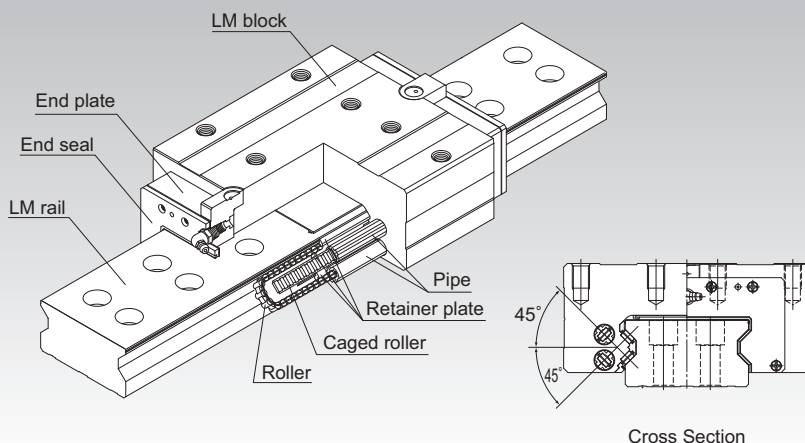


SRW



Ultra-Rigid, Wide Caged Roller LM Guide Model SRW



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

Selection Criteria **A1-10**

Design Highlights **A1-482**

Options **A1-507**

Model No. **A1-577**

Handling Precautions **A1-583**

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 **A1-75**

Accuracy Standards **A1-87**

Shoulder Height of the Mounting Base and the Corner Radius **A1-494**

Reference Error Tolerance for the Mounting Surface **A1-463**

Dimensions of Each Model with Options Attached **A1-521**

Structure and Features

Based on the Caged Roller LM Guide Model SRG, this model has a wider LM rail and two rows of LM rail mounting holes to achieve high mounting strength and mounting stability. It is an ultra-rigid roller guide that uses roller cages to allow low-friction, smooth motion, and 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 (M_c moment) in the rolling direction. Increased rigidity is achieved by using rollers with low elastic deformation as its rolling elements and having the overall roller length more than 1.5 times greater than the roller diameter.

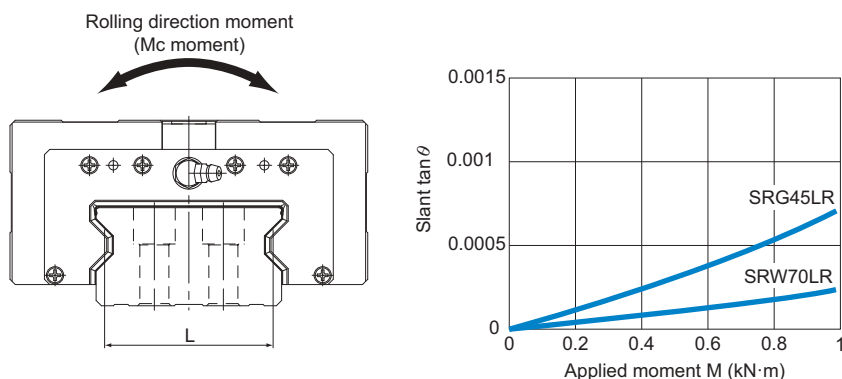


Fig. 1: Result of Comparison between Models SRW and SRG in Moment Rigidity in the Rolling Direction (M_c Moment)

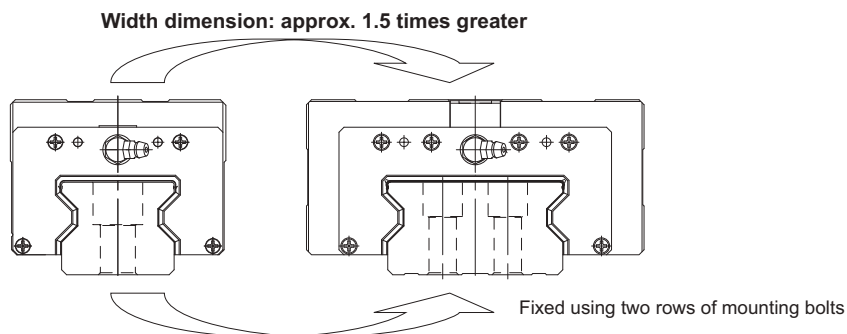


Fig. 2: Comparison between Models SRW and SRG in Cross Section

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 a loaded area. This minimizes rolling resistance fluctuation and achieves stable, smooth motion.

