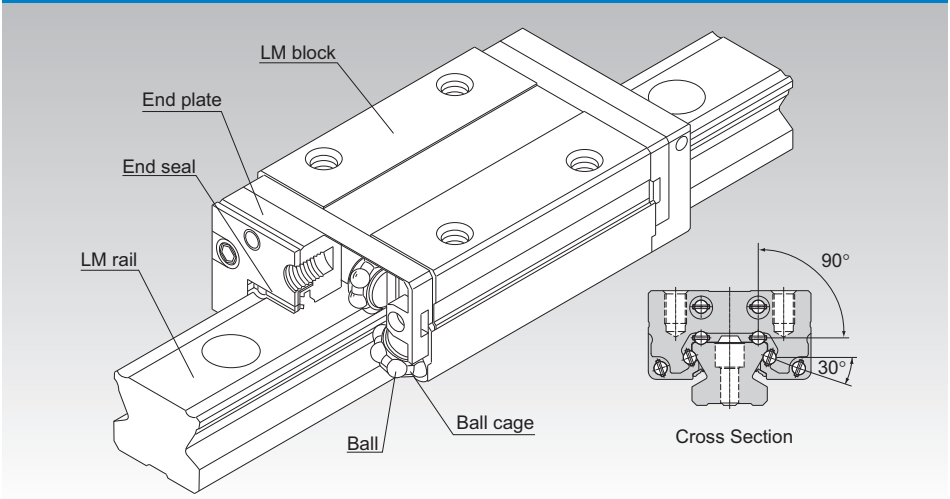
SSR

Radial Type Caged Ball LM Guide Model SSR



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

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.
Use of the ball cage eliminates friction between balls and increases grease retention, thereby achieving low noise, high speeds, and long-term maintenance-free operations.

Compact, Radial Type

Since it is a compactly designed model with a low cross-sectional height and a ball contact structure that is suited to large loads in the radial direction, this model is optimal for horizontal guide units.

Superb Planar Running Accuracy

Use of a ball contact structure that is suited to large loads in the radial direction minimizes radial displacement under radial loads and allows stable, highly accurate motion.

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.

Stainless Steel Type Also Available

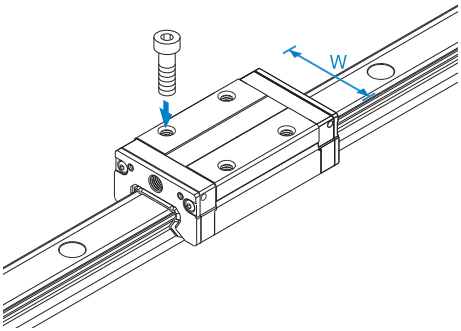
A special type whose LM block, LM rail, and balls are made of stainless steel is also available.

Types and Features

Model SSR-XW

Dimensional Table⇒A1-110

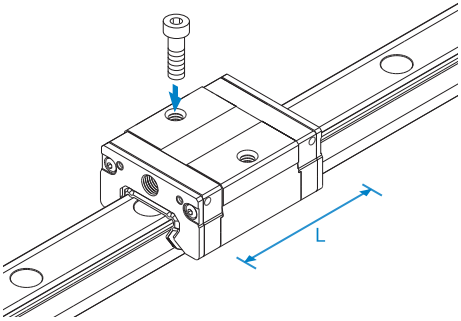
With this type, the LM block has a smaller width (W) and tapped holes. It is used in places where the space for the table width is limited.



Model SSR-XV

Dimensional Table⇒A1-112

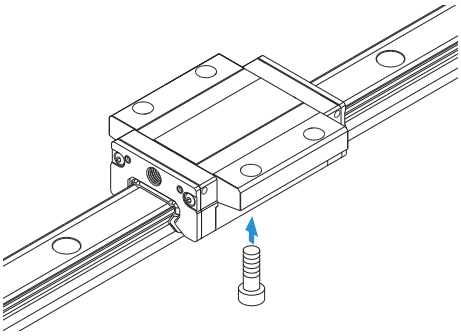
This type has the same cross-sectional shape as SSR-XW but has a shorter overall LM block length (L).



