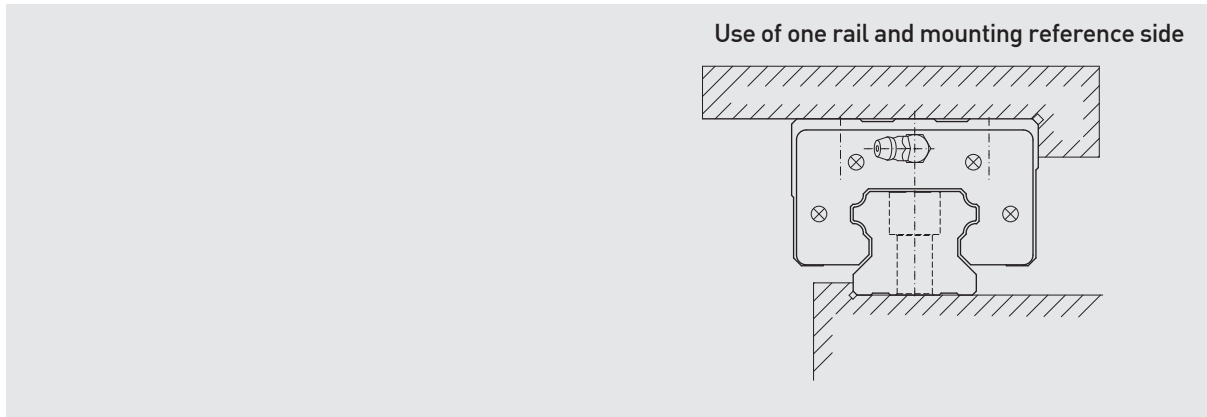
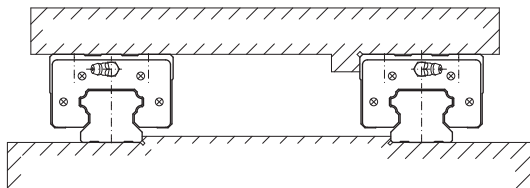


## 1-10 Mounting Configurations

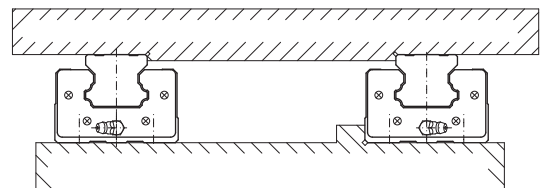
Linear guideways have equal load ratings in the radial, reverse radial and lateral directions. The application depends on the machine requirements and load directions. Typical layouts for linear guideways are shown below:



