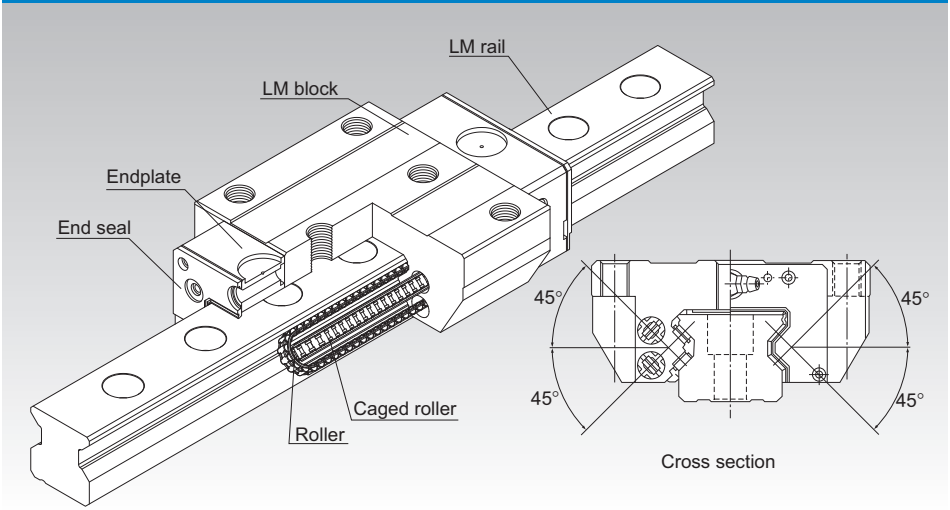
SRG

Caged Roller LM Guide Ultra-high Rigidity Type Model SRG



*For the caged roller, see A1-412.

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 four 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.

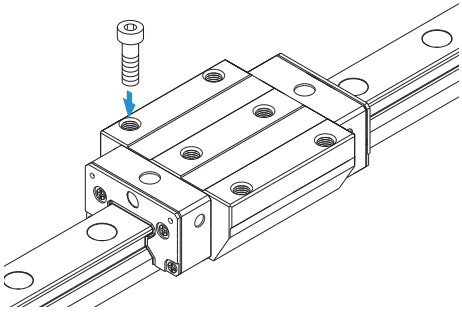
[Long-term Maintenance-free Operation]
Use of roller cages eliminates friction between rollers and increases grease retention, enabling long-term maintenance-free operation to be achieved.

[Global Standard Size]
SRG is designed to have dimensions almost the same as that of Full Ball LM Guide model HSR, which THK as a pioneer of the linear motion system has developed and is practically a global standard size.

Models SRG-15A, 20A

Specification Table⇒A1-422

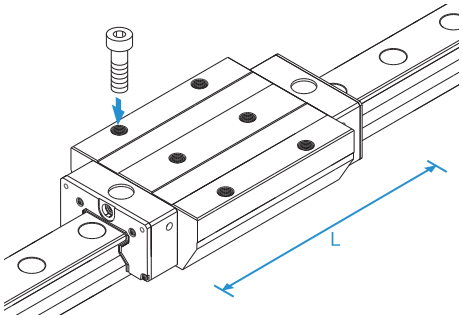
The flange of the LM block has tapped holes.
Can be mounted from the top or the bottom.



Model SRG-20LA

Specification Table⇒A1-422

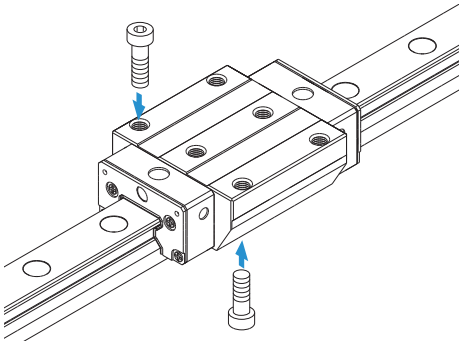
The LM block has the same cross-sectional shape as model SRG-A, but has a longer overall LM block length (L) and a greater rated load.



