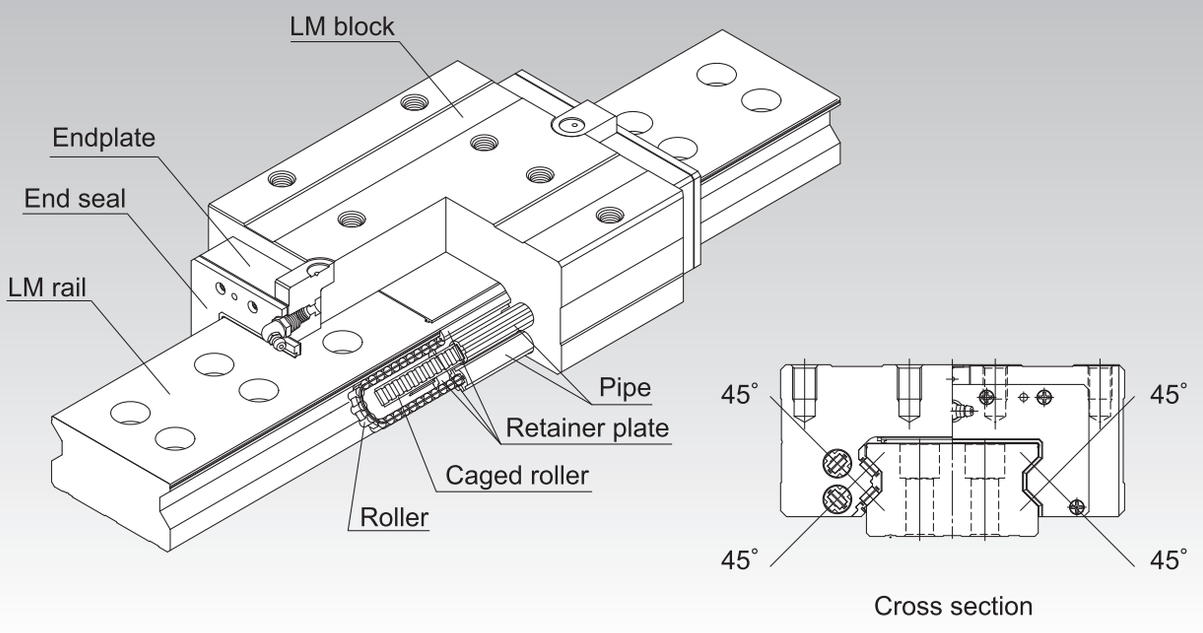
SRW

Caged Roller LM Guide Ultra-high Rigidity Type (Wide) Model SRW



*For the caged roller, see **A1-414**.

Point of Selection **A1-10**

Point of Design **A1-460**

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Model No. **A1-551**

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A1-452 THK

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Structure and Features

Based on Caged Roller LM Guide model SRG, this model has a wider rail and two rows of LM rail mounting holes to achieve high mounting strength and mounting stability. SRW 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]

Since it has a wide rail and can be secured on the table using two rows of mounting bolts, the mounting strength is significantly increased. In addition, since the crosswise raceway distance (L) is large, model SRW is structurally strong against a moment load (Mc moment) in the rolling direction. Furthermore, model SRW uses rollers that show little elastic deformation as its rolling elements, and the overall length of each roller is 1.5 times greater than the diameter, thus to increase the rigidity.

