellows, contact THK.
Note 2: For lubrication when using the dedicated bellows, contact THK.
Note 3: When using the dedicated bellows, the LM block and LM rail need to be machined so that the bellows can be mounted. Be sure to indicate that the dedicated bellows is required when ordering SSR.

Model number coding JSSR35X-60/420
1 2

1 Model number ··· bellows for SSR35X
2 Bellows dimensions (length when compressed / length when extended)

Note: The length of the bellows is calculated as follows.

$$Lmin = \frac{S}{(A-1)}$$ S: Stroke length (mm)

$Lmax = Lmin \cdot A$ A: Extension rate

●Dedicated Cap C for LM Rail Mounting Holes

If any of the LM rail mounting holes of an LM Guide is filled with cutting chips or foreign matter, they may enter the LM block structure. Entrance of such foreign matter can be prevented by covering each LM rail mounting hole with the dedicated cap so that the top of the mounting holes are on the same level as the LM rail top face.

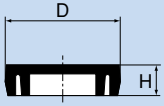
Since the dedicated cap C for LM rail mounting holes uses a special synthetic resin with high oil resistance and high wear resistance, it is highly durable.

When placing an order, specify the desired cap type with the corresponding cap number indicated in table 5.

For the procedure for mounting the cap, see page a-22.

Table 5 Major Dimensions of Dedicated Cap C

Model No.	Cap C model No.	Bolt used	Major dimensions mm	
			D	H
SSR 15X	C4	M4	7.8	1.0
SSR 20X	C5	M5	9.8	2.4
SSR 25X	C6	M6	11.4	2.7
SSR 30X	C6	M6	11.4	2.7
SSR 35X	C8	M8	14.4	3.7



Dedicated Cap C

QZ Lubricator™

When QZ Lubricator is required, specify the desired type with the corresponding symbol indicated in table 6 (for details of QZ Lubricator, see pages a-19 and a-20).

For supported LM Guide model numbers for QZ Lubricator and overall LM block length with QZ Lubricator attached (dimension L), see page a-100.

Table 6 Parts Symbols for Model SSR with QZ Lubricator

Symbol	Dust prevention accessories for model SSR with QZ Lubricator
QZUU	With end seal + QZ Lubricator
QZSS	With end seal + side seal + QZ Lubricator
QZDD	With double seals + side seal + QZ Lubricator
QZZZ	With end seal + side seal + metal scraper + QZ Lubricator
QZKK	With double seals + side seal + metal scraper + QZ Lubricator
QZSSHH	With end seal + side seal + LaCS + QZ Lubricator
QZDDHH	With double seals + side seal + LaCS + QZ Lubricator
QZZZHH	With end seal + side seal + metal scraper + LaCS + QZ Lubricator
QZKKHH	With double seals + side seal + metal scraper + LaCS + QZ Lubricator

Standard Length and Maximum Length of the LM Rail

Table 7 shows the standard lengths and the maximum lengths of model SSR variations. If the maximum length of the desired LM rail exceeds them, connected 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.

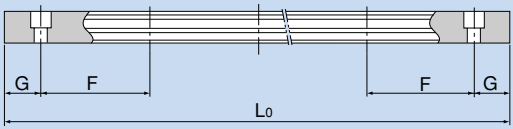
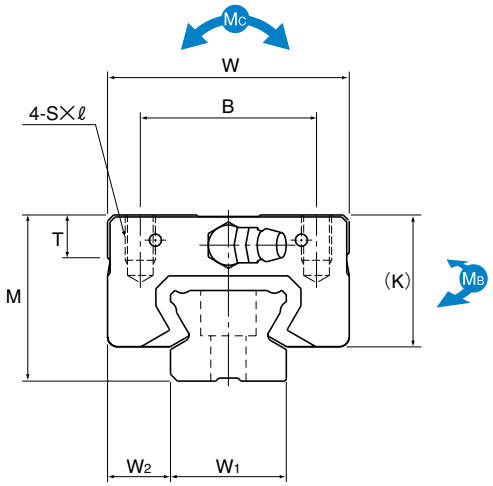