Model SRG-C

Specification Table⇒A1-422

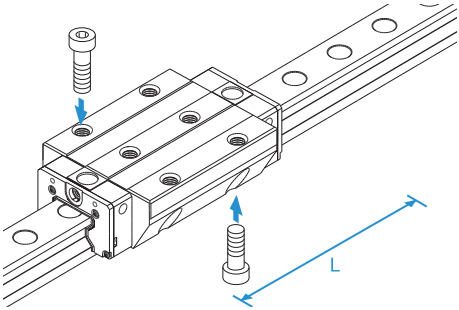
The flange of the LM block has tapped holes.
Can be mounted from the top or the bottom.
Used in places where the table cannot have through holes for mounting bolts.



Model SRG-LC

Specification Table⇒A1-422

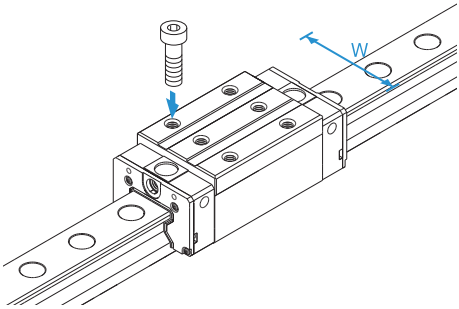
The LM block has the same cross-sectional shape as model SRG-C, but has a longer overall LM block length (L) and a greater rated load.



Model SRG-R

Specification Table⇒A1-426

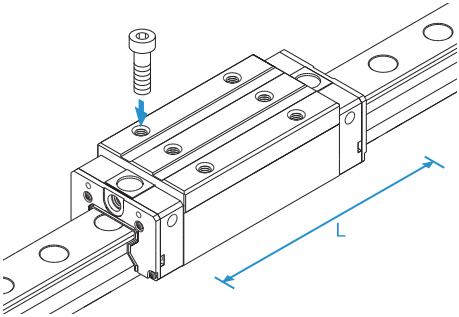
With this type, the LM block has a smaller width (W) and tapped holes.
Used in places where the space for table width is limited.



Model SRG-LR

Specification Table⇒A1-426

The LM block has the same cross-sectional shape as model SRG-R, but has a longer overall LM block length (L) and a greater rated load.



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-retainer 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
SRG 15	0.005	0.003	0.003
SRG 20	0.008	0.006	0.004
SRG 25	0.009	0.007	0.005
SRG 30	0.011	0.008	0.006
SRG 35	0.014	0.010	0.007
SRG 45	0.017	0.013	0.009
SRG 55	0.021	0.014	0.011
SRG 65	0.027	0.018	0.014
SRG 85	0.040	0.027	0.021
SRG 100	0.045	0.031	0.024

