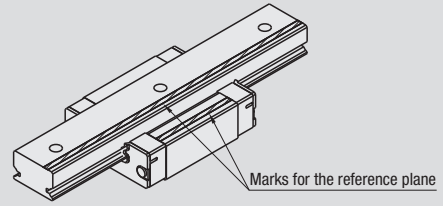


Installation & Maintenance of Linear Guides

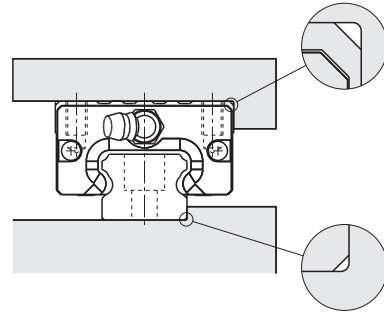
Installation Method of Linear Guides

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.



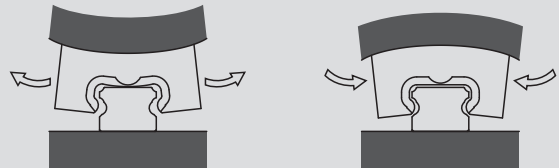
Mounting Surface Shape

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

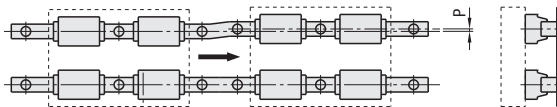
Blocks may be deformed depending on the mounting surface flatness. Block deformation may cause clearance, which might give less/more preload and cause sliding defects. Having 5 μm flatness for the mounting surface is recommended.



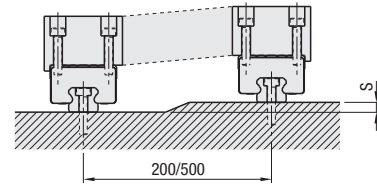
Installation Error Tolerance

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

Running Parallelism Error Tolerance



Height Error Tolerance



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

Installation & Maintenance of Linear Guides

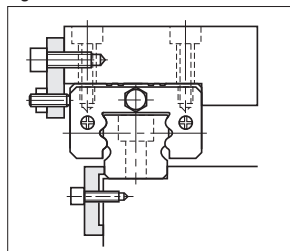
continued

Rail Installation

When datum provided on installation bases

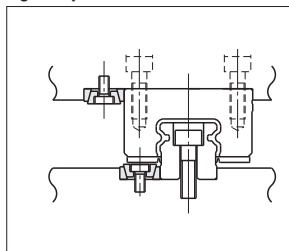
- (1) Remove burrs and dusts on the mating surfaces before installation.
- (2) Place a rail on the installation side of the base gently, and tighten the screws temporarily while pushing the rail against the datum shoulder.
- (3) Installation methods Figure 1–3 are recommended when using linear guides 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



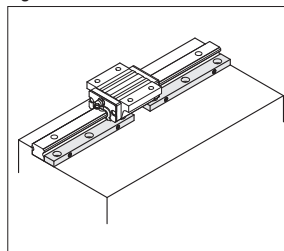
Refer to P.687

Fig. 2: Taper Gib Method



Refer to P.687

Fig. 3: Push Screw Method



Refer to P.685–686

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

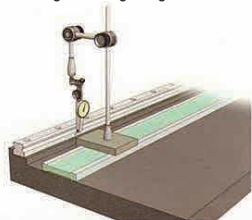


Fig. 5: Secondary rail mounting method

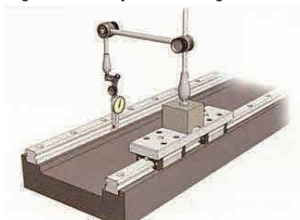


Table 1: Screw Tightening Torque (For Tightening into Steel Material)

| Type | Screw | Recommended Torque (N · m) |
|---------------------|-------|----------------------------|
| Miniature | M2 | 0.4 |
| | M2.5 | 0.6 |
| | M3 | 1.0 |
| | M4 | 2.5 |
| Medium & Heavy Load | 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 six months; Every three months when travel distance is extensive, or every 1,000 km.

*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 P.599.