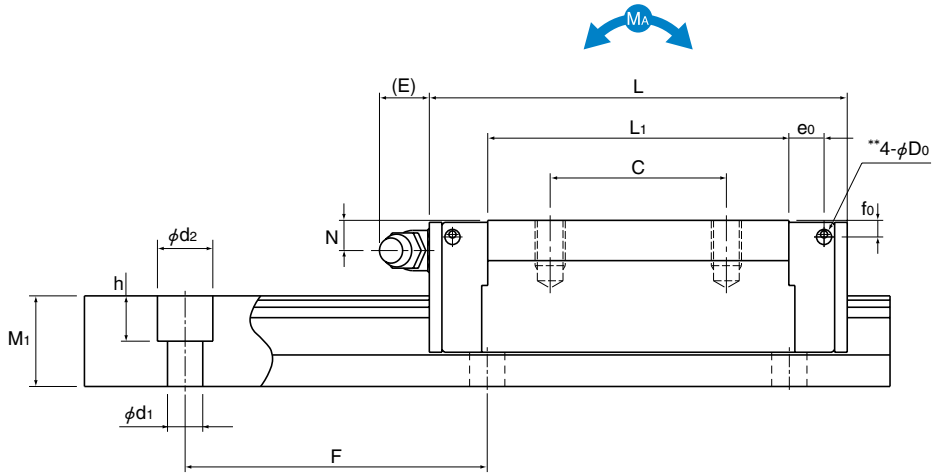
Table 7 Standard Length and Maximum Length of the LM Rail

Unit: mm

Model No.	SSR 15X	SSR 20X	SSR 25X	SSR 30X	SSR 35X
Standard LM rail length (L_0)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1660 1720 1780 1840 1900 1960 2020 2080 2140	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1240 1300 1360 1420 1480 1540 1600 1660 1720 1780 1840 1900 1960 2020 2080 2140 2200 2260 2320 2380 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1640 1720 1800 1880 1960 2040 2120 2200 2280 2360 2440 2520 2600 2680 2760 2840 2920	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1640 1720 1800 1880 1960 2040 2120 2200 2280 2360 2440 2520 2600 2680 2760 2840 2920
Standard pitchF	60	60	60	80	80
G	20	20	20	20	20
Max length	2500 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000

Note 1: The maximum length varies with accuracy grades. Contact THK for details.
Note 2: If connected rails are not allowed and a greater length than the maximum values above is required, contact THK.
Note 3: The values in the parentheses indicate the maximum lengths of stainless steel types.





Unit: mm

Model No.	External dimensions Height M	Width W	Length L	B	C	S× ℓ	L1	T	K	N	E	f0	e0	D0	Grease nipple	LM rail dimensions Width W1 ±0.05	W2	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	C0 kN	Static permissible moment kN-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
SSR 15XWY SSR 15XWMY	24	34	56.9	26	26	M4×7	39.9	6.5	19.5	4.5	5.5	2.7	4.5	3	PB1021B	15	9.5	12.5	60	4.5×7.5×5.3	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962	0.15	1.2
SSR 20XW SSR 20XWM	28	42	66.5	32	32	M5×8	46.6	8.2	22	5.5	12	2.8	5.2	3	B-M6F	20	11	15.5	60	6×9.5×8.5	19.6	23.4	0.138	0.723	0.0847	0.448	0.18	0.25	2.1
SSR 25XWY SSR 25XWMY	33	48	83	35	35	M6×9	59.8	8.4	26.2	6	12	3.3	7	3	B-M6F	23	12.5	18	60	7×11×9	31.5	36.4	0.258	1.42	0.158	0.884	0.33	0.4	2.7
SSR 30XW SSR 30XWM	42	60	97	40	40	M8×12	70.7	11.3	32.5	8	12	4.5	7.6	4	B-M6F	28	16	23	80	7×11×9	46.5	52.7	0.446	2.4	0.274	1.49	0.571	0.8	4.3
SSR 35XW	48	70	110.9	50	50	M8×12	80.5	13	36.5	8.5	12	4.7	8.8	4	B-M6F	34	18	27.5	80	9×14×12	64.6	71.6	0.711	3.72	0.437	2.31	0.936	1.1	6.4

Note Those models whose numbers contain symbol "M" use stainless steel in their LM blocks, LM rails and balls, and therefore are highly resistant to corrosion and environment.