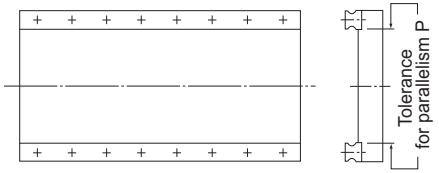


Fig.1

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 = 500mm

Error allowance of the mounting surface $X = 0.0003 \times 500 = 0.15$

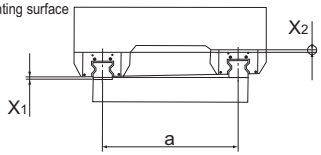


Fig.2

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

Unit: mm

Permissible error on the mounting surface	0.000036b

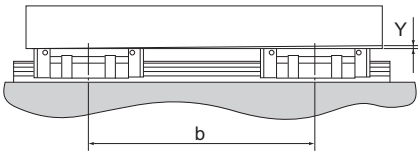
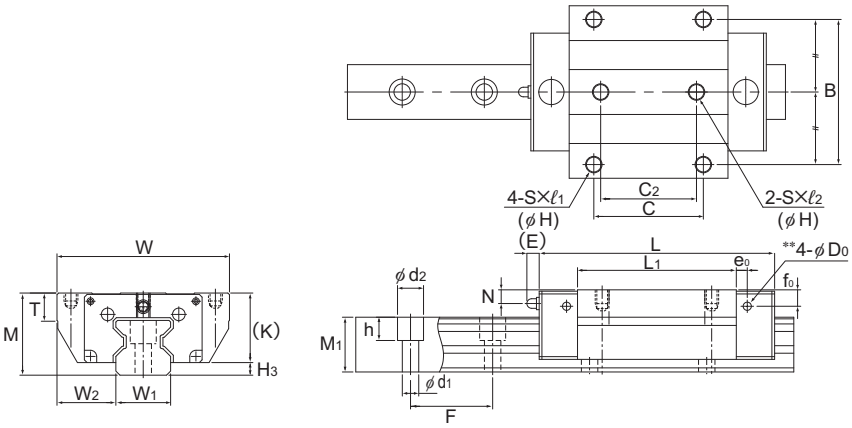


Fig.3

Models SRG-A, SRG-LA, SRG-C and SRG-LC



Models SRG15A and 20A/LA

Model No.	Outer dimensions			LM block dimensions																Grease nipple
	Height M	Width W	Length L	B	C	C_2	S	H	ℓ_1	ℓ_2	L_1	T	T_1	K	N	E	e_0	f_0	D_0	
SRG 15A	24	47	69.2	38	30	26	M5	(4.3)	8	7.5	45	7	(8)	20	4	4.5	4	6	2.9	PB107
SRG 20A SRG 20LA	30	63	86.2 106.2	53	40	35	M6	(5.4)	10	9	58 78	10	(10)	25.4	5	4.5	4	6	2.9	PB107
SRG 25C SRG 25LC	36	70	95.5 115.1	57	45	40	M8	6.8	—	—	65.5 85.1	9.5	10	31.5	5.5	12	6	6.4	5.2	B-M6F
SRG 30C SRG 30LC	42	90	111 135	72	52	44	M10	8.5	—	—	75 99	12	14	37	6.5	12	6	7.5	5.2	B-M6F
SRG 35C SRG 35LC	48	100	125 155	82	62	52	M10	8.5	—	—	82.2 112.2	11.5	10	42	6.5	12	6	6	5.2	B-M6F
SRG 45C SRG 45LC	60	120	155 190	100	80	60	M12	10.5	—	—	107 142	14.5	15	52	10	16	7	7	5.2	B-PT1/8
SRG 55C SRG 55LC	70	140	185 235	116	95	70	M14	12.5	—	—	129.2 179.2	17.5	18	60	12	16	9	8.5	5.2	B-PT1/8
SRG 65LC	90	170	303	142	110	82	M16	14.5	—	—	229.8	19.5	20	78.5	17	16	9	13.5	5.2	B-PT1/8

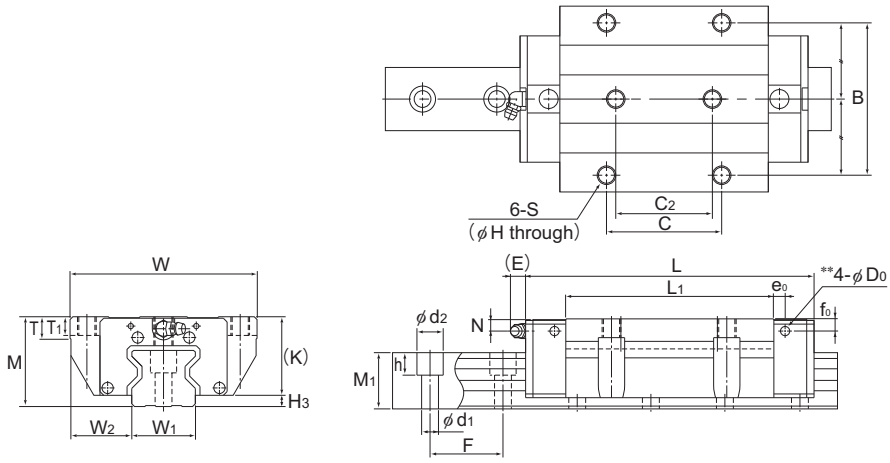
Model number coding

SRG45 LC 2 QZ KKHH C0 +1200L P T -II

- SRG45: Model number
- LC: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol (*1)
- C0: Radial clearance symbol (*2) — Normal (No symbol), Light preload (C1), Medium preload (C0)
- +1200L: LM rail length (in mm)
- P: Accuracy symbol (*3) — 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 (*4)

