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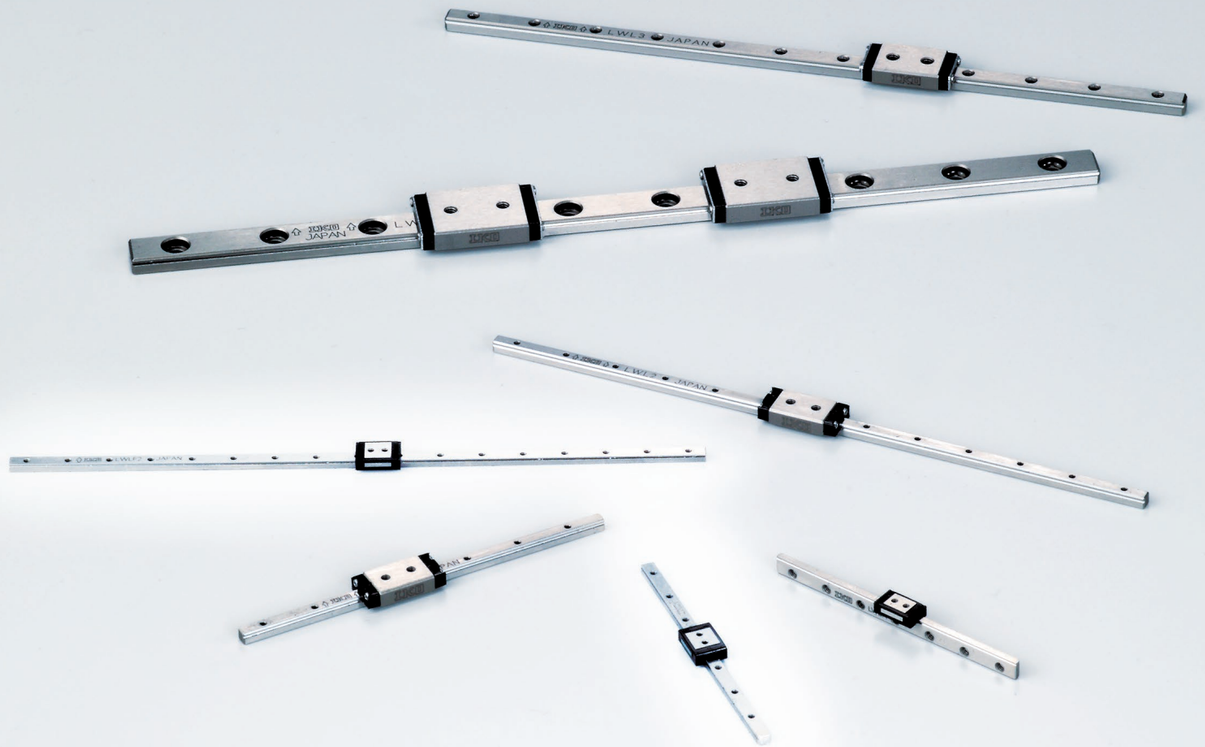
IKO