Model SSR-XTB

Dimensional Table⇒A1-114

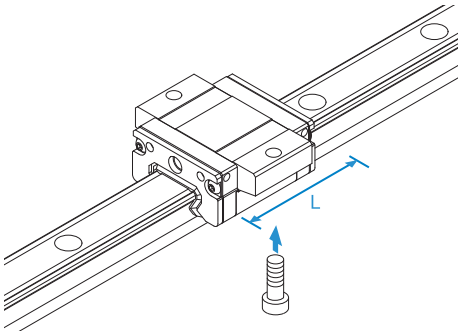
The flange of the LM block has through holes. It is used in places where the table cannot have through holes for mounting bolts.



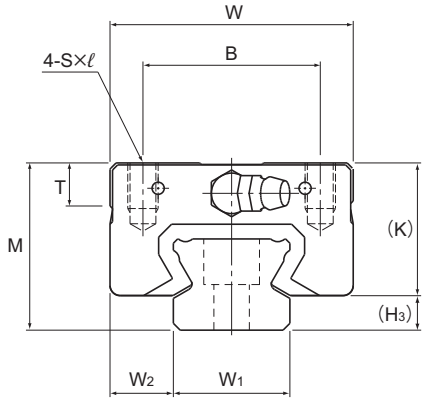
Model SSR-XSB

Dimensional Table⇒A1-116

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



Models SSR-XW and SSR-XWM



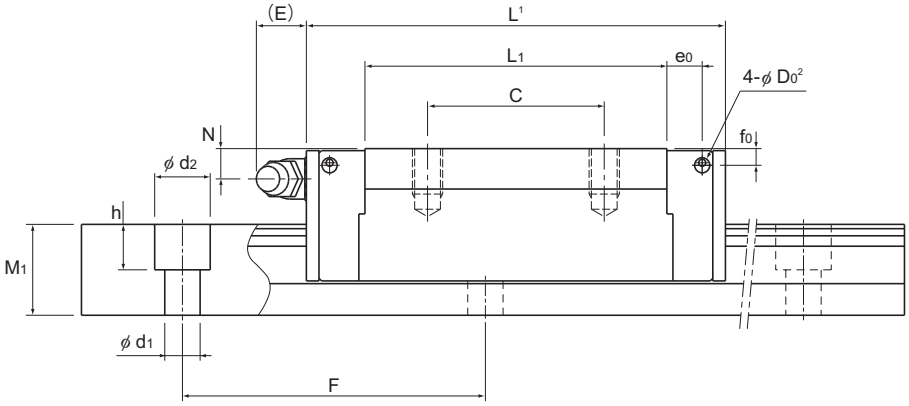
Model No.	Outer dimensions			LM block dimensions								Pilot hole for side nipple			
	Height M	Width W	Length[1] L	B	C	S×ℓ	L_1	T	K	N	E	Grease nipple	e_0	f_0	D_0[2]	H_3
SSR 15XW SSR 15XWM	24	34	56.9	26	26	M4×7	39.9	6.5	19.5	4.5	5.5	PB1021B	4.5	2.7	3	4.5
SSR 20XW SSR 20XWM	28	42	66.5	32	32	M5×8	46.6	8.2	22	5.5	12	B-M6F	5.2	2.9	3	6
SSR 25XW SSR 25XWM	33	48	83	35	35	M6×9	59.8	8.4	26.2	6	12	B-M6F	6.8	3.3	3	6.8
SSR 30XW SSR 30XWM	42	60	97	40	40	M8×12	70.7	11.3	32.5	8	12	B-M6F	7.6	4.5	4	9.5
SSR 35XW	48	70	110.9	50	50	M8×12	80.5	13	36.5	8.5	12	B-M6F	8.8	4.7	4	11.5