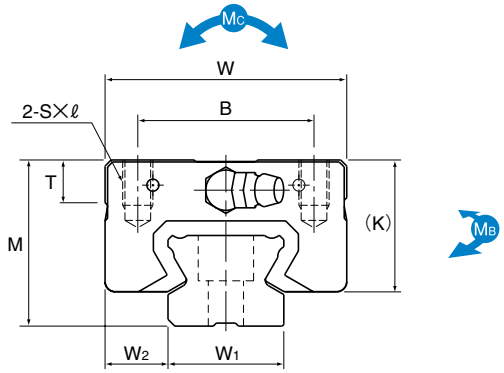
Note Pilot holes for side nipples** are not drilled through in order to prevent foreign matter from entering the product.
THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

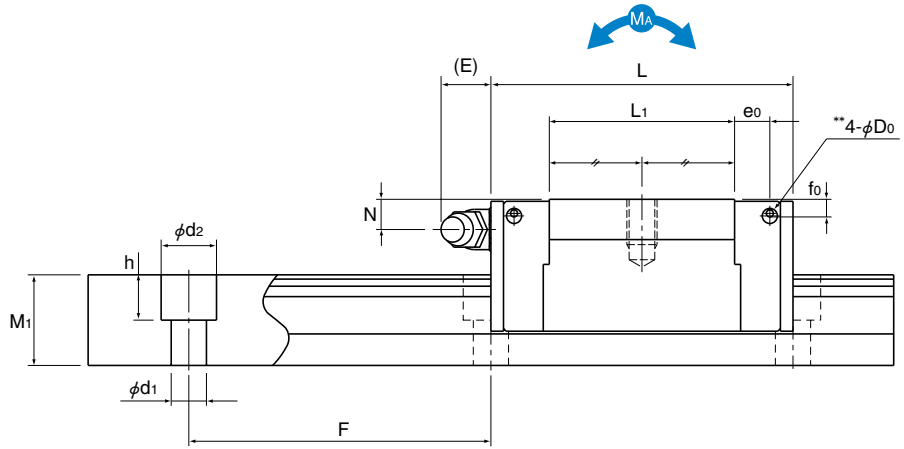
Static permissible moment*: 1 block : static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

Model number coding SSR20X W 2 UU C1 M +1200L P M - II
1 2 3 4 5 6 7 8 9 10

1 Model number 2 Type of LM block 3 No. of LM blocks used on the same rail
4 Dust prevention accessory symbol (see page a-89) 5 Radial clearance symbol (see page a-33)
6 Stainless steel LM block 7 LM rail length (in mm) 8 Accuracy symbol (see page a-38)
9 Stainless steel LM rail 10 No. of rails used on the same plane

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).





Unit: mm

Model No.	External dimensions Height M	Width W	Length L	LM block dimensions B	S× ℓ	L1	T	K	N	E	f0	e0	D0	Grease nipple	LM rail dimensions Width W1 ±0.05	W2	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	C0 kN	Static permissible moment kN-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
SSR 15XVY SSR 15XVMY	24	34	40.3	26	M4×7	23.3	6.5	19.5	4.5	5.5	2.7	4.5	3	PB1021B	15	9.5	12.5	60	4.5×7.5×5.3	9.1	9.7	0.0303	0.192	0.0189	0.122	0.0562	0.08	1.2
SSR 20XV SSR 20XVM	28	42	47.7	32	M5×8	27.8	8.2	22	5.5	12	2.8	5.2	3	B-M6F	20	11	15.5	60	6×9.5×8.5	13.4	14.4	0.0523	0.336	0.0326	0.213	0.111	0.14	2.1
SSR 25XVY SSR 25XVMY	33	48	60	35	M6×9	36.8	8.4	26.2	6	12	3.3	7	3	B-M6F	23	12.5	18	60	7×11×9	21.7	22.5	0.104	0.661	0.0652	0.419	0.204	0.23	2.7

Note Those models whose numbers contain symbol "M" use stainless steel in their LM blocks, LM rails and balls, and therefore are highly resistant to corrosion and environment.