(*1) See contamination protection accessory on **A1-510**. (*2) See **A1-72**. (*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.



Models SRG25 to 65C/LC

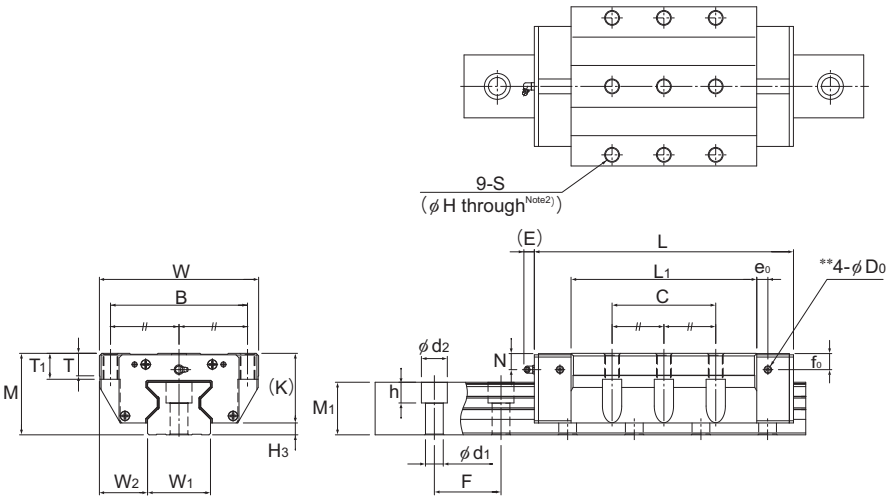
Unit: mm

		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
	H_3	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
	4	15	16	15.5	30	4.5×7.5×5.3	3000	11.3	25.8	0.21	1.24	0.21	1.24	0.24	0.20	1.58
	4.6	20	21.5	20	30	6×9.5×8.5	3000	21 26.7	46.9 63.8	0.48 0.88	2.74 4.49	0.48 0.88	2.74 4.49	0.58 0.79	0.42 0.57	2.58
	4.5	23	23.5	23	30	7×11×9	3000	27.9 34.2	57.5 75	0.641 1.07	3.7 5.74	0.641 1.07	3.7 5.74	0.795 1.03	0.7 0.9	3.6
	5	28	31	26	40	9×14×12	3000	39.3 48.3	82.5 108	1.02 1.76	6.21 9.73	1.02 1.76	6.21 9.73	1.47 1.92	1.2 1.6	4.4
	6	34	33	30	40	9×14×12	3000	59.1 76	119 165	1.66 3.13	10.1 17	1.66 3.13	10.1 17	2.39 3.31	1.9 2.4	6.9
	8	45	37.5	37	52.5	14×20×17	3090	91.9 115	192 256	3.49 6.13	20 32.2	3.49 6.13	20 32.2	4.98 6.64	3.7 4.5	11.6
	10	53	43.5	43	60	16×23×20	3060	131 167	266 366	5.82 10.8	33 57	5.82 10.8	33 57	8.19 11.2	5.9 7.8	15.8
	11.5	63	53.5	54	75	18×26×22	3000	278	599	22.7	120	22.7	120	22.1	16.4	23.7

Note1) The greasing hole on the top face and the pilot hole of the side nipple* are not drilled through in order to prevent foreign material from entering the block.
THK will mount a grease nipple per your request. Therefore, do not use the greasing hole of the top face and the side nipple pilot hole* for purposes other than mounting a grease nipple.
In case of oil lubrication, be sure to let THK know the mounting orientation and the exact position in each LM block where the piping joint should be attached.
For the mounting orientation and the lubrication, see **A1-12** and **A24-2**, respectively.
The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-428**.)
Static permissible moment*: 1 block: static permissible moment value with 1 LM block
Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Note2) If the mounting holes (4 holes) of the LM block are back spot-faced, these models can be mounted on the table from the top and the bottom as with model SRG-C.
The value in the parentheses represents a dimension if the mounting hole is back spot-faced.
Contact THK for details.