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 achieving long-term maintenance-free operation.

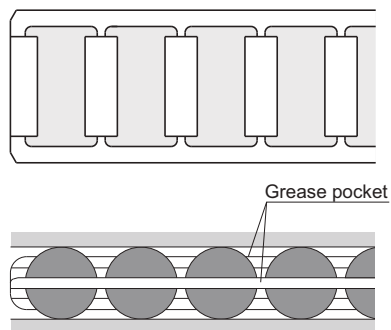


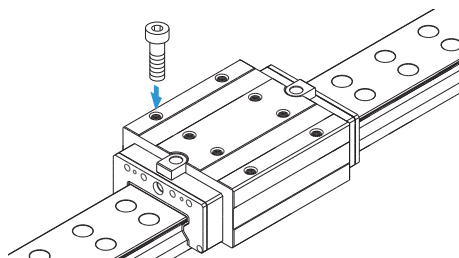
Fig. 3

Types and Features

Model SRW-LR

The LM block has tapped holes.

Dimensional Table⇒ **A1-464**



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.

Table 1: Reference Horizontal Error Tolerance (P) between Two Rails
Unit: μm

Radial clearance Model No.	Normal	C1	C0
SRW 70	13	9	7
SRW 85	16	11	8
SRW 100	20	14	11
SRW 130	26	18	14
SRW 150	30	21	16

Table 2: Reference Vertical Error Tolerance (X) between Two Rails
Unit: mm

Radial clearance	Normal	C1	C0
Reference vertical error tolerance X	0.0002a	0.00014a	0.000072a

$$X = X_1 + X_2$$

X_1 : Difference in rail mounting surface height

X_2 : Difference in block mounting surface height

Example of calculation

When the rail span :