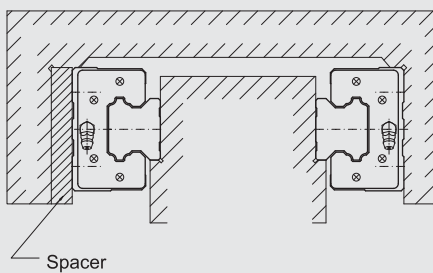
**use of two rails(block movement)**



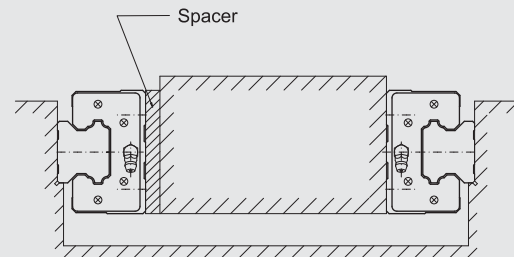
**use of two rails(block fixed)**



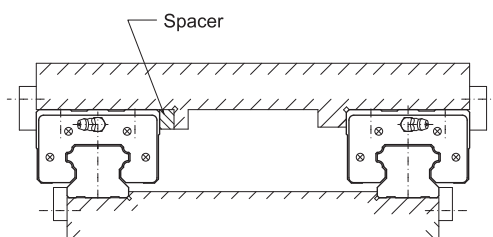
**use of two external rails**



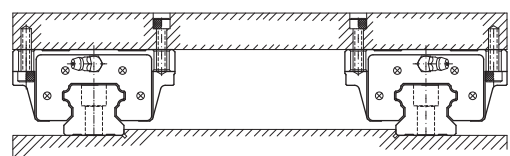
**use of two internal rails**



**total surface fixed installation**



**HGW type block with mounting holes in different directions.**

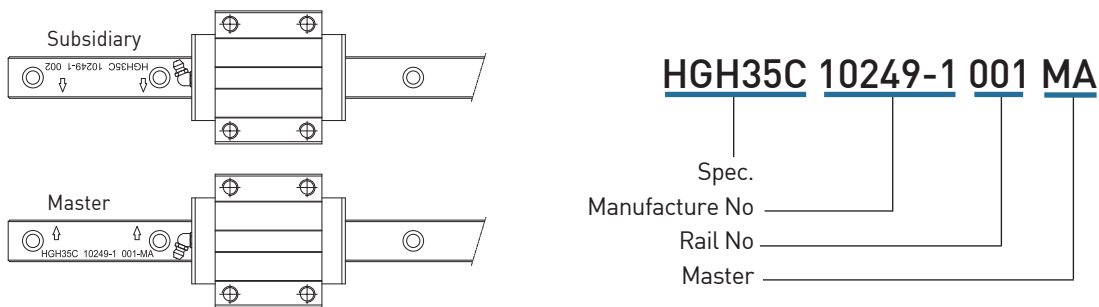


## 1-11 Mounting Procedures

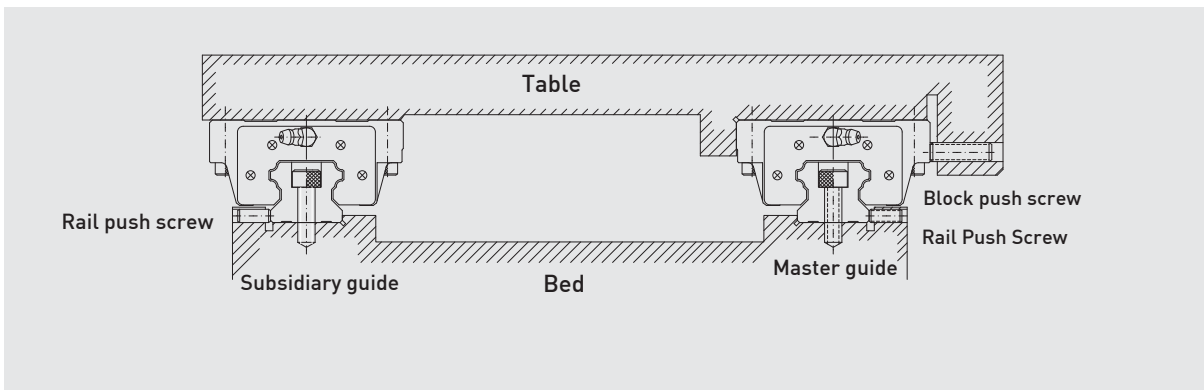
Three installation methods are recommended based on the required running accuracy and the degree of impacts and vibrations.

### 1-11-1 Master and Subsidiary Guide

For non-interchangeable type Linear Guideways, there are some differences between the master guide and subsidiary guide. The accuracy of the master guide's datum plane is better than the subsidiary's and it can be a reference side for installation. There is a mark "MA" printed on the rail, as shown in the figure below.