Model number coding

SSR25X W 2 QZ UU C1 M +1240L Y P T M -II

- SSR25X: Model number
- W: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ lubricator
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol — Normal (No symbol), Light preload (C1)
- M: Stainless steel LM block
- +1240L: LM rail length (in mm)
- Y: Applied to only 15 and 25
- P: Accuracy symbol — Normal grade (No Symbol), High accuracy grade (H)/Precision grade (P), Super precision grade (SP)/Ultra precision grade (UP)
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail
- -II: Symbol for No. of rails used on the same plane

Notes: 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).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-547** for contamination protection accessories, see **A1-73** for radial clearance symbol. See **A1-79** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.



Unit: mm

	LM rail dimensions						Basic load rating 4		Static permissible moment kN·m 5					Mass	
	Width		Height	Pitch		Length 3	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	9.5	12.5	60	4.5×7.5×5.3	3000 (1240)	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962	0.15	1.2
	20	11	15.5	60	6×9.5×8.5	3000 (1480)	19.6	23.4	0.138	0.723	0.0847	0.448	0.18	0.25	2.1
	23	12.5	18	60	7×11×9	3000 (2020)	31.5	36.4	0.258	1.42	0.158	0.884	0.33	0.4	2.7
	28	16	23	80	7×11×9	3000 (2520)	46.5	52.7	0.446	2.4	0.274	1.49	0.571	0.8	4.3
	34	18	27.5	80	9×14×12	3000	64.6	71.6	0.711	3.72	0.437	2.31	0.936	1.1	6.4

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-521** or **A1-543**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-118**.)

[4] The basic load rating is for a load in the radial direction.
Use **A1-61** on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

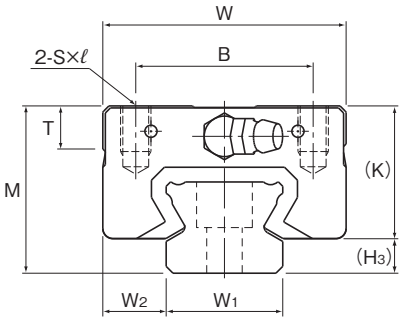
Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.
For models SSR15 and 25, two types of rails with different mounting hole dimensions are available. (See Table 1.)
When replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SSR 15	For M4 (symbol Y)	For M3 (no symbol)
SSR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-507

Models SSR-XV and SSR-XVM



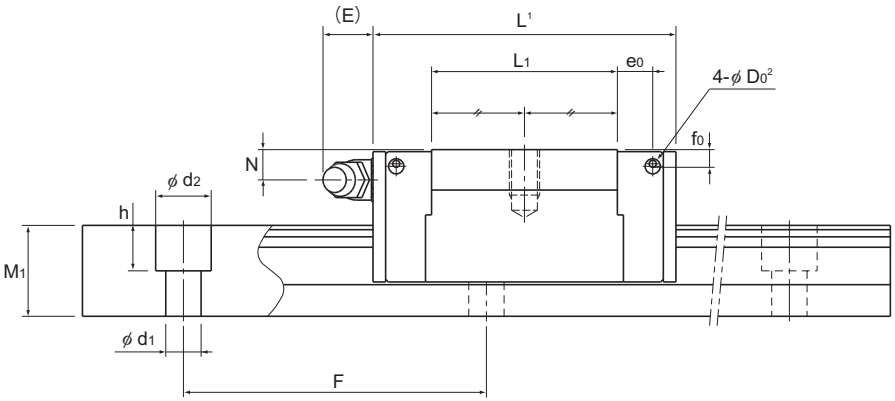
Model No.	Outer dimensions			LM block dimensions							Pilot hole for side nipple			
	Height	Width	Length[1]							Grease nipple				
	M	W	L	B	S×ℓ	L_1	T	K	N	E		e_0	f_0	D_0[2]	H_3
SSR 15XV SSR 15XVM	24	34	40.3	26	M4×7	23.3	6.5	19.5	4.5	5.5	PB1021B	4.5	2.7	3	4.5
SSR 20XV SSR 20XVM	28	42	47.7	32	M5×8	27.8	8.2	22	5.5	12	B-M6F	5.2	2.9	3	6
SSR 25XV SSR 25XVM	33	48	60	35	M6×9	36.8	8.4	26.2	6	12	B-M6F	6.8	3.3	3	6.8
SSR 30XV SSR 30XVM	42	60	66.7	40	M8×12	40.4	11.5	32.5	8	12	B-M6F	7.6	4.5	4	9.5
SSR 35XV	48	70	77.5	50	M8×12	47.1	16.2	36.5	8.5	12	B-M6F	8.8	4.7	4	11.5