New

Micro Linear Way L

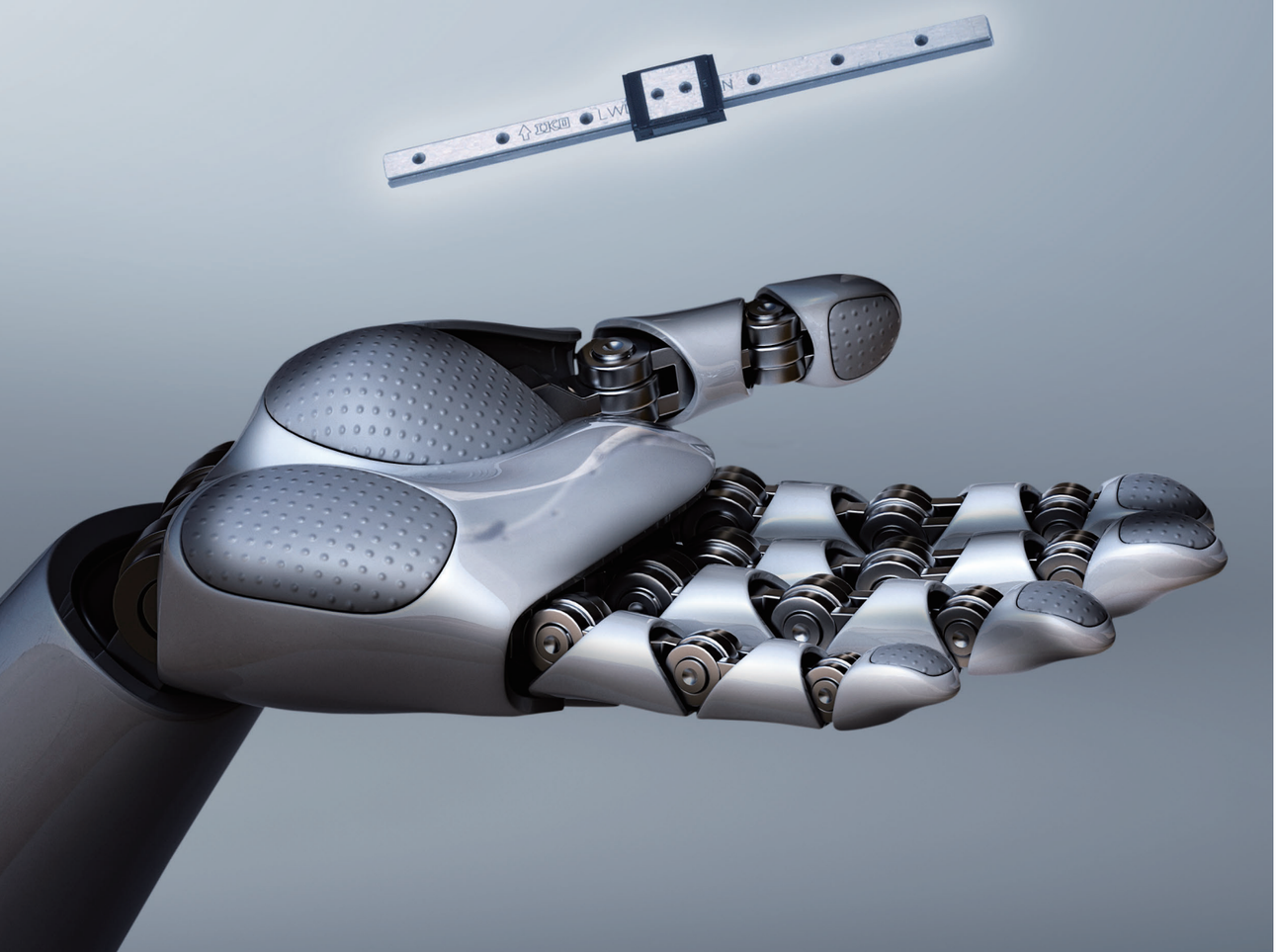
LWLF2

The smallest size available in the Linear Way L Series (wide rail type)



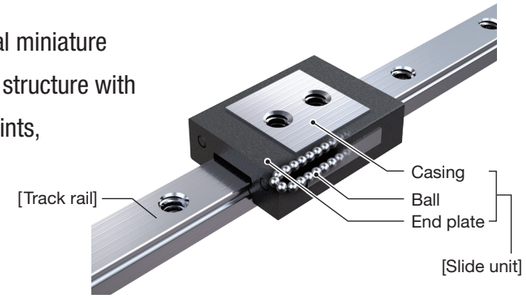
NIPPON THOMPSON CO., LTD.

HIGH PRECISION AND ULTRA SMALL SIZE



Structure

Ultra-small linear motion rolling guide produced by original miniature technology. Despite its very small body, and thanks to the structure with two rows of balls that contact with the raceway at four points, stable accuracy and rigidity can be achieved even in applications where load has variable direction and size or complex load is applied.



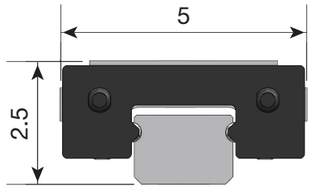
Features

1 Simple assembly

A tapped rail (mounted from the bottom) is used as the track rail for stability.