Note Pilot holes for side nipples** are not drilled through in order to prevent foreign matter from entering the product.
THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

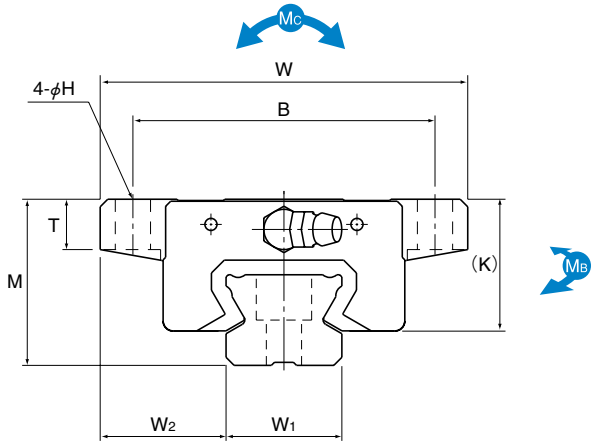
Static permissible moment*: 1 block : static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

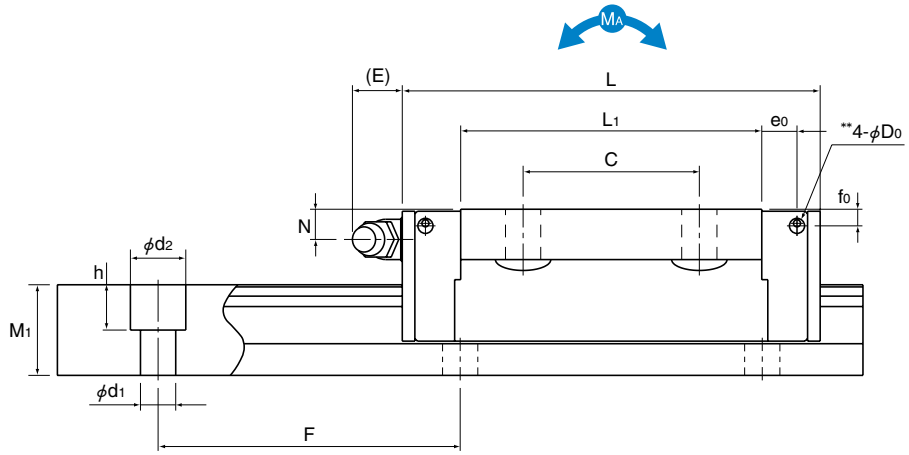
Model number coding SSR25X V 2 UU C1 M +1200L Y P M -III
1 2 3 4 5 6 7 8 9 10 11

1 Model number 2 Type of LM block 3 No. of LM blocks used on the same rail
4 Dust prevention accessory symbol (see page a-89) 5 Radial clearance symbol (see page a-33)
6 Stainless steel LM block 7 LM rail length (in mm) 8 Applied to only 15 and 25
9 Accuracy symbol (see page a-38) 10 Stainless steel LM rail 11 No. of rails used on the same plane

Note This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 3 rails are used in parallel is 3 at a minimum).

Model SSR-XTB





Unit: mm

Model No.	External dimensions			LM block dimensions												LM rail dimensions					Basic load rating		Static permissible moment kN-m*						Mass	
	Height	Width	Length												Grease nipple	Width		Height	Pitch		C	Co	MA		MB		MC		LM block	LM rail
	M	W	L	B	C	H	L1	T	K	N	E	f0	e0	D0		W1 ±0.05	W2	M1	F	d1×d2×h	kN	kN	1 block	2 blocks in close contact	1 block	2 blocks in close contact	1 block		kg	kg/m
SSR 15XTBY	24	52	56.9	41	26	4.5	39.9	6.1	20	4.5	5.5	2.7	4.5	3	PB1021B	15	18.5	12.5	60	4.5×7.5×5.3	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962		0.19	1.2
SSR 20XTB	28	59	66.5	49	32	5.5	46.6	9	22	5.5	12	2.8	5.2	3	B-M6F	20	19.5	15.5	60	6×9.5×8.5	19.6	23.4	0.138	0.723	0.0847	0.448	0.18		0.31	2.1
SSR 25XTBY	33	73	83	60	35	7	59.8	10	26.2	6	12	3.3	7	3	B-M6F	23	25	18	60	7×11×9	31.5	36.4	0.258	1.42	0.158	0.884	0.33		0.53	2.7