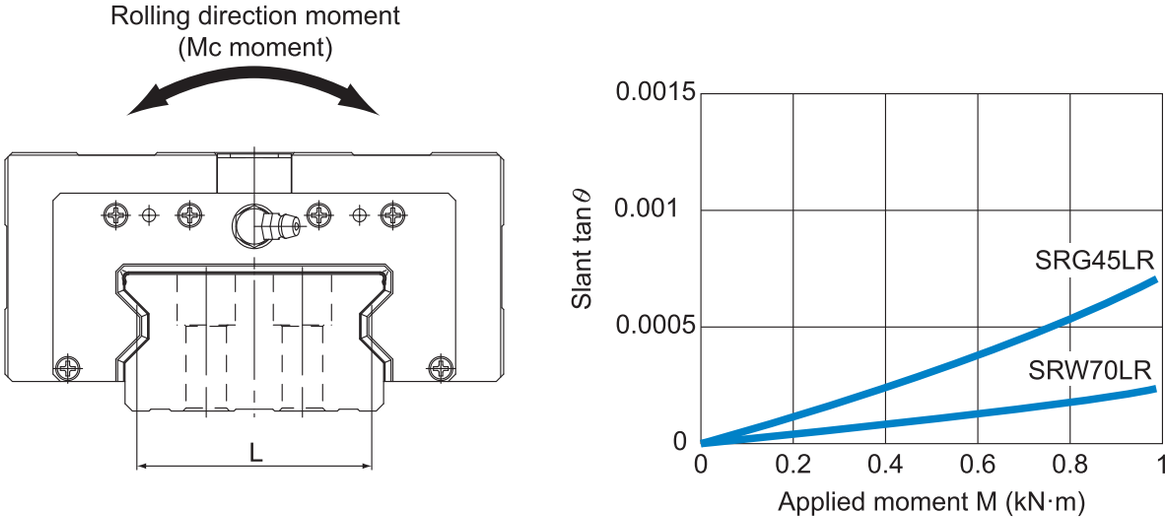

Fig.1 Result of Comparison between Models SRW and SRG in Moment Rigidity in the Rolling Direction (Mc Moment)

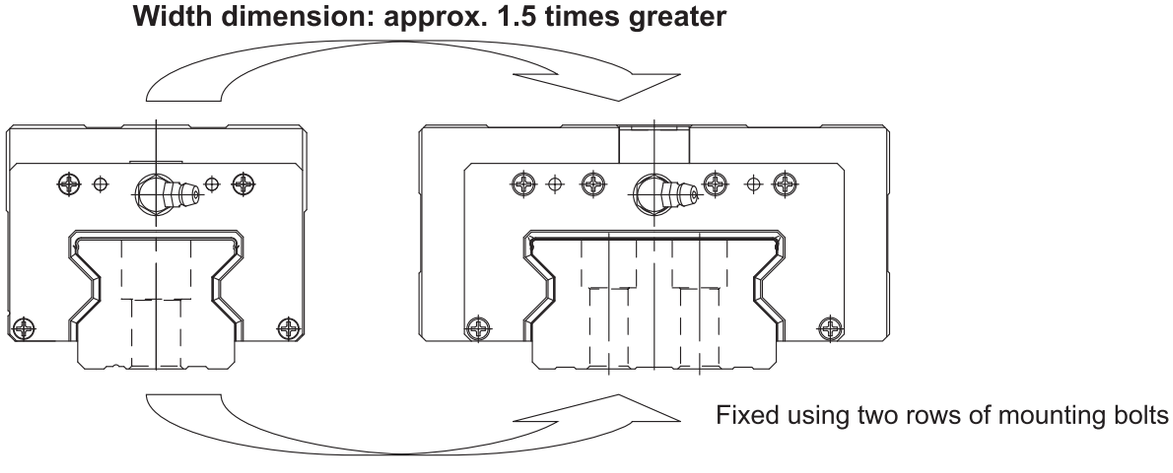

Fig.2 Comparison between Models SRW and SRG in Cross Section

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[Smoothness Achieved 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 the roller cage eliminates friction between rollers and enables the lubricant to be retained in grease pockets formed between adjacent rollers. As the rollers circulate, the grease pocket serves to provide the required amount of lubricant to the contact curvature of the spacer and the roller, thus to achieve long-term maintenance-free operation.