Model number coding

SSR25X V 2 QZ UU C1 M +1240L Y P T M -Ⅲ

- SSR25X: Model number
- V: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ lubricator
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol (Normal (No symbol), Light preload (C1))
- M: Stainless steel LM block
- +1240L: LM rail length (in mm)
- Y: Applied to only 15 and 25
- P: Accuracy symbol (Normal grade (No Symbol), High accuracy grade (H)/Precision grade (P), Super precision grade (SP)/Ultra precision grade (UP))
- T: Symbol for LM rail jointed use
- M: Stainless steel LM rail
- -Ⅲ: Symbol for No. of rails used on the same plane

Notes: 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).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-547** for contamination protection accessories, see **A1-73** for radial clearance symbol. See **A1-79** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.



Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]					Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	9.5	12.5	60	4.5×7.5×5.3	3000 (1240)	9.1	9.7	0.0303	0.119	0.0189	0.122	0.0562	0.08	1.2
	20	11	15.5	60	6×9.5×8.5	3000 (1480)	13.4	14.4	0.0523	0.336	0.0326	0.213	0.111	0.14	2.1
	23	12.5	18	60	7×11×9	3000 (2020)	21.7	22.5	0.104	0.661	0.0652	0.419	0.204	0.23	2.7
	28	16	23	80	7×11×9	3000 (2520)	34.8	34.4	0.186	1.12	0.116	0.711	0.376	0.43	4.3
	34	18	27.5	80	9×14×12	3000	48.3	46.7	0.295	1.77	0.184	1.12	0.615	0.6	6.4

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-521** or **A1-543**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-118**.)

[4] The basic load rating is for a load in the radial direction.
Use **A1-61** on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

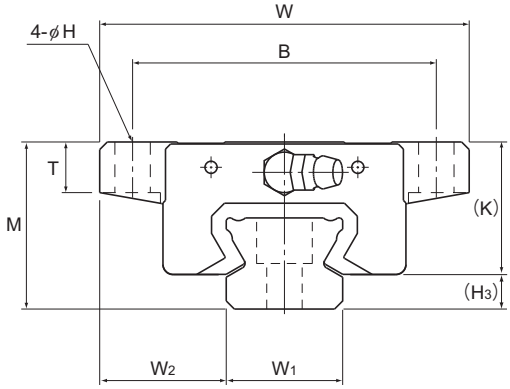
Notes: The M in the model number symbol indicates that the LM block, LM rail and balls are made of stainless steel.
The stainless steel provides excellent corrosion and environmental resistance.
For models SSR15 and 25, two types of rails with different mounting hole dimensions are available. (See Table 1.)
When replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SSR 15	For M4 (symbol Y)	For M3 (no symbol)
SSR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-507