Note Pilot holes for side nipples** are not drilled through in order to prevent foreign matter from entering the product.
THK will mount grease nipples per your request. Therefore, do not use the side nipple pilot holes** for purposes other than mounting a grease nipple.

Static permissible moment*: 1 block : static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

Model number coding SSR15X TB 2 SS C1 +820L Y - II
1 2 3 4 5 6 7 8

1 Model number 2 Type of LM block 3 No. of LM blocks used on the same rail
4 Dust prevention accessory symbol (see page a-89)
5 Radial clearance symbol (see page a-33) 6 LM rail length (in mm)
7 Applied to only 15 and 25 8 No. of rails used on the same plane

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).

Overall LM Block Length with Options

Overall LM Block Length (Dimension L) of Model SSR with a Dust Prevention Accessory Attached

Unit: mm

Model No.	UU	SS	DD	ZZ	KK	SSHH	DDHH	ZZHH	KKHH
SSR 15XVY	40.3	40.3	46.1	44.9	50.7	59.5	65.3	60.7	66.5
SSR 15XWY/XTBY	56.9	56.9	62.7	61.5	67.3	76.1	81.9	77.3	83.1
SSR 20XV	47.7	47.7	54.6	53.4	60.3	67.7	74.6	70.1	77
SSR 20XW/XTB	66.5	66.5	73.4	72.2	79.1	86.5	93.4	88.9	95.8
SSR 25XVY	60	60	67.4	65.7	73.1	80	87.4	82.4	89.8
SSR 25XWY/XTBY	83	83	90.4	88.7	96.1	103	110.4	105.4	112.8
SSR 30XW	97	97	105.1	102.7	110.7	121	129.1	123.4	131.5
SSR 35XW	110.9	110.9	119.9	117.7	126.7	136.9	145.9	139.3	148.3

Overall LM Block Length (Dimension L) of Model SSR with QZ Lubricator Attached

Unit: mm

Model No.	QZUU	QZSS	QZDD	QZZZ	QZKK	QZSSHH	QZDDHH	QZZZHH	QZKKHH
SSR 15XVY	59.3	59.3	65.1	62.7	68.5	75.5	81.3	76.7	82.5
SSR 15XWY/XTBY	75.9	75.9	81.7	79.3	85.1	92.1	97.9	93.3	99.1
SSR 20XV	66.2	66.2	73.1	72.1	79	83.7	90.6	86.1	93
SSR 20XW/XTB	85	85	91.9	90.9	97.8	102.5	109.4	104.9	111.8
SSR 25XVY	82.6	82.6	90	88.4	95.8	100	107.4	102.4	109.8
SSR 25XWY/XTBY	105.6	105.6	113	111.4	118.8	123	130.4	125.4	132.8
SSR 30XW	119.7	119.7	127.8	125.4	133.4	141	149.1	143.4	151.5
SSR 35XW	134.3	134.3	143.3	141.3	150.3	156.9	165.9	159.3	168.3

Basic Specifications of LaCS®

① Service temperature range of LaCS:
-20°C to +80°C

② Resistance of LaCS: indicated in table 8

Table 8 Resistance of LaCS

Unit: N

Model No.	Resistance of LaCS
SSR 15X	5.9
SSR 20X	6.9
SSR 25X	8.1
SSR 30X	12.8
SSR 35X	15.1

Note 1: Each resistance value in the table only consists of that of LaCS, and does not include sliding resistances of seals and other accessories.

Note 2: For the maximum service speed of LaCS, contact THK.

Grease Nipple

Those LM Guide models without QZ Lubricator are equipped with a grease nipple. Fig. 3 shows the mounting location for the grease nipple. Please note that attaching the grease nipple increases the LM block width.