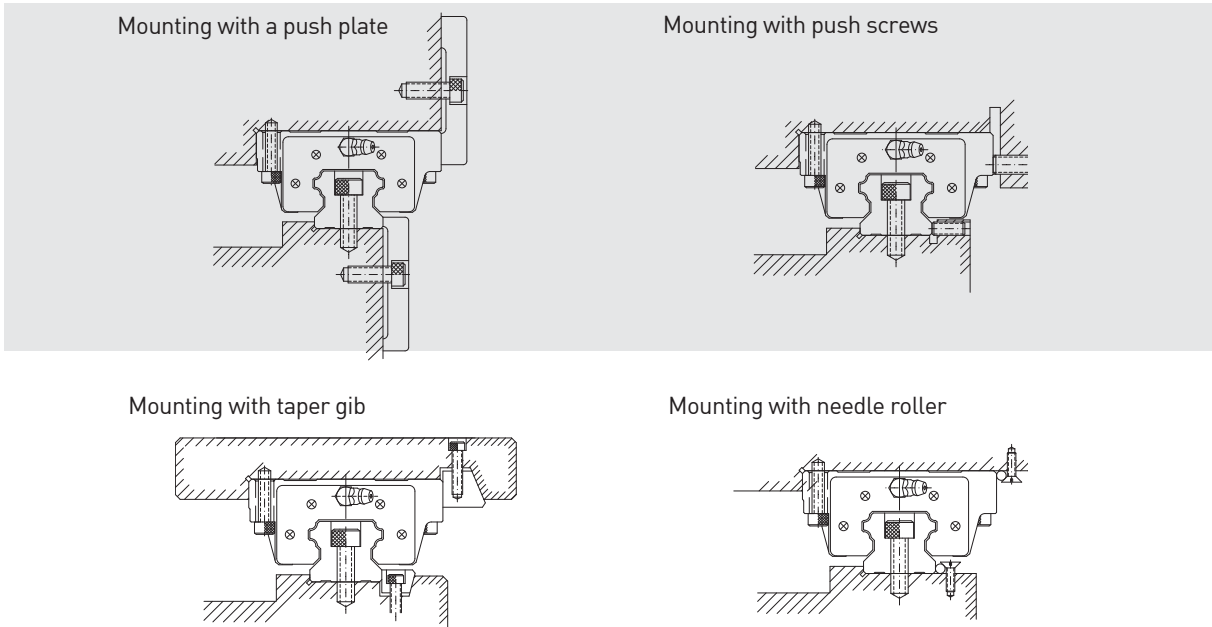


### 1-11-2 Installation to Achieve High Accuracy and Rigidity



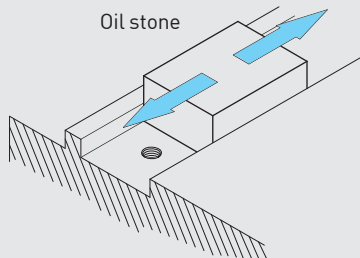
**(1) Mounting methods**

It is possible that the rails and the blocks will be displaced when the machine is subjected to vibrations and impacts. To eliminate these difficulties and achieve high running accuracy, the following four methods are recommended for fixing.

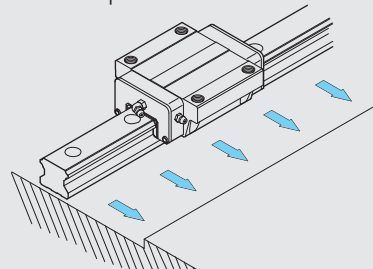


**(2) Procedure of rail installation**

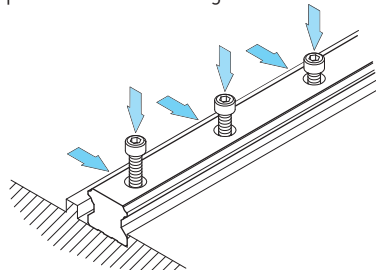
- 1 Before starting, remove all dirt from the mounting surface of the machine.



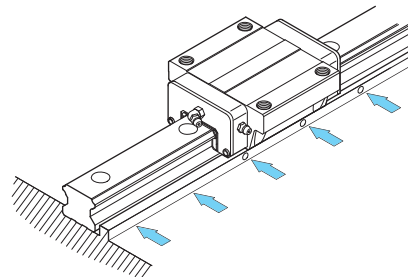
- 2 Place the linear guideway gently on the bed. Bring the guideway into close contact with the datum plane of the bed.



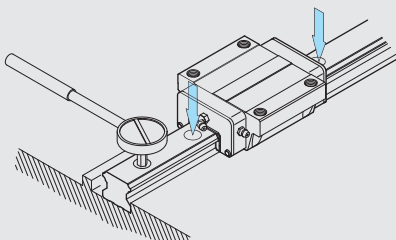
- 3 Check for correct thread engagement when inserting a bolt into the mounting hole while the rail is being placed on the mounting surface of the bed.



- 4 Tighten the push screws sequentially to ensure close contact between the rail and the side datum plane.