Model SRG-LC



Model SRG85LC

Model No.	Outer dimensions			LM block dimensions													Grease nipple
	Height M	Width W	Length L	B	C	S	H	L_1	T	T_1	K	N	E	e_0	f_0	D_0	
SRG 85LC	110	215	350	185	140	M20	17.8	250.8	30	35	94	22	16	15	22	8.2	B-PT1/8
SRG 100LC	120	250	395	220	200	M20	17.8	280.2	35	38	104	23	16	15	23	8.2	B-PT1/4

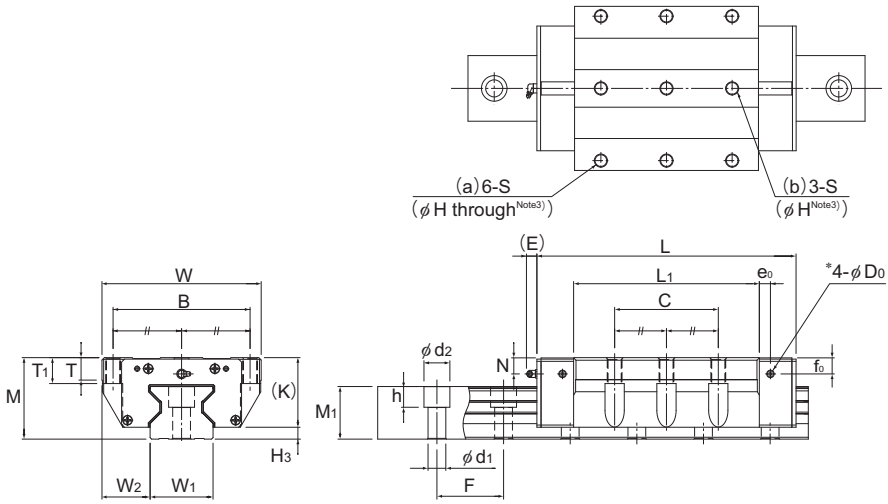
Model number coding

SRG85 LC 2 KK C0 +2610L P T -II

- SRG85: Model number
- LC: Type of LM block
- 2: No. of LM blocks used on the same rail
- KK: Contamination protection accessory symbol (*1)
- C0: Radial clearance symbol (*2)
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +2610L: LM rail length (in mm)
- P: Accuracy symbol (*3)
  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 (*4)

(*1) See contamination protection accessory on **A1-510**. (*2) See **A1-72**. (*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.



