



Ultra-Low Waving Caged Ball LM Guide with ISO-Compliant Dimensions

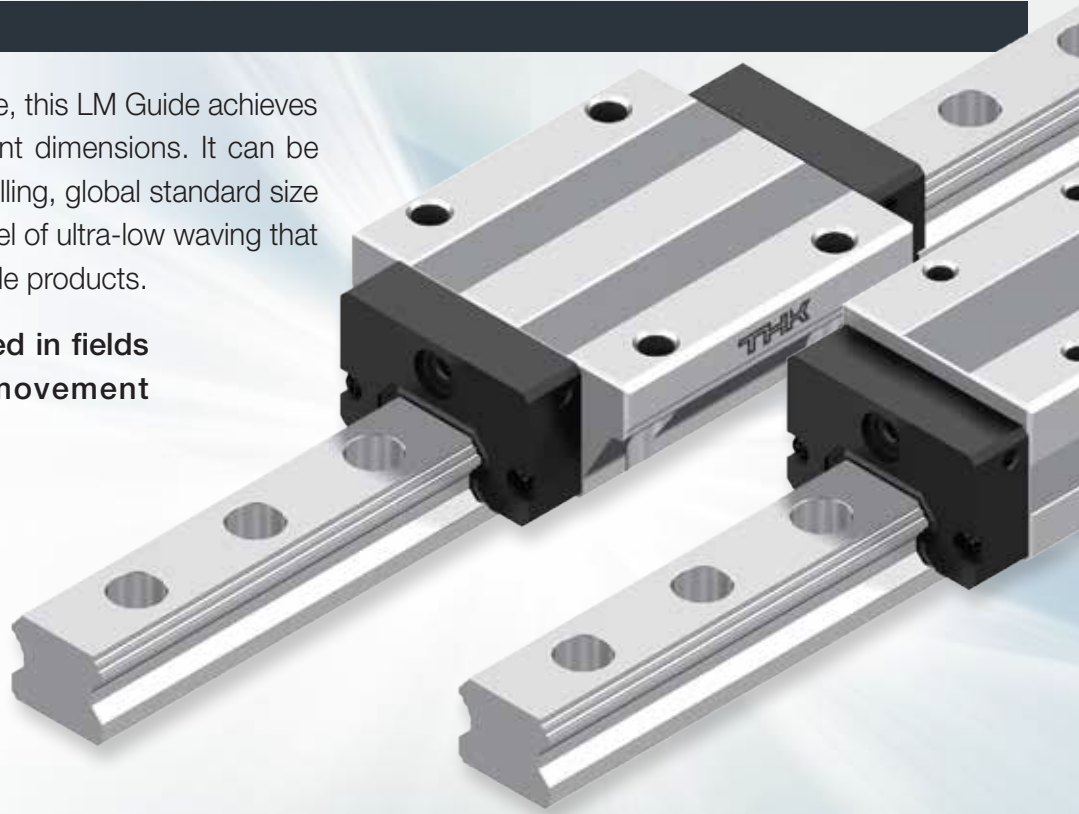


Ultra-Low Waving Caged Ball LM Guide with ISO-Compliant Dimensions

Structure and Features

Even with its eight-row structure, this LM Guide achieves globally standard ISO-compliant dimensions. It can be installed in place of our best-selling, global standard size Model SHS, and it boasts a level of ultra-low waving that is best in class among LM Guide products.

This model can also be used in fields where nanometer-level movement precision is required.

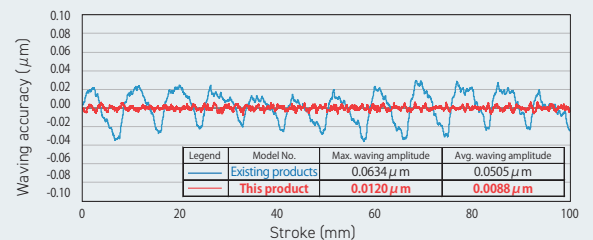


Ultra-low waving

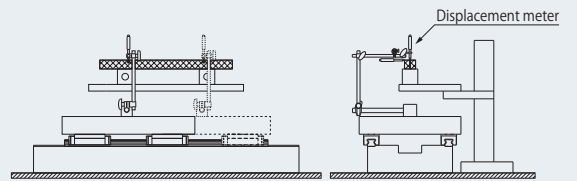
Achieves ultra-low waving on a nanoscopic scale, the finest level of precision available for THK products.