Model SSR-XTB



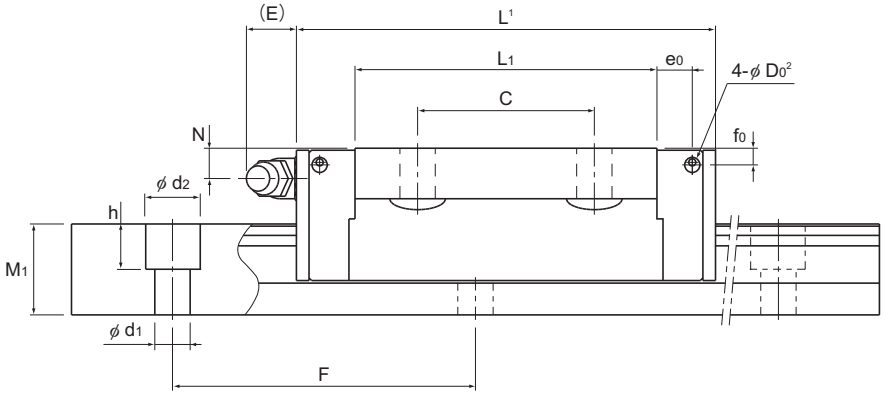
Model No.	Outer dimensions			LM block dimensions									Pilot hole for side nipple			
	Height	Width	Length[1]									Grease nipple				
	M	W	L	B	C	H	L_1	T	K	N	E		e_0	f_0	D_0[2]	H_3
SSR 15XTB	24	52	56.9	41	26	4.5	39.9	7	19.5	4.5	5.5	PB1021B	4.5	2.7	3	4.5
SSR 20XTB	28	59	66.5	49	32	5.5	46.6	9	22	5.5	12	B-M6F	5.2	2.9	3	6
SSR 25XTB	33	73	83	60	35	7	59.8	10	26.2	6	12	B-M6F	6.8	3.3	3	6.8
SSR 30XTB	42	90	97	72	40	9	70.7	10	32.5	8	12	B-M6F	7.6	4.5	4	9.5
SSR 35XTB	48	100	110.9	82	50	9	80.5	13	36.5	8.5	12	B-M6F	8.8	4.7	4	11.5

Model number coding

SSR15X TB 2 QZ UU C1 +820L Y P T -II

- SSR15X: Model number
- TB: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ lubricator
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +820L: LM rail length (in mm)
- Y: Applied to only 15 and 25 sizes
- P: Accuracy symbol
  - Normal grade (No Symbol)
  - High accuracy grade (H)
  - Precision grade (P)
  - Super precision grade (SP)
  - Ultra precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: 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).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See **A1-547** for contamination protection accessories, see **A1-73** for radial clearance symbol. See **A1-79** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.



Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]					Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	18.5	12.5	60	4.5×7.5×5.3	3000 (1240)	14.7	16.5	0.0792	0.44	0.0486	0.274	0.0962	0.19	1.2
	20	19.5	15.5	60	6×9.5×8.5	3000 (1480)	19.6	23.4	0.138	0.723	0.0847	0.448	0.18	0.31	2.1
	23	25	18	60	7×11×9	3000 (2020)	31.5	36.4	0.258	1.42	0.158	0.884	0.33	0.53	2.7
	28	31	23	80	7×11×9	3000 (2520)	46.5	52.7	0.446	2.4	0.274	1.49	0.571	0.87	4.3
	34	33	27.5	80	9×14×12	3000	64.6	71.6	0.711	3.72	0.437	2.31	0.936	1.33	6.4

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-521** or **A1-543**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-118**.)

[4] The basic load rating is for a load in the radial direction.
Use **A1-61** on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

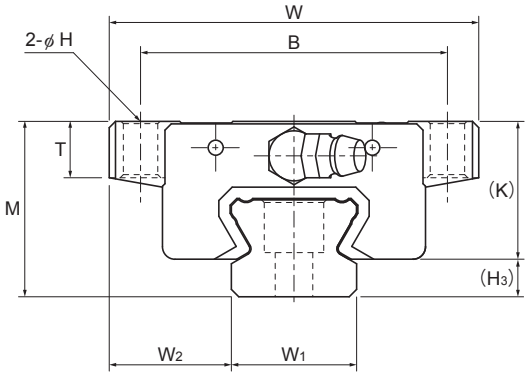
Notes: For models SSR15 and 25, two types of rails with different mounting hole dimensions are available. (See Table 1.)
When replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SSR 15	For M4 (symbol Y)	For M3 (no symbol)
SSR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-507