$$a = 500 \text{ mm}$$

Reference vertical error tolerance

$$X = 0.0002 \times 500 \\ = 0.1$$

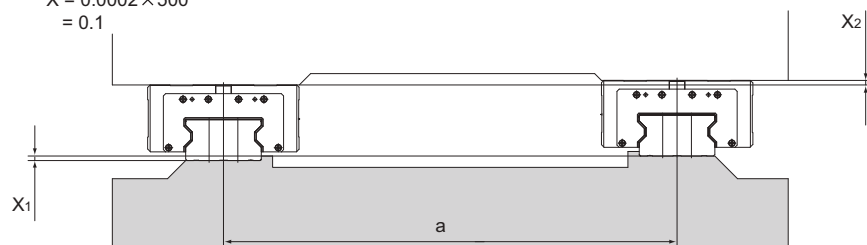


Fig. 5

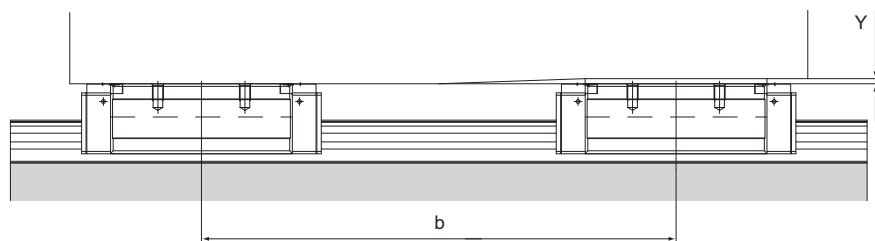


Fig. 6

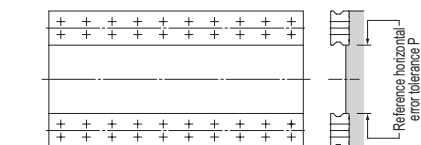
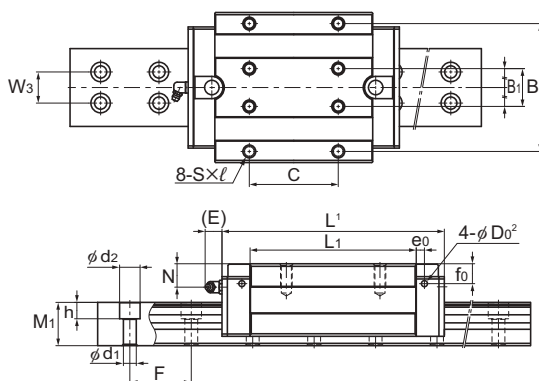
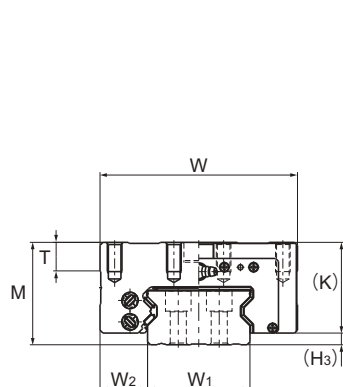


Fig. 4

Table 3: Reference Vertical Error Tolerance (Y) in the Axial Direction
Unit: mm

Reference vertical error tolerance Y	0.000036b
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Model SRW-LR



Models SRW70 to 100LR

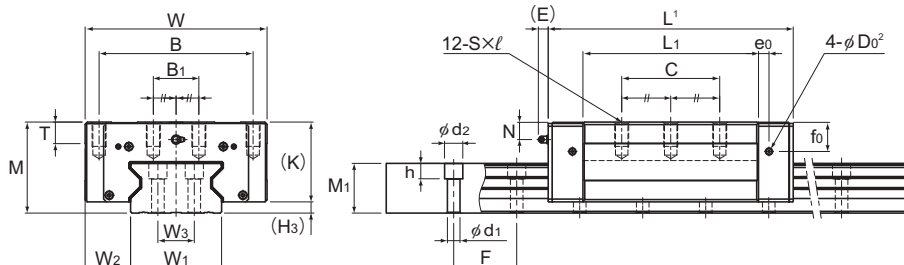
Model No.	Outer dimensions			LM block dimensions										Pilot hole for side nipple			H ₃
	Height	Width	Length ¹														
	M	W	L	B	B ₁	C	S × l	L ₁	T	K	N	E	Grease nipple	e ₀	f ₀	D ₀ ²	
SRW 70LR	70	135	190	115	34	80	M10×20	142	20	62	20	16	B-PT1/8	7	19	5.2	8
SRW 85LR	80	165	235	140	40	95	M12×19	179.2	28	70	22	16	B-PT1/8	9	19.5	5.2	10
SRW 100LR	100	200	303	172	50	110	M14×20	229.8	20	88.5	27	16	B-PT1/8	9	26	5.2	11.5
SRW 130LR	130	260	350	220	65	140	M20×35	250.8	30	114	25	16	B-PT1/8	15	42	8.2	16
SRW 150LR	150	300	395	260	75	200	M20×40	280.2	35	134	28.8	16	B-PT1/4	15	53	8.2	16

Model number coding

SRW70LR	2	QZ	KKHH	C0	+1200L	P	Z	T	-II
Model number	No. of LM blocks used on the same rail	With QZ Lubricator	Contamination protection accessory symbol	Radial clearance symbol Normal (No symbol) Light preload (C1) Medium preload (C0)	LM rail length (in mm)	Accuracy symbol Precision grade (P)/Super precision grade (SP) Ultra precision grade (UP)	With plate cover	Symbol for LM rail jointed use	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 **A1-75** for radial clearance symbol, See **A1-79** for accuracy symbol. See **A1-13** for symbol for number of rails used on the same plane.