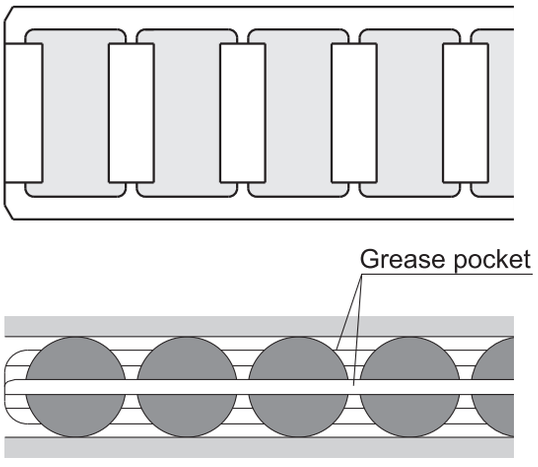


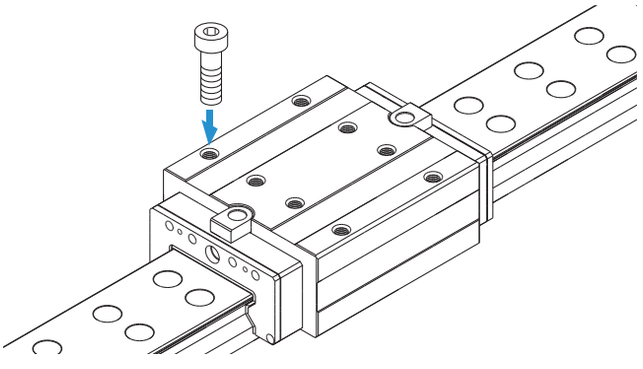
Fig.3

Types and Features

Model SRW-LR

Specification Table⇒A1-456

The LM block has tapped holes.



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Reference Error Tolerance for the Mounting Surface

The Caged Roller LM Guide Model SRW features high rigidity because it uses rollers as its rolling element, and it also features a roller cage, 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 reference error tolerance according to the radial clearance.

Table1 Reference Horizontal Error Tolerance (P) between Two Rails

Unit: mm

Radial clearance / Model No.	Normal	C1	C0
SRW 70	0.013	0.009	0.007
SRW 85	0.016	0.011	0.008
SRW 100	0.020	0.014	0.011
SRW 130	0.026	0.018	0.014
SRW 150	0.030	0.021	0.016

Table2 Reference Vertical Error Tolerance (X) between Two Rails

Unit: mm

Radial clearance	Normal	C1	C0
Reference mounting surface error tolerance X	0.00020a	0.00014a	0.000072a

$X=X_1+X_2$

X_1: Level difference on the rail mounting surface

X_2: Level difference on the block mounting surface

Example of calculation

When the rail span :