Waving Evaluation



Vertical direction/Straightness B/Measurement results



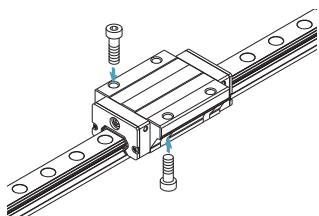
Straightness B measurement method

ISO-compliant dimensions

Dimensions conform to ISO specifications (ISO 12090-1:2011 Rolling Bearings) even with an eight-row structure.

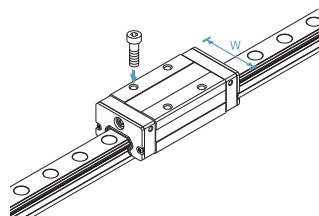
C/LC type

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.



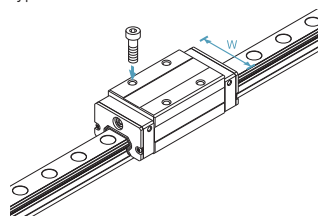
V/LV type

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.



R/LR type

With this type, the LM block has a smaller width (W) and tapped holes. It maintains the height dimension of the Full-Ball type LM Guide HSR-R.

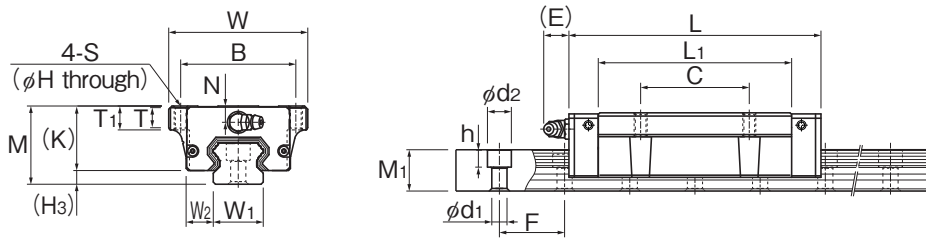


Lineup & Block type

Block type		25	30	35	45
Standard type	C	○	○	○	○
	V	○	○	○	○
	R	○	○	○	○
Long type	LC	○	○	○	○
	LV	○	○	○	○
	LR	○	○	○	○

Dimensional Tables

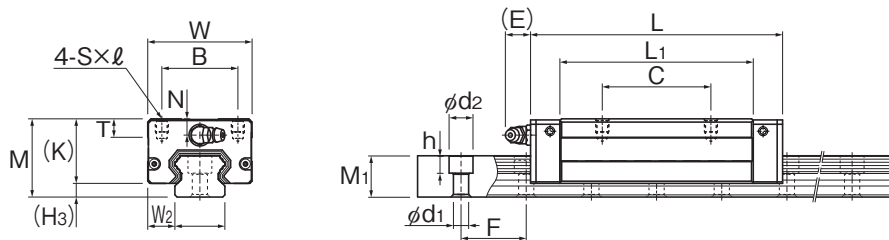
C/LC



Unit: mm

Model No.	Outer dimensions			LM block dimensions										H ₃	LM rail dimensions				
	Height M	Width W	Length L	B	C	S	H	L ₁	T	T ₁	K	N	E		Width W ₁ 0 -0.05	W ₂	Height M ₁	Pitch F	d ₁ ×d ₂ ×h
SPH25C SPH25LC	36	70	97.2 115	57	45	M8	6.8	70.2 88	10.6	12	30.2	7.4	12	5.8	23	23.5	20	30	7×11×9
SPH30C SPH30LC	42	90	111 137	72	52	M10	8.5	80 106	13	15	35	8	12	7	28	31	23	40	9×14×12
SPH35C SPH35LC	48	100	129.5 153.1	82	62	M10	8.5	93.7 117.3	13	15	40.5	9	12	7.5	34	33	26	40	9×14×12
SPH45C SPH45LC	60	120	153.6 189.6	100	80	M12	10.5	112.4 148.4	15.8	18	51.1	10.6	12	8.9	45	37.5	32	52.5	14×20×17