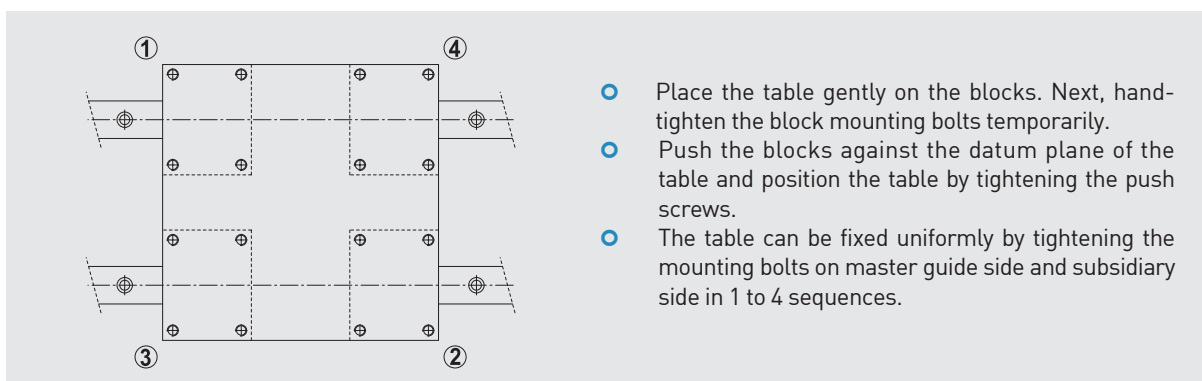


- 5 Tighten the mounting bolts with a torque wrench to the specified torque.



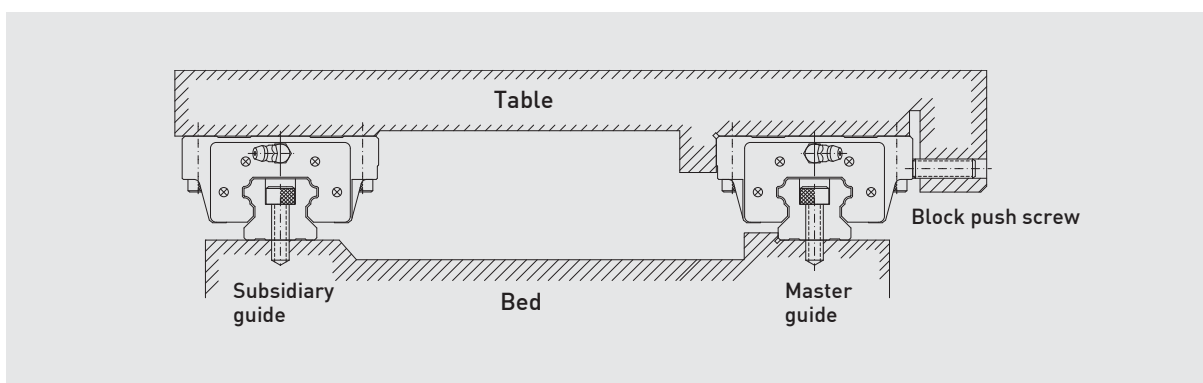
- 6 Install the remaining linear guideway in the same way.

### (3) Procedure of block installation

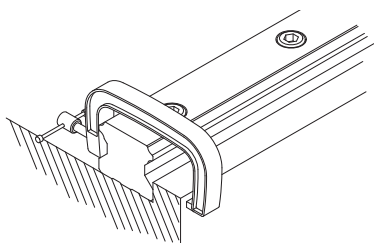


### 1-11-3 Installation of the Master Guide without Push Screws

To ensure parallelism between the subsidiary guide and the master guide without push screws, the following rail installation methods are recommended. The block installation is the same as mentioned previously.

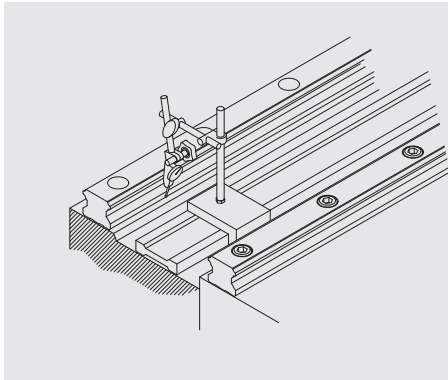


#### (1) Installation of the rail on the subsidiary guide side



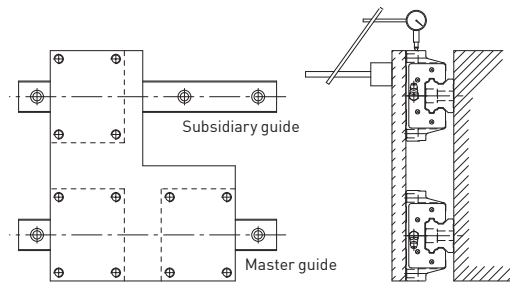
- **Using a vice**  
Place the rail into the mounting plane of the bed. Tighten the mounting bolts temporarily; then use a vice to push the rail against the side datum plane of the bed. Tighten the mounting bolts in sequence to the specified torque.