a=500mm

Accuracy of the mounting surface

X=0.0002×500

=0.1

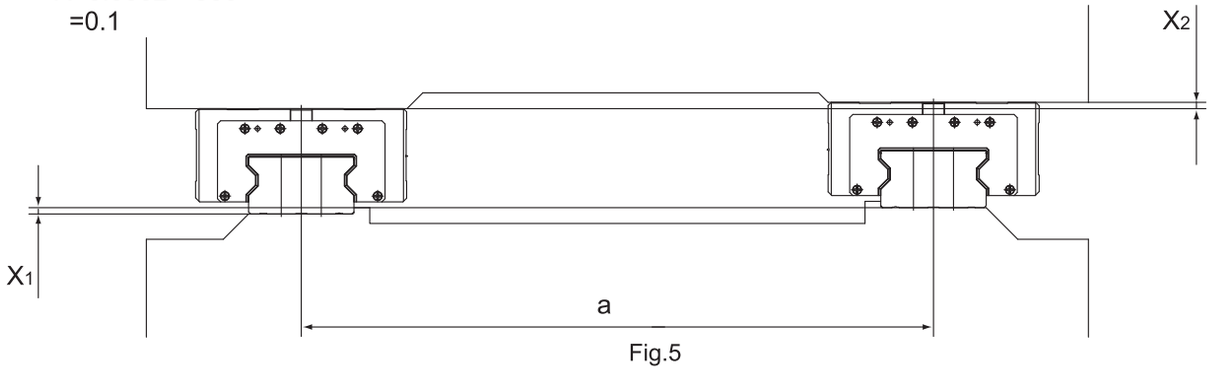

Fig.5

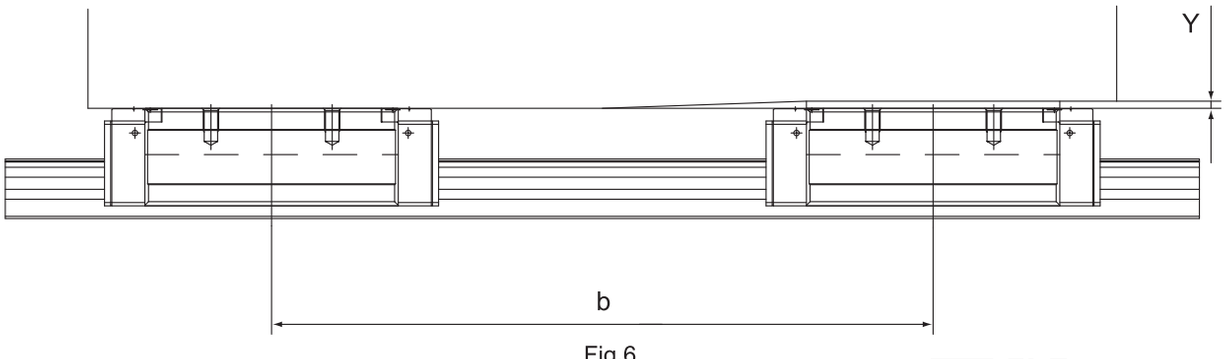

Fig.6

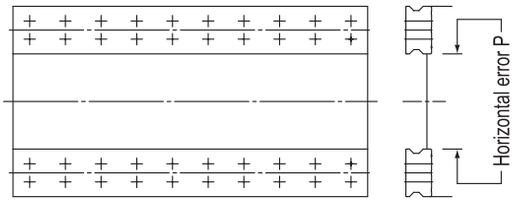

Fig.4

Table3 Reference Vertical Error Tolerance (Y) in the Axial Direction

Unit: mm

Reference mounting surface error tolerance	0.000036b

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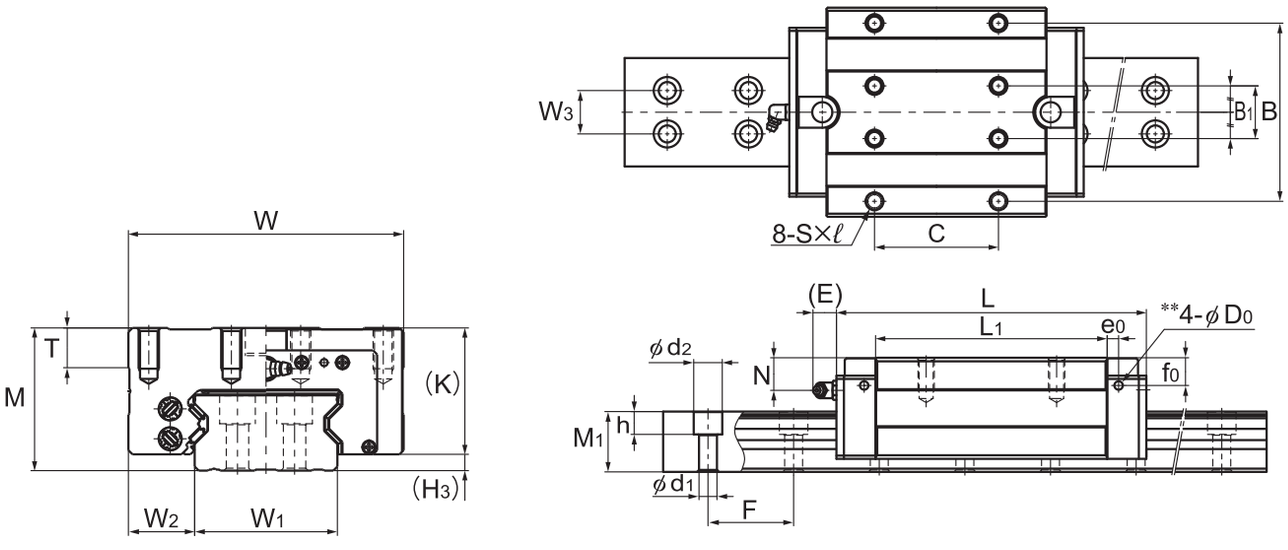
Model SRW-LR



Models SRW70 to 100LR

Model No.	Outer dimensions			LM block dimensions													H3
	Height M	Width W	Length L	B	B1	C	S×ℓ	L1	T	K	N	E	e0	f0	D0	Grease nipple	
SRW 70LR	70	135	190	115	34	80	M10×20	142	20	62	20	16	7	19	5.2	B-PT1/8	8
SRW 85LR	80	165	235	140	40	95	M12×19	179.2	28	70	22	16	9	19.5	5.2	B-PT1/8	10
SRW 100LR	100	200	303	172	50	110	M14×20	229.8	20	88.5	27	16	9	26	5.2	B-PT1/8	11.5
SRW 130LR	130	260	350	220	65	140	M20×35	250.8	30	114	25	16	15	42	8.2	B-PT1/8	16
SRW 150LR	150	300	395	260	75	200	M20×40	280.2	35	134	28.8	16	15	53	8.2	B-PT1/4	16

Model number coding

SRW70LR 2 QZ KKHH C0 +1200L P Z T -II

- SRW70LR — Model number
- 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)
- Z — With plate cover
- 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 A1-524. (*2) See A1-74. (*3) See A1-86. (*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.