Models SRW130 and 150LR

Unit: mm

	LM rail dimensions							Basic load rating ¹		Static permissible moment kN·m ⁵					Mass	
	Width W ₁ 0 -0.05	W ₂	W ₃	Height M ₁	Pitch F	d ₁ ×d ₂ ×h	Length ³ Max	C kN	C ₀ kN						LM block kg	LM rail kg/m
										1 block	2 blocks	1 block	2 blocks			
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

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 D₀ are the pilot holes for when a grease nipple is desired for a product with LaCS or a QZ Lubricant.

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 **A1-466**.)

⁴ 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.

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

C₅₀ : The basic dynamic load rating for a nominal load of 50 km

C : The basic dynamic load rating in the dimensional table

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 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**)

The removing/mounting jig is not provided as standard. To obtain one, please contact THK.

Standard Lengths and Maximum Lengths of LM Rails

Table 4 shows the standard lengths and the maximum lengths of model SRW variations. If the maximum length of the desired LM rail exceeds these values, jointed rails will be used.

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.

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.

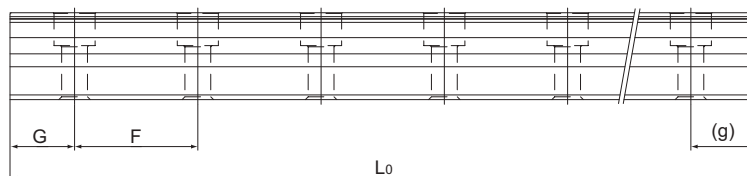


Table 4: Standard Lengths and Maximum Lengths of LM Rails for Model SRW

Unit: mm

Model No.	SRW 70	SRW 85	SRW 100	SRW 130	SRW 150
LM rail standard lengths (L_0)	570	780	1270	1530	1340
	675	900	1570	1890	1760
	780	1020	2020	2250	2180
	885	1140	2620	2610	2600
	990	1260			
	1095	1380			
	1200	1500			
	1305	1620			
	1410	1740			
	1515	1860			
	1620	1980			
	1725	2100			
	1830	2220			
	1935	2340			
	2040	2460			
	2145	2580			
	2250	2700			
	2355	2820			
	2460	2940			
	2565	3060			
	2670				
	2775				
	2880				
	2985				
Standard pitch F	52.5	60	75	90	105
G, g	22.5	30	35	45	40
Max length	3090	3060	3000	3000	3000

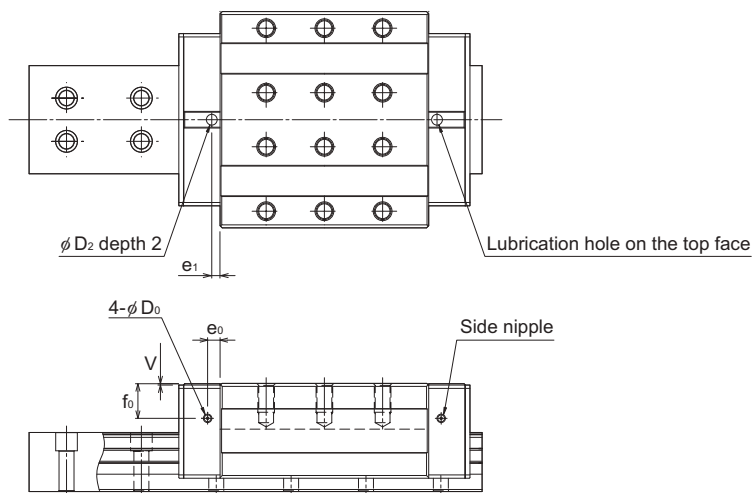
Notes: The maximum length varies with accuracy grades. Contact THK for details.

If jointed rails are not allowed and a greater length than the maximum values above is required, contact THK.

Lubrication Hole

Lubrication Hole for Model SRW

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



Unit: mm

Model No.		Pilot hole for side nipple			Applicable nipple	Lubrication 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

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