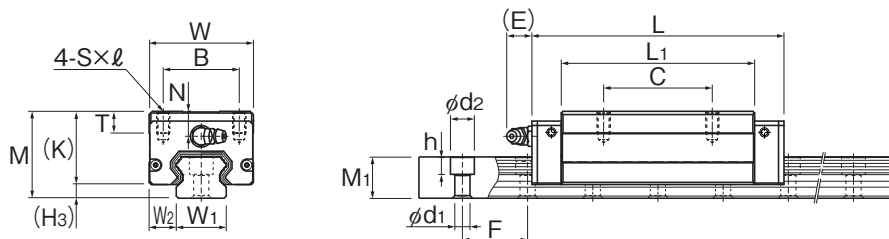
V/LV



Unit: mm

Model No.	Outer dimensions			LM block dimensions										H ₃	LM rail dimensions				
	Height M	Width W	Length L	B	C	S×ø	L ₁	T	K	N	E	Width W ₁ 0 -0.05	W ₂		Height M ₁	Pitch F	d ₁ ×d ₂ ×h		
SPH25V SPH25LV	36	48	97.2 115	35	35 50	M6×6.5	70.2 88	8	30.2	7.4	12	5.8	23	12.5	20	30	7×11×9		
SPH30V SPH30LV	42	60	111 137	40	40 60	M8×8	80 106	8	35	8	12	7	28	16	23	40	9×14×12		
SPH35V SPH35LV	48	70	129.5 153.1	50	50 72	M8×10	93.7 117.3	14.7	40.5	9	12	7.5	34	18	26	40	9×14×12		
SPH45V SPH45LV	60	86	153.6 189.6	60	60 80	M10×15	112.4 148.4	14.9	51.1	10.6	12	8.9	45	20.5	32	52.5	14×20×17		

R/LR



Unit: mm

Model No.	Outer dimensions			LM block dimensions										H ₃	LM rail dimensions				
	Height M	Width W	Length L	B	C	S×ø	L ₁	T	K	N	E	Width W ₁ 0 -0.05	W ₂		Height M ₁	Pitch F	d ₁ ×d ₂ ×h		
SPH25R SPH25LR	40	48	97.2 115	35	35 50	M6×8	70.2 88	8	34.2	11.4	12	5.8	23	12.5	20	30	7×11×9		
SPH30R SPH30LR	45	60	111 137	40	40 60	M8×10	80 106	8	38	11	12	7	28	16	23	40	9×14×12		
SPH35R SPH35LR	55	70	129.5 153.1	50	50 72	M8×12	93.7 117.3	14.7	47.5	16	12	7.5	34	18	26	40	9×14×12		
SPH45R SPH45LR	70	86	153.6 189.6	60	60 80	M10×17	112.4 148.4	14.9	61.1	20.6	12	8.9	45	20.5	32	52.5	14×20×17		

Accuracy Standards

The Ultra-Low Waving Caged Ball LM Guide is available in two accuracy grades. Accuracy standards are specified in terms of running parallelism,¹ dimensional tolerance for height and width, and height and width difference^{2,3} between a pair when two or more LM blocks are used on one rail, or when two or more rails are mounted on the same plane.

1: Running Parallelism

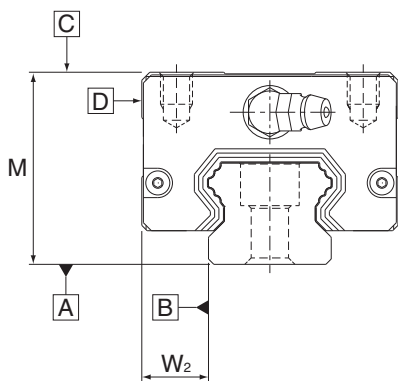
Running parallelism refers to the tolerance for parallelism between the LM block and the LM rail datum surface when the LM block travels the whole length of the LM rail with the LM rail bolted to a reference surface.