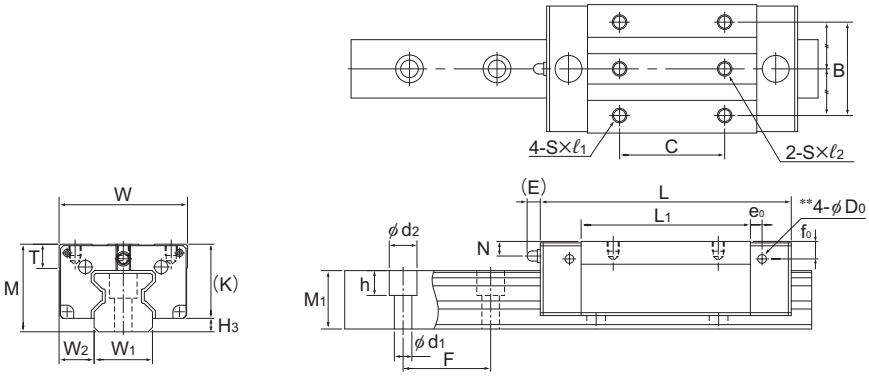
Model SRG100LC

Unit: mm

		LM rail dimensions						Basic load rating		Static permissible moment kN-m*					Mass	
		Width		Height	Pitch		Length*	C	C0	MA		MB		MC	LM block	LM rail
	H3	W1 0 -0.05	W2	M1	F	d1×d2×h	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block	kg	kg/m
	16	85	65	71	90	24×35×28	3000	497	990	45.3	239	45.3	239	51.9	26.2	35.7
	16	100	75	77	105	26×39×32	3000	601	1170	60	319	60	319	72.3	37.6	46.8

Note1) The greasing hole on the top face and the pilot hole of the side nipple¨ are not drilled through in order to prevent foreign material from entering the block.
See **A1-429** for details.
The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-428**.)
Static permissible moment*: 1 block: static permissible moment value with 1 LM block
Double blocks: static permissible moment value with 2 blocks closely contacting with each other
The removing/mounting jig is not provided as standard. When desiring to use it, contact THK.
Note2) The LM block mounting holes (9 holes) of SRG85LC are all through holes (full thread).
Note3) The LM block mounting holes in part (a) (6 holes) of SRG100LC are through holes (full thread).
The LM block mounting holes in part (b) (3 holes) have effective thread depth of 22 mm.

Models SRG-V, SRG-LV, SRG-R and SRG-LR



Models SRG15V and 20V/LV

Model No.	Outer dimensions			LM block dimensions														Grease nipple
	Height M	Width W	Length L	B	C	S	ℓ	ℓ1	ℓ2	L1	T	K	N	E	e0	f0	D0	
SRG 15V	24	34	69.2	26	26	M4	—	5	7.5	45	6	20	4	4.5	4	6	2.9	PB107
SRG 20V SRG 20LV	30	44	86.2 106.2	32	36 50	M5	—	7	9	58 78	8	25.4	5	4.5	4	6	2.9	PB107
SRG 25R SRG 25LR	40	48	95.5 115.1	35	35 50	M6	9	—	—	65.5 85.1	9.5	35.5	9.5	12	6	10.4	5.2	B-M6F
SRG 30R SRG 30LR	45	60	111 135	40	40 60	M8	10	—	—	75 99	12	40	9.5	12	6	10.5	5.2	B-M6F
SRG 35R SRG 35LR	55	70	125 155	50	50 72	M8	12	—	—	82.2 112.2	18.5	49	13.5	12	6	13	5.2	B-M6F
SRG 45R SRG 45LR	70	86	155 190	60	60 80	M10	20	—	—	107 142	24.5	62	20	16	7	17	5.2	B-PT1/8
SRG 55R SRG 55LR	80	100	185 235	75	75 95	M12	18	—	—	129.2 179.2	27.5	70	22	16	9	18.5	5.2	B-PT1/8
SRG 65LV	90	126	303	76	120	M16	20	—	—	229.8	19.5	78.5	17	16	9	13.5	5.2	B-PT1/8