Model SSR-XSB



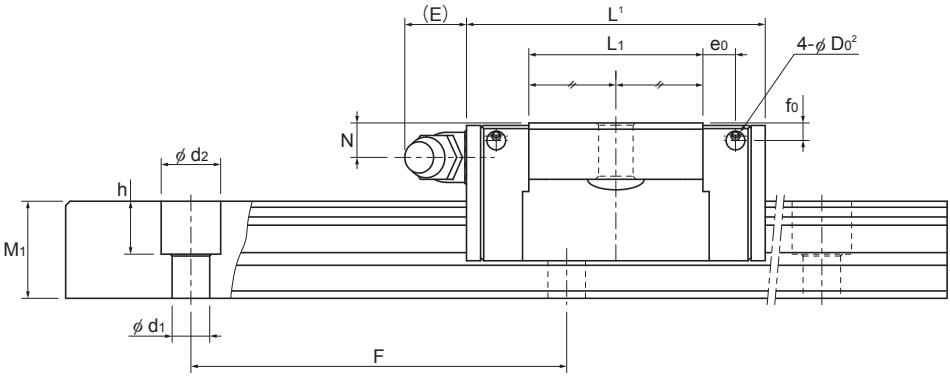
Model No.	Outer dimensions			LM block dimensions								Pilot hole for side nipple			
	Height	Width	Length[1]								Grease nipple				
	M	W	L	B	H	L_1	T	K	N	E		e_0	f_0	D_0[2]	H_3
SSR 15XSB	24	52	40.3	41	4.5	23.3	7	19.5	4.5	5.5	PB1021B	4.5	2.7	3	4.5
SSR 20XSB	28	59	47.7	49	5.5	27.8	9	22	5.5	12	B-M6F	5.2	2.8	3	6
SSR 25XSB	33	73	60	60	7	36.8	10	26.2	6	12	B-M6F	7	3.3	3	6.8
SSR 30XSB	42	90	66.7	72	9	40.4	10	32.5	8	12	B-M6F	7.6	4.5	4	9.5
SSR 35XSB	48	100	77.5	82	9	47.1	13	36.5	8.5	12	B-M6F	8.8	4.7	4	11.5

Model number coding

SSR15X SB 2 QZ UU C1 +820L Y P T -II

- SSR15X: Model number
- SB: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ lubricator
- UU: Contamination protection accessory symbol
- C1: Radial clearance symbol
  - Normal (No symbol)
  - Light preload (C1)
  - Medium preload (C0)
- +820L: LM rail length (in mm)
- Y: Applied to only 15 and 25 sizes
- P: Accuracy symbol
  - Normal grade (No Symbol)
  - High accuracy grade (H)
  - Precision grade (P)
  - Super precision grade (SP)
  - Ultra precision grade (UP)
- T: Symbol for LM rail jointed use
- -II: Symbol for No. of rails used on the same plane

Notes: 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).
Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.
See A1-547 for contamination protection accessories, see A1-73 for radial clearance symbol. See A1-79 for accuracy symbol. See A1-13 for symbol for number of rails used on the same plane.



