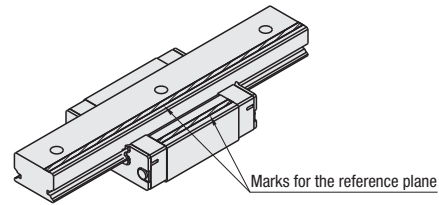


# Installation and Maintenance of Linear Guides

## Installation Method of Linear Guides

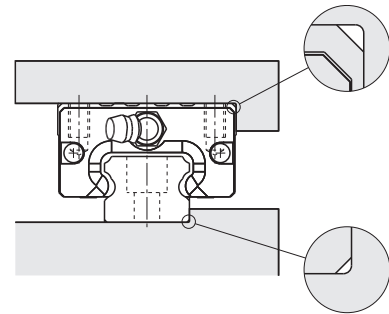
MISUMI Linear Guides have a datum surface (a surface with a straight groove) on both the rail and block. (Refer to the figure on right)

When installing Linear Guides, correctly align the datum of the guides and installation bases.



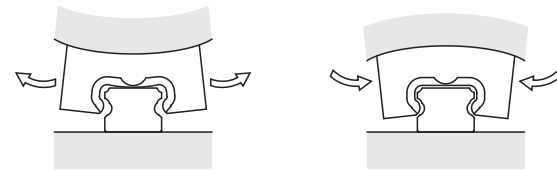
## Mounting Surface Shape

Linear Guides are designed to obtain accuracies when mounted on base plates. Generally, the datum plane is placed against the shoulder on the mounting surface. In that case, corners should have reliefs or corner radius should be machined smaller than chamfering of rails and blocks. See each product page for chamfering dimensions of products.



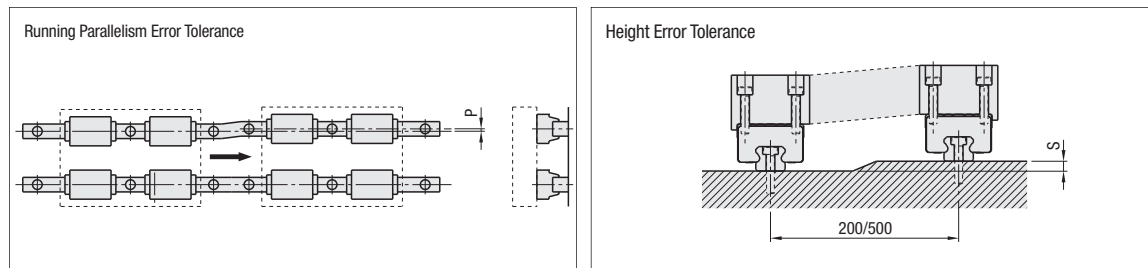
## Block Mounting Surface Flatness

Blocks may be deformed depending on the mounting surface flatness. Block deformation may cause clearance, which might give less/more preload and cause sliding defects. Securing 5μm mounting surface flatness is recommended.



## Installation Error Tolerance

•Installation Error Tolerance is the value which does not influence operating life under common usage.



Installation Error Tolerance

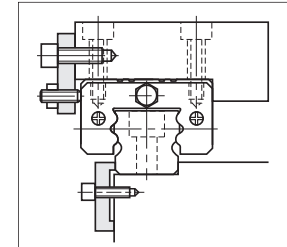
Type	Radial Clearance	Parallelism Error Tolerance of 2 Axis (P)	Height Error Tolerance of 2 Axis
Miniature Type	Light Preload	6μm or less	15μm or less / 200mm
	Interchangeable-Slight Clearance	10μm or less	30μm or less / 200mm
Medium and Heavy Load Type	Light Preload / Normal Clearance	20μm or less	330μm or less / 500mm

## Rail Installation

-When datum provided on installation bases

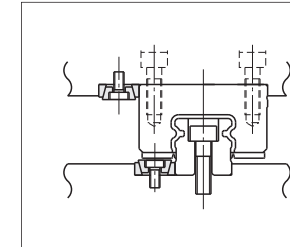
- (1) Remove burrs and dusts on the mating surfaces before installation.
- (2) Place a rail on the installation side of the base gently, and tighten the screws temporarily while pushing the rail against the datum shoulder.
- (3) Installation methods Figure 1-3 are recommended when using linear guides where shocks, vibrations and heavy loads may exist, and high precision is required.
- (4) Fully tighten the rail mounting screws to specified torque with a torque wrench. (See Table 1 for torque standards)

Fig. 1: Push plate method



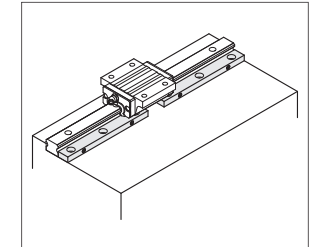
Refer to P584

Fig. 2: Taper gib method



Refer to P584

Fig. 3: Push screw method



Refer to P582

-When datum not provided on installation bases

Straight Gauge

- (1) Place a rail on the installation side of the base gently, and tighten the screws temporarily.
- (2) Place a straightedge parallel to the temporarily tightened rail.
- (3) Use the straightedge as a reference, snug down the screws while measuring the parallelism of the rail with a dial indicator as shown in Fig.4.
- (4) Fully tighten the rail mounting screws to specified torque with a torque wrench.
- (5)The secondary rail can be installed in the same straightedge method as the primary master rail, or by using the primary rail as a datum reference. In either method, use a dial indicator to measure the parallelism while the rail is being fastened down.

Fig. 4: Straightedge method

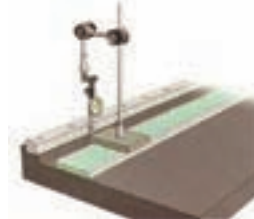


Fig. 5: Secondary rail mounting method



Table 1: Screw Tightening Torque (For SCM Material)

Type	Screw	Recommended Torque (N · m)
Miniature Type	M2	0.4
	M2.5	0.6
	M3	1.0
	M4	2.5
Medium and Heavy Load Type	M3	2.0
	M5	8.8
	M6	12.7
	M8	29.4

## Maintenance (Grease Application)

-Grease forms lubricating film between steel balls and rolling surface of linear guides. This reduces friction and prevents burns. Grease loss and deterioration will cause shorter life of linear guides. Apply grease appropriately depending on your condition of use.

Grease listed below is applied to MISUMI Linear Guides before shipping, and the products can be used out of box.

- Miniature Type: Filled with Lithium soap based grease (Multemp Grease PS2 by Kyodo Yushi Co., Ltd. ).
- Medium / Heavy Load type: Lithium soap based grease (Alvania Grease S2 by Showa Shell Sekiyu K.K.)

- Recommended Lubrication Intervals: Every 6 months

Every 3 months when travel distance is extensive, or every 1000km.

\*Recommended above is the grease application interval based on travel distance. If grease deterioration and contamination is severe in your operating condition, grease application intervals should be shortened.

- Lubrication Unit **MX** significantly extends lubrication intervals.

For details, refer to P494