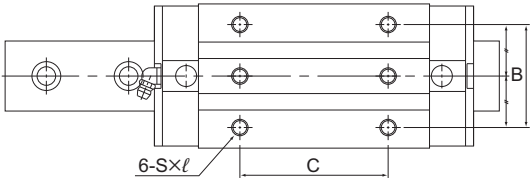
Model number coding

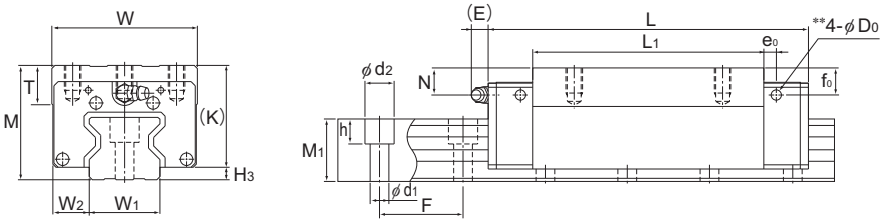
SRG45 LR 2 QZ KKHH C0 +1200L P T -II

- SRG45: Model number
- LR: Type of LM block
- 2: No. of LM blocks used on the same rail
- QZ: With QZ Lubricator
- KKHH: Contamination protection accessory symbol (*1)
- C0: Radial clearance symbol (*2)
  Normal (No symbol)
  Light preload (C1)
  Medium preload (C0)
- +1200L: LM rail length (in mm)
- P: Accuracy symbol (*3)
  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 (*4)

(*1) See contamination protection accessory on **A1-510**. (*2) See **A1-72**. (*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.





Models SRG25 to 65R/LR/LV

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
	H_3	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
	4	15	9.5	15.5	30	4.5×7.5×5.3	3000	11.3	25.8	0.21	1.24	0.21	1.24	0.24	0.15	1.58
	4.6	20	12	20	30	6×9.5×8.5	3000	21 26.7	46.9 63.8	0.48 0.88	2.74 4.49	0.48 0.88	2.74 4.49	0.58 0.79	0.28 0.38	2.58
	4.5	23	12.5	23	30	7×11×9	3000	27.9 34.2	57.5 75	0.641 1.07	3.7 5.74	0.641 1.07	3.7 5.74	0.795 1.03	0.6 0.8	3.6
	5	28	16	26	40	9×14×12	3000	39.3 48.3	82.5 108	1.02 1.76	6.21 9.73	1.02 1.76	6.21 9.73	1.47 1.92	0.9 1.2	4.4
	6	34	18	30	40	9×14×12	3000	59.1 76	119 165	1.66 3.13	10.1 17	1.66 3.13	10.1 17	2.39 3.31	1.6 2.1	6.9
	8	45	20.5	37	52.5	14×20×17	3090	91.9 115	192 256	3.49 6.13	20 32.2	3.49 6.13	20 32.2	4.98 6.64	3.2 4.1	11.6
	10	53	23.5	43	60	16×23×20	3060	131 167	266 366	5.82 10.8	33 57	5.82 10.8	33 57	8.19 11.2	5 6.9	15.8
	11.5	63	31.5	54	75	18×26×22	3000	278	599	22.7	120	22.7	120	22.1	12.1	23.7

Note) The greasing hole on the top face and the pilot hole of the side nipple are not drilled through in order to prevent foreign material from entering the block.
THK will mount a grease nipple per your request. Therefore, do not use the greasing hole of the top face and the side nipple pilot hole* for purposes other than mounting a grease nipple.
In case of oil lubrication, be sure to let THK know the mounting orientation and the exact position in each LM block where the piping joint should be attached.
For the mounting orientation and the lubrication, see **A1-12** and **A24-2**, respectively.
The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-428**.)
Static permissible moment*: 1 block: static permissible moment value with 1 LM block
Double blocks: static permissible moment value with 2 blocks closely contacting with each other

Standard Length and Maximum Length of the LM Rail

Table4 shows the standard lengths and the maximum lengths of model SRG variations. If the maximum length of the desired LM rail exceeds them, jointed 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.