Unit: mm

	LM rail dimensions						Basic load rating[4]		Static permissible moment kN·m [5]					Mass	
	Width		Height	Pitch		Length[3]	C	C_0	M_A		M_B		M_C	LM block	LM rail
	W_1 ±0.05	W_2	M_1	F	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	2 blocks	1 block	2 blocks	1 block	kg	kg/m
	15	18.5	12.5	60	4.5×7.5×5.3	3000 (1240)	9.1	9.7	0.0303	0.1192	0.0189	0.122	0.0562	0.11	1.2
	20	19.5	15.5	60	6×9.5×8.5	3000 (1480)	13.4	14.4	0.0523	0.336	0.0326	0.213	0.111	0.18	2.1
	23	25	18	60	7×11×9	3000 (2020)	21.7	22.5	0.104	0.661	0.0652	0.419	0.204	0.31	2.7
	28	31	23	80	7×11×9	3000 (2520)	34.8	34.4	0.186	1.12	0.116	0.711	0.376	0.52	4.3
	34	33	27.5	80	9×14×12	3000	48.3	46.7	0.295	1.77	0.184	1.12	0.615	0.77	6.4

[1] Length L shown in the table is the length with the contamination protection accessories, code UU or SS.
If other contamination protection accessories or lubricant equipment are installed, the total block length will increase. (See **A1-521** or **A1-543**)

[2] D_0 are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricator.
Pilot holes are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK.

[3] The maximum length indicates the standard maximum length of an LM rail. (See **A1-118**.)

[4] The basic load rating is for a load in the radial direction.
Use **A1-61** on Table 7 to calculate the load rating for loads in the reverse-radial direction or lateral direction.

[5] Static permissible moment 1 block: the static permissible moment with one LM block
2 blocks: the static permissible moment with two LM blocks in close contact with each other

Notes: For models SSR15 and 25, two types of rails with different mounting hole dimensions are available. (See Table 1.)
When replacing this model with model SR, pay attention to the mounting hole dimension of the LM rail. Contact THK for details.

Table 1: Rail Mounting Hole Dimensions

Model No.	Standard rail	Semi-standard rail
SSR 15	For M4 (symbol Y)	For M3 (no symbol)
SSR 25	For M6 (symbol Y)	For M5 (no symbol)

Options⇒A1-507

Standard Lengths and Maximum Lengths of LM Rails

Table 1 shows the standard lengths and the maximum lengths of model SSR variations. If the maximum length of the desired LM rail exceeds these values, joint 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.

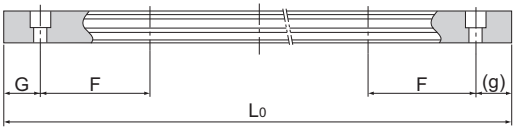


Table 1: Standard Lengths and Maximum Lengths of LM Rails

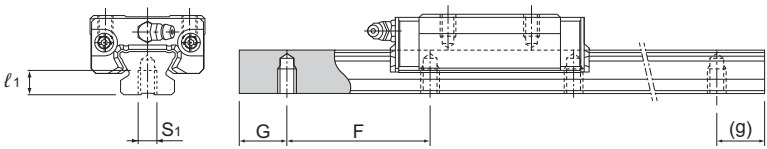
Unit: mm

Model No.	SSR 15X	SSR 20X	SSR 25X	SSR 30X	SSR 35X
LM rail standard lengths (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 pitch F	60	60	60	80	80
G, g	20	20	20	20	20
Max length	3000 (1240)	3000 (1480)	3000 (2020)	3000 (2520)	3000

Notes: The maximum length varies with accuracy grades. Contact THK for details.
If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.
The figures in the parentheses indicate the maximum lengths of stainless steel made models.

Tapped-Hole Type LM Rail

LM rails with tapped holes machined on the bottom surface are available for the Model SSR. This type is useful when mounting from the bottom of the base and when increased contamination protection is desired.



(1) A tapped-hole LM rail type is available only for Precision grade or lower grades.
(2) For standard pitches of the taps and the G and g dimensions, see Table 1 on A1-118.

Table 2: Dimensions of the LM Rail Tap Unit: mm

Model No.	S_1	Effective tap depth ℓ_1
SSR 15X	M5	7
SSR 20X	M6	9
SSR 25X	M6	10
SSR 30X	M8	14
SSR 35X	M8	16

Model number coding

SSR20XW2UU+1200LH K

Symbol for tapped-hole LM rail