Download data by searching for the corresponding model number on the Technical Support site. https://tech.thk.com

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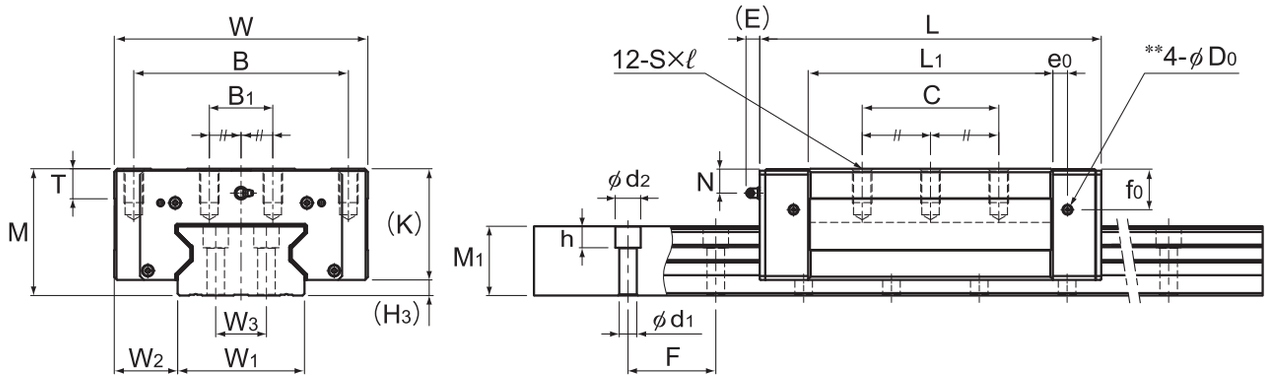

Models SRW130 and 150LR

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	$d_1 \times d_2 \times h$	Max	kN	kN	1 block	Double blocks	1 block	Double blocks	1 block		kg	kg/m
	70	32.5	28	37	52.5	11×17.5×14	3090	115	256	6.13	32.2	6.13	32.2	10.2		6.3	18.6
	85	40	32	43	60	14×20×17	3060	167	366	10.8	57	10.8	57	17.5		11.0	26.7
	100	50	38	54	75	16×23×20	3000	278	599	22.7	120	22.7	120	33.9		21.6	35.9
	130	65	52	71	90	18×26×22	3000	497	990	45.3	239	45.3	239	74.2		41.7	61.0
	150	75	60	77	105	24×35×28	3000	601	1170	60	319	60	319	101.6		65.1	74.4

Note1) The maximum length under "Length*" indicates the standard maximum length of an LM rail. (See **A1-458**.)
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
For oil lubrication, be certain to let THK know the mounting orientation and where the LM block piping joint should be attached.
(Mounting orientation: see **A1-12**, Lubricant: see **A24-2**)
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 **A1-499** or **A1-520**)
The removing/mounting jig is not provided as standard. Contact THK before use.
** A pilot hole for side nipples, when a grease nipple for a model equipped with LaCS or QZ Lubricator is needed.
Pilot holes for side nipples are not drilled through for models other than those stated above.
For grease nipple mount machining, contact THK. (See **A1-459**)
Note2) The basic dynamic load rating of the roller guide is a value based on a nominal life of 100 km.
The conversion to basic dynamic load rating for a nominal life of 50 km can be obtained from the following equation.

$$C_{50} = C \times 1.23$$

C_{50} :The basic dynamic load rating for a nominal load of 50 km
C :The basic dynamic load rating in the dimensional table

Options⇒A1-485

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Standard Length and Maximum Length of the LM Rail

Table4 shows the standard lengths and the maximum lengths of model SRW variations. If the maximum length of the desired LM rail exceeds them, jointed rails will be used.
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.
If desiring jointed use of this model, be sure to indicate the overall length so that we can manufacture the product without leaving a level difference in the joint.