2 Ultra-small size

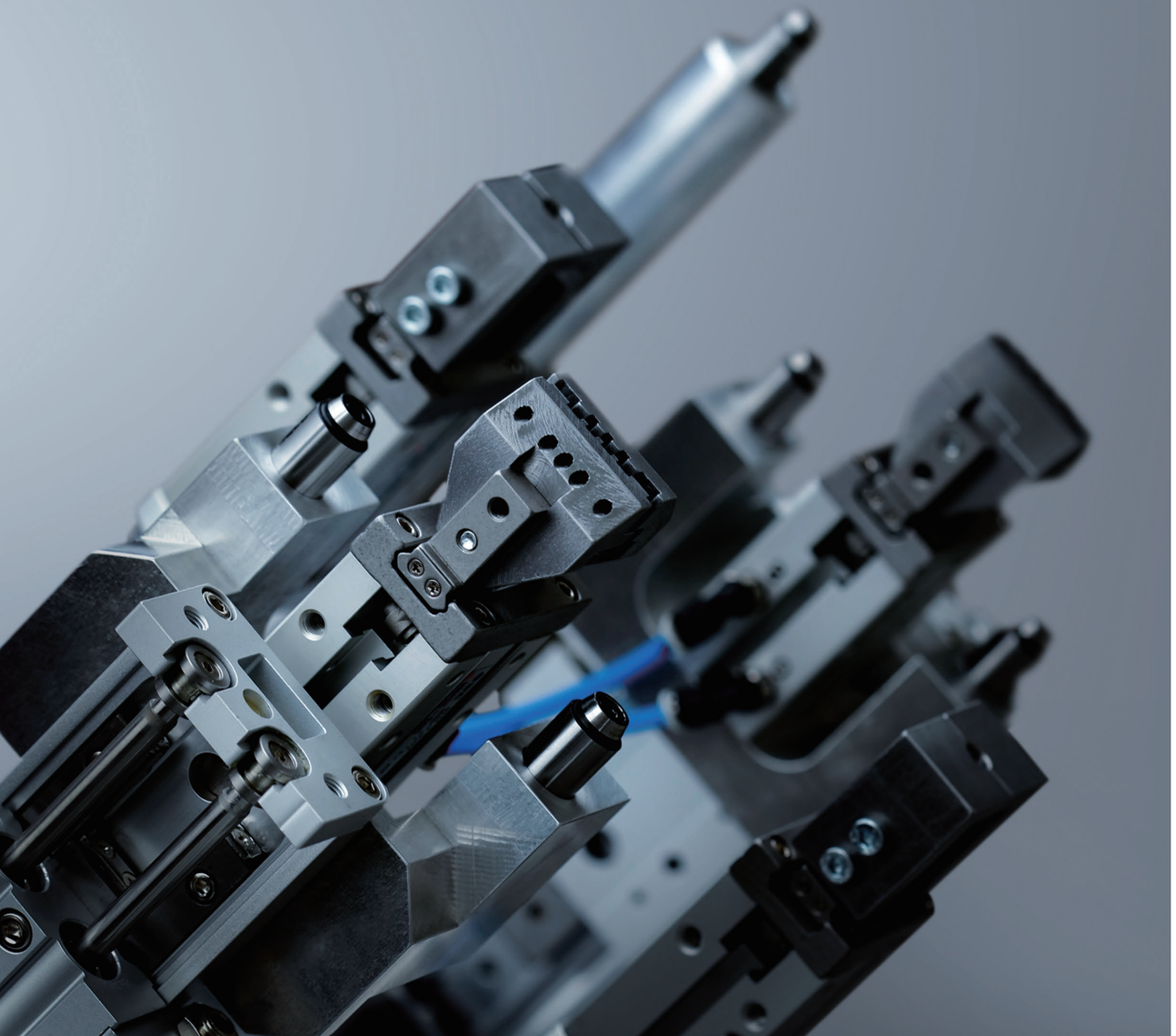
Original miniature technology provides the lowest sectional height in the industry.



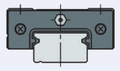
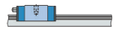
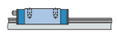
3 Stainless steel for excellent corrosion resistance

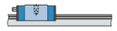
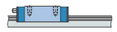
Stainless steel, which is highly resistant to corrosion, is used as the basic specification, making these products suitable for applications where rust prevention oil is not preferred, such as in a cleanroom environment.