(2) Installation of the rail on the subsidiary guide side



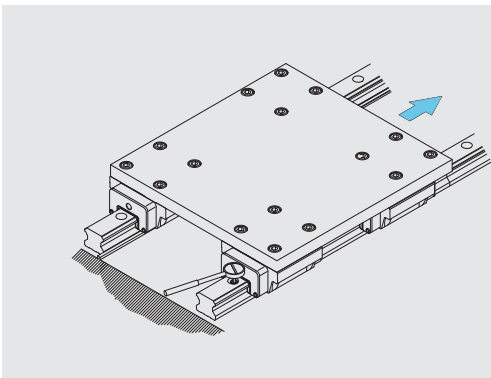
○ **Method with use of a straight edge**

Set a straight edge between the rails parallel to the side datum plane of the rail on the master guide side by using a dial gauge. Use the dial gauge to obtain the straight alignment of the rail on the subsidiary guide side. When the rail on the subsidiary guide side is parallel to the master side, tighten the mounting bolts in sequence from one end of the rail to the other.



○ **Method with use of a table**

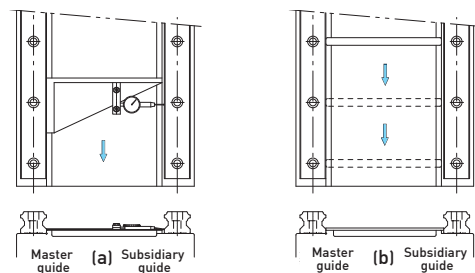
Fix two blocks on the master guide side to the table. Temporarily fix the rail and one block on the subsidiary guide side to the bed and the table. Fix a dial gauge stand on the table surface and bring it into contact with the side of the block on the subsidiary guide side. Move the table from one end of the rail to the other. While aligning the rail on the subsidiary side parallel to the rail on the master guide side, tighten the bolts in sequence.



○ **Method following the master guide side**

When a rail on the master guide side is correctly tightened, fix both blocks on the master guide side and one of the two blocks on the subsidiary guide side completely to the table.

When moving the table from one end of the rail, tighten the mounting bolts on the subsidiary guide side completely.

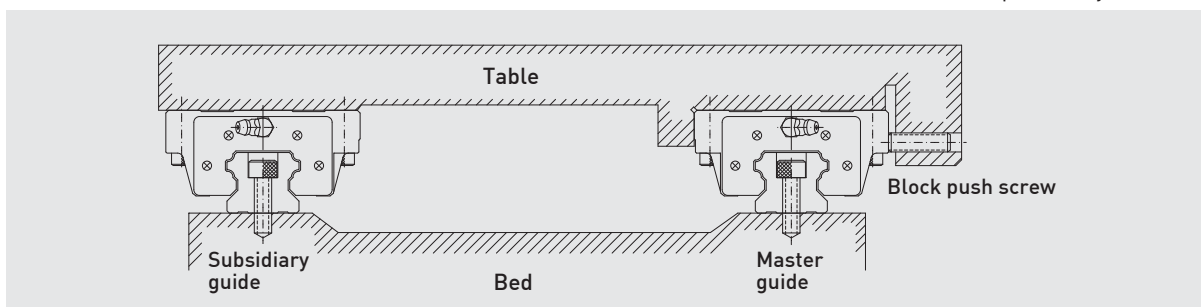


○ **Method with use of a jig**

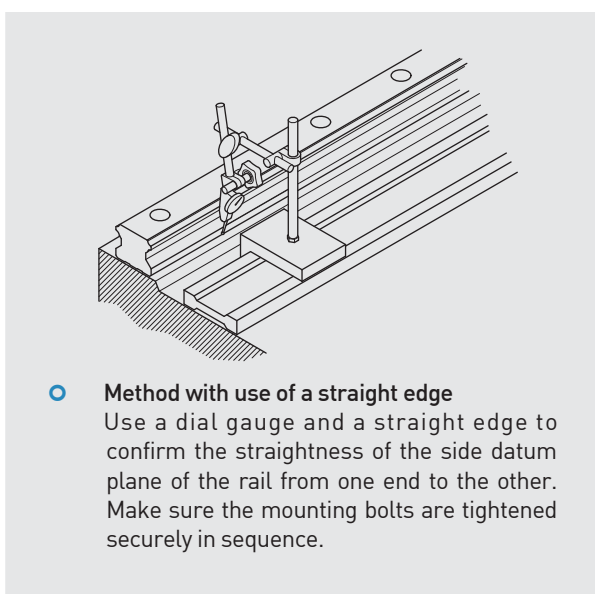