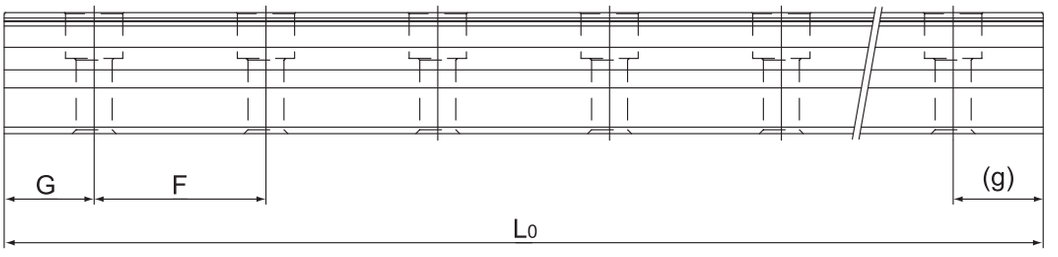

Table4 Standard Length and Maximum Length of the LM Rail for Model SRW

Unit: mm

Model No.	SRW 70	SRW 85	SRW 100	SRW 130	SRW 150
LM rail standard length (L_0)	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985	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	52.5	60	75	90	105
G,g	22.5	30	35	45	40
Max length	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.

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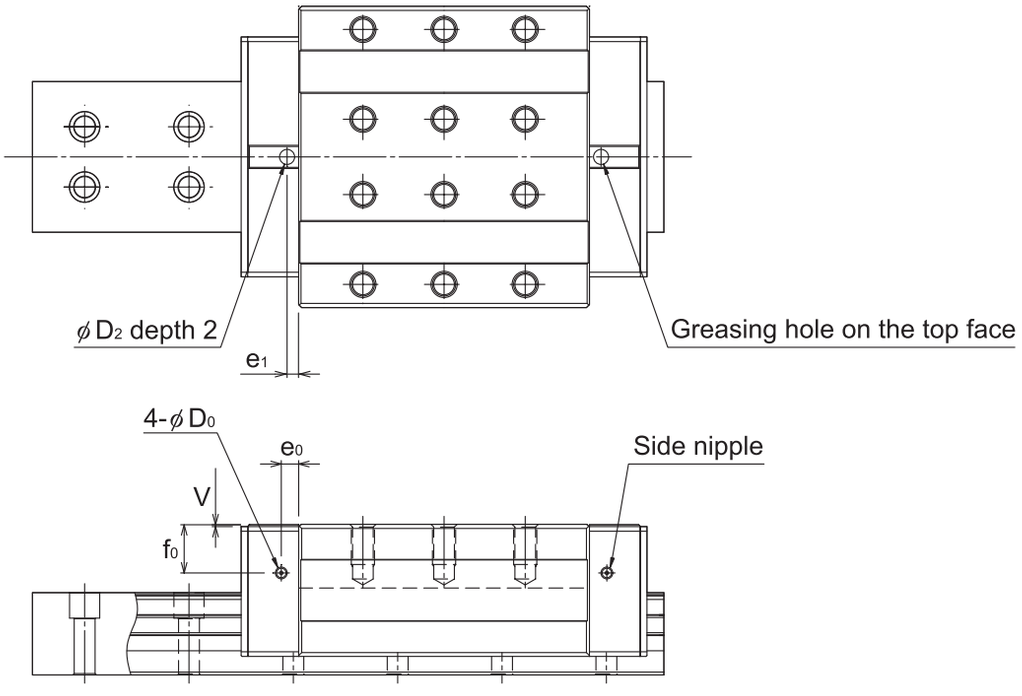
Greasing Hole

[Greasing Hole for Model SRW]

Model SRW 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.



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
SRW	70	7	17	5.2	M6F	13	(P10)	0.4	2.7
	85	9	18.5	5.2	M6F	13	(P10)	0.4	9.9
	100	9	23.5	5.2	M6F	13	(P10)	0.4	10.1
	130	15	42	8.2	PT1/8	13	(P10)	0.4	10
	150	15	53	8.2	PT1/8	13	(P10)	0.4	10

Note1) 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.

Note2) Upper surface lubrication is for oil lubrication only. Contact THK if you are considering using the greasing hole on the top face for grease lubrication.

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