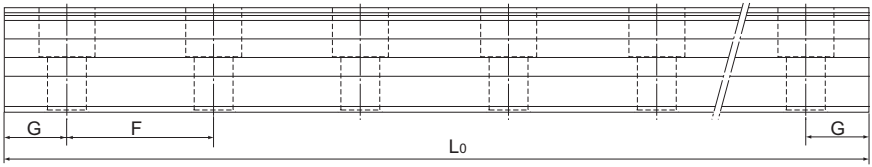


Table4 Standard Length and Maximum Length of the LM Rail for Model SRG

Unit: mm

Model No.	SRG 15	SRG 20	SRG 25	SRG 30	SRG 35	SRG 45	SRG 55	SRG 65	SRG 85	SRG 100
LM rail standard length (L_o)	160 220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1360 1480 1600 1720 1840 1960 2080 2200	220 280 340 400 460 520 580 640 700 760 820 940 1000 1060 1120 1180 1240 1300 1360 1420 1480 1540 1600 1720 1840 1960 2080 2200 2320 2440	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985 3090	780 900 1020 1140 1260 1380 1500 1620 1740 1860 1980 2100 2220 2340 2460 2580 2700 2820 2940 3060	1270 1570 2020 2620	1530 1890 2250 2610	1340 1760 2180 2600
Standard pitch F	30	30	30	40	40	52.5	60	75	90	105
G	20	20	20	20	20	22.5	30	35	45	40
Max length	3000	3000	3000	3000	3000	3090	3060	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.

Greasing Hole

[Greasing Hole for Model SRG]

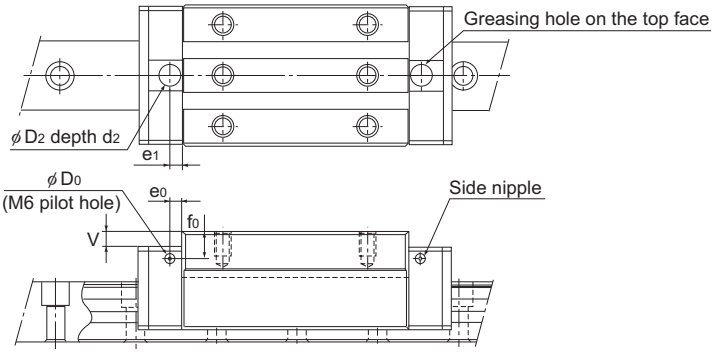
Model SRG allows lubrication from both the side and top faces of the LM block. The greasing hole of standard types is not drilled through in order to prevent foreign material from entering the LM block. When using the greasing hole, contact THK.

When using the greasing hole on the top face of models SRG-R and SRG-LR, a greasing adapter is separately required. Contact THK for details.

If the mounting orientation of the LM Guide is other than horizontal use, the lubricant may not reach the raceway completely.

Be sure to let THK know the mounting orientation and the exact position in each LM block where the grease nipple or the piping joint should be attached.

For the mounting orientation and the lubrication, see **A1-12** and **A24-2**, respectively.



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	d_2
SRG	15A 15V	4	6	2.9	PB107	9.2	(P6)	0.5	5.5	1.5
	20A 20LA	4	6	2.9	PB107	9.2	(P6)	0.5	6.5	1.5
	20V 20LV	4	6	2.9	PB107	9.2	(P6)	0.5	6.5	1.5
	25C 25LC	6	6.4	5.2	M6F	10.2	(P7)	0.5	6	1.5
	25R 25LR	6	10.4	5.2	M6F	10.2	(P7)	4.5	6	1.5
	30C 30LC	6	7.5	5.2	M6F	10.2	(P7)	0.4	6	1.4
	30R 30LR	6	10.5	5.2	M6F	10.2	(P7)	3.4	6	1.4
	35C 35LC	6	6	5.2	M6F	10.2	(P7)	0.4	6	1.4
	35R 35LR	6	13	5.2	M6F	10.2	(P7)	7.4	6	1.4
	45C 45LC	7	7	5.2	M6F	10.2	(P7)	0.4	7	1.4
	45R 45LR	7	17	5.2	M6F	10.2	(P7)	10.4	7	1.4
	55C 55LC	9	8.5	5.2	M6F	10.2	(P7)	0.4	11	1.4
	55R 55LR	9	18.5	5.2	M6F	10.2	(P7)	10.4	11	1.4
	65LC	9	13.5	5.2	M6F	10.2	(P7)	0.4	10	1.4
	65LV	9	13.5	5.2	M6F	10.2	(P7)	0.4	10	1.4
	85LC	15	22	8.2	PT1/8	13	(P10)	0.4	10	1
	100LC	15	23	8.2	PT1/8	13	(P10)	0.4	10	1

Note) 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.