FOR VARIOUS USES INCLUDING A GRIPPER



Models and Sizes

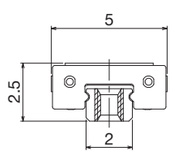
Shape	Length of slide unit	Model	Size								
			1(1)(2)	2(1)(3)	3(1)(3)	5	7	9	12	15	20	25
Standard type 	Short 	LWLC	—	—	☆	☆	☆	☆	☆	☆	☆	☆
	Standard 	LWL	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
	Long 	LWLG	—	—	—	—	☆	☆	☆	☆	☆	☆

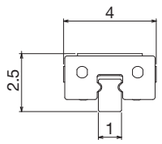
Shape	Length of slide unit	Model	Size								
			2(1)(3)	4 (1)	6 (1)	10	14	18	24	30	42
Wide rail type 	Short 	LWLFC	—	—	☆	☆	☆	☆	☆	☆	☆
	Standard 	LWLF New	☆	☆	☆	☆	☆	☆	☆	☆	☆
	Long 	LWLFG	—	—	—	—	☆	☆	☆	☆	☆

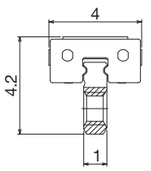
Notes (1) Balls are not retained. No end seal is attached.
(2) Either tapped rail specification (mounted from lateral) or solid rail specification is used for the track rail.
(3) Tapped rail specification (mounted from bottom) is used for the track rail.

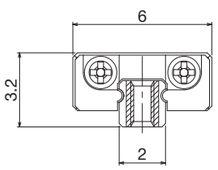
Remark: ▭ shows that there is interchangeable specification that allows free combination between slide units and track rails.

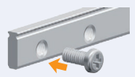
Micro Linear Way Specification Comparison









Identification number		LWLF2 New	LWL1	LWL1···Y	LWL2
Total height		2.5	2.5	4.2	3.2
Width	Slide unit [mm]	5	4	4	6
	Track rail [mm]	2	1	1	2
Mass	Slide unit [g]	0.21	0.16	0.16	0.9
	Track rail (per 100mm) [g]	2.0	1.0	2.1	2.8
Track rail model		Tapped rail specification mounted from bottom 	Solid rail specification (no mounting hole) 	Tapped rail specification mounted from lateral 	Tapped rail specification mounted from bottom 
Basic dynamic load rating C [N]		66.8	66.8	66.8	221
Basic static load rating C_0 [N]		113	113	113	381
Static moment rating	T_0 [N·m]	0.12	0.06	0.06	0.42
	T_X [N·m]	0.07	0.07	0.07	0.54
	T_Y [N·m]	0.09	0.09	0.09	0.64
Features		Compact at the same sectional height as LWL1, with excellent track rail mounting	The smallest Linear Way with a track rail width of only 1mm	Simple track rail mounting with the same width as LWL1	Minimal size with excellent load capacity

Identification number

Example

LWLF	2	C1	R18	T_0	H	/I
①	②	③	④	⑤	⑥	⑦

① Model

Model	
LWLF	Wide rail type

② Size

Size
2

③ Number of slide units

Number of slide units (C○)
Specifies the number of slide units assembled on one track rail.

④ Length of track rail

Length of track rail (R○)
Indicates the length of track rail in mm. For standard and maximum lengths, see Table 1.

⑤ Preload amount

Preload amount	
T_0: Clearance	For details of the preload amount, see Table 2.

⑥ Accuracy class

Accuracy class	
H: High	For details of accuracy class, see Table 3.
P: Precision	

⑦ Special Specification

Special Specification	
/E	Specified rail mounting hole positions
/I	Inspection sheet
/W	A group of multiple assembled sets

Details of specifications

Table 1 Standard and maximum lengths of track rail

unit: mm

Item \ Identification number		LWLF2
Standard length L (1)		18 (3) 30 (5) 42 (7) 54 (9)
Pitch of mounting holes F		6
E		3
Standard E dimensions	or higher	2.5
	below	5.5
Maximum length		102

Note (1) The value in ( ) indicates the number of mounting holes.

Remark: If not directed, E dimensions for both ends will be the same within the range of standard E dimensions. To change the dimensions, indicate the specified rail mounting hole positions /E of special specification.

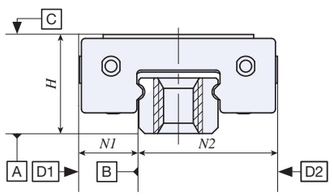
Table 2 Preload amount

unit: mm

Preload type (preload symbol)	Clearance (T_0)
Preload amount [N]	0 (1)
Operating conditions	Very light motion

Note (1) Zero or minimal clearance.