For LM Guides with Dust Prevention Accessories SSHH, DDHH, ZZHH or KKHH

LM Guide models with dust prevention accessories SSHH, DDHH, ZZHH or KKHH have the grease nipple in the location indicated in Fig. 3. Table 9 shows incremental dimensions with the grease nipple.

Grease nipple mounting location for model SSR

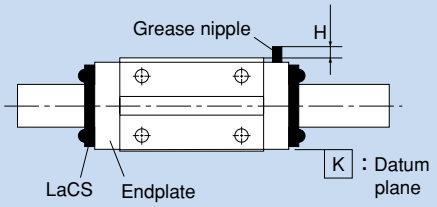


Fig. 3

Table 9

Unit: mm

Model No.	Incremental dimension with grease nipple H	Nipple type
SSR 15XVY/XWY	4.4	PB107
SSR 15XTBY	—	PB107
SSR 20XV/XW	4.6	PB107
SSR 20XTB	—	PB107
SSR 25XVY/XWY	4.5	PB107
SSR 25XTBY	—	PB107
SSR 30XW	5.0	PB1021B
SSR 35XW	5.0	PB1021B

Note: When desiring the mounting location for the grease nipple other than the one indicated in Fig. 3, contact THK.

For LM Guides with Dust Prevention Accessories UU or SS

For the mounting location of the grease nipple (N) and its incremental dimension (E) when dust prevention accessories UU or SS are attached, see the corresponding table of dimensions.

For LM Guides with Dust Prevention Accessories DD, ZZ or KK

For the mounting location of the grease nipple and its incremental dimension when dust prevention accessories DD, ZZ or KK are attached, contact THK.

Model number coding SSR25X W 2 QZ SSHH C1 M +600L Y P M
(1) (2) (3) (4)

(1) LM Guide model number
(2) QZ : with QZ Lubricator, without grease nipple
No symbol: without QZ Lubricator, with grease nipple (see Fig. 3)
(3) Dust prevention accessory symbol (see page a-89)
(4) Note 3

Note 1: QZ Lubricator and LaCS are not sold alone.
Note 2: Those models equipped with QZ Lubricator do not have the grease nipple. When desiring both QZ Lubricator and the grease nipple to be attached, contact THK.
Note 3: For models SSR15XWY, SSR15XVY, SSR15XTBY, SSR25XWY, SSR25XVY and SSR25XTBY, be ware of the position of the "Y" symbol in the model number code.

Precautions on Use

■Laminated Contact Scraper LaCS for THK LM Guides

Service environment

●Be sure the service temperature range of Laminated Contact Scraper LaCS is between -20°C and +80°C, and do not clean LaCS in an organic solvent or white kerosene, or leave it unpacked.

Impregnating oil

●The lubricant impregnated into Laminated Contact Scraper LaCS is used to increase the sliding capability of LaCS itself. For lubrication of the LM Guide, attach QZ Lubricator or the grease nipple.

Function

●The intended role of Laminated Contact Scraper LaCS is to remove foreign matter or liquids. To seal oils, end seals are needed.

Design

●When using Laminated Contact Scraper LaCS, be sure to use the dedicated cap C for LM rail mounting holes or an appropriate form of cover.

■QZ Lubricator for THK LM Guides

Handling

●Dropping or hitting this product may damage it. Take much care when handling it.
●Do not clean it with an organic solvent or white kerosene.
●Do not leave it unpacked for a long period of time.
●Do not block the air vent with grease or the like.

Service temperature range

●Be sure the service temperature of this product is between -10°C and +50°C.

Use in a Special Environment

●When using it in a special environment, contact THK .

Precaution on selection

●Be sure the stroke is longer than the overall length of the LM block length attached with QZ Lubricator.

Corrosion prevention of LM Guides

●QZ Lubricator is a lubricating device designed to feed a minimum amount of oil to the ball raceway of LM rails, and does not provide corrosion prevention to the whole LM Guide. When using it in an environment subject to a coolant or the like, we strongly recommend taking an anti-corrosion measure.