2: Difference in Height M

The difference in height M indicates the difference between the minimum and maximum values of the height (M) of each of the LM blocks used together on the same plane.

3: Difference in Width W₂

The difference in width W₂ indicates the difference between the minimum and maximum values of the width (W₂) between an LM rail and each of the LM blocks mounted together on the LM rail.



Accuracy Standards

Unit: mm

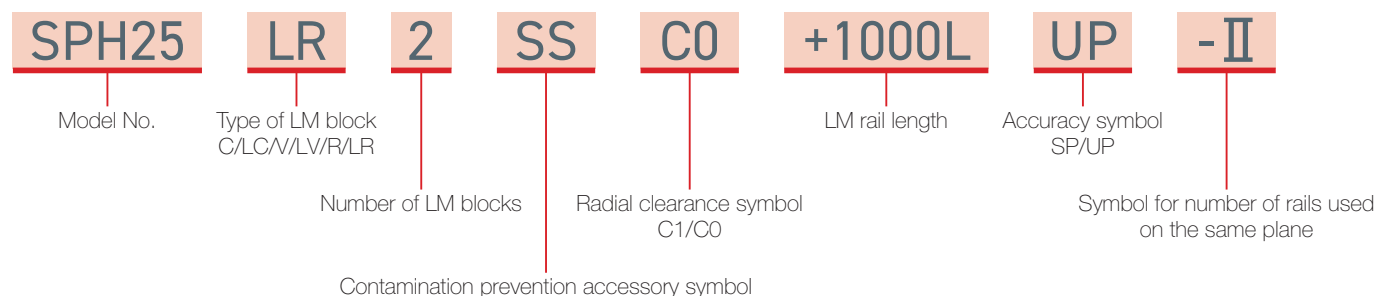
Model No.	Accuracy standard	Super precision grade	Ultra precision grade
	Item	SP	UP
25 30 35	Dimensional tolerance in height M	0 -0.02	0 -0.01
	Difference in height M	0.005	0.003
	Dimensional tolerance in width W ₂	0 -0.015	0 -0.01
	Difference in width W ₂	0.005	0.003
	Running parallelism of surface C against surface A	See table below	
	Running parallelism of surface D against surface B	See table below	
45	Dimensional tolerance in height M	0 -0.03	0 -0.015
	Difference in height M	0.005	0.003
	Dimensional tolerance in width W ₂	0 -0.025	0 -0.015
	Difference in width W ₂	0.005	0.003
	Running parallelism of surface C against surface A	See table below	
	Running parallelism of surface D against surface B	See table below	

LM Rail Length and Running Parallelism by Accuracy Standard

Unit: μm

LM rail length (mm)		Running parallelism value	
Above	Up to	Super precision grade	Ultra precision grade
		SP	UP
-	50	1.5	1
50	80	1.5	1
80	125	1.5	1
125	200	1.5	1
200	250	1.5	1
250	315	1.5	1
315	400	2	1.5
400	500	2.5	1.5
500	630	3	2
630	800	3.5	2
800	1000	4	2.5
1000	1250	4.5	3
1250	1600	5	4
1600	2000	5.5	4.5
2000	2500	6	5
2500	3090	6.5	5.5

Model Number Coding



Select an option

●“LM Guide” and “” are registered trademarks of THK CO., LTD.

- The actual products may differ from the pictures and photographs in this catalog.
- Outward appearances and specifications are subject to change without notice for the purpose of improvement. Please consult with THK before using.
- Although great care has been taken in the production of this catalog, THK will not take any responsibility for damage resulting from typographical errors or omissions.
- For exports of our products and technologies and sales for export, our basic policy is to comply with the Foreign Exchange and Foreign Trade Act and other laws and regulations. Please consult us in advance if you want to export our products by the piece.

All rights reserved

THK GmbH

European Headquarters

Kaiserswerther Straße 115 • 40880 Ratingen • Germany
Phone +49-2102-7425-0 • E-mail info.ehq@thk.eu
www.thk.com

©THK CO., LTD. 202401