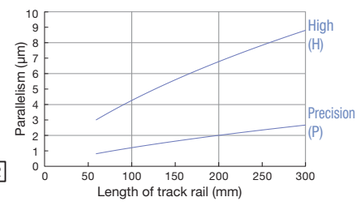
Table 3 Tolerance and allowance



Item \ Class (classification symbol)	High (H)	Precision (P)
H deviation	±0.020	±0.010
$N1$ and $N2$ deviation	±0.025	±0.015
H deviation variation (1)	0.015	0.007
N deviation variation (1)	0.020	0.010
Parallelism in operation of the slide unit C surface to A surface	See Fig. 1. (If the track rail length is less than 60mm, the value will be the same as 60mm)	
Parallelism in operation of the slide unit D1 (D2) surface to B surface	See Fig. 1. (If the track rail length is less than 60mm, the value will be the same as 60mm)	

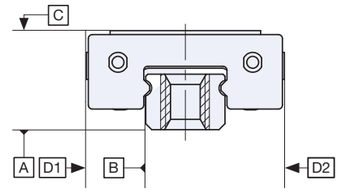
Note (1) The value shows variation of slide units incorporated in the same track rail.

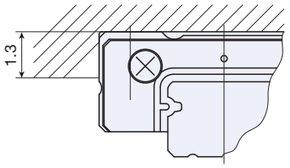
Fig. 1 Parallelism in operation



Mounting methods

Properly align the reference mounting surface B and D1 or D2 of the track rail and slide unit with the reference mounting surface of the table and bed, and fix them in place.
The reference mounting surfaces B and D1, and D2 and mounting surfaces A and C are precisely ground. Machining the mating mounting surface (of the machine, device, etc.) to a high degree of accuracy and mounting them properly will ensure stable linear motion with high accuracy.
The track rail reference mounting surface B is identified by the mark on the top surface of the track rail. It is the side surface above the mark (in the direction of the arrow).
The reference mounting surface of the slide unit is located at both right and left sides (D1 and D2).
It is recommended to add a shoulder to the mating reference mounting surface as shown in the figure to the right. The shoulder height of the track rail should be set to a position (height) where it does not interfere with the slide unit.
The recommended screw tightening torque when mounting the product to a steel mating member material is shown in the table below.
It is recommended to use a tightening torque of 70 to 80% of the value in the table for slide unit mounting holes.

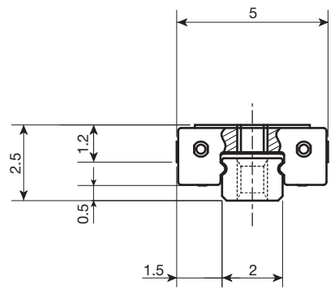


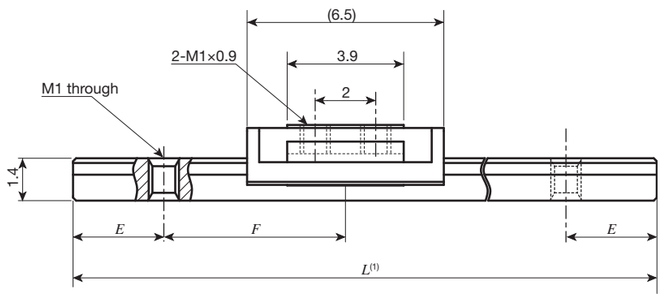


Mounting part of slide unit

Bolt size	Tightening torque N·m
	Stainless steel-made screw
M1 × 0.25	0.04

Product dimensions





Identification number	Mass (Ref.)		Mounting bolt for track rail	Basic dynamic load rating (3)	Basic static load rating (3)	Static moment rating (3)		
	Slide unit g	Track rail (per 100mm) g	mm (2)	C N	C_0 N	T_0 N·m	T_X N·m	T_Y N·m
LWLF2	0.21	2.0	M1× □ (4)	66.8	113	0.12	0.07 0.47	0.09 0.56

Note (1) The dimensions of track rail are described in Table 1.
(2) Track rail mounting bolts are not appended.
(3) The directional values for basic dynamic load rating (C), basic static load rating (C_0), and static moment rating (T_0, T_X, T_Y) are shown in the figures below.
The upper values of T_X and T_Y are for one slide unit, and the lower values are for two slide units in close contact.
(4) Concerning screw length □, prepare the screws whose fixing thread depth is less than the track rail height dimension.

Remarks (1) Balls are not retained. No end seal is attached.
(2) No oil hole is prepared. For re-greasing, apply the grease directly to the raceway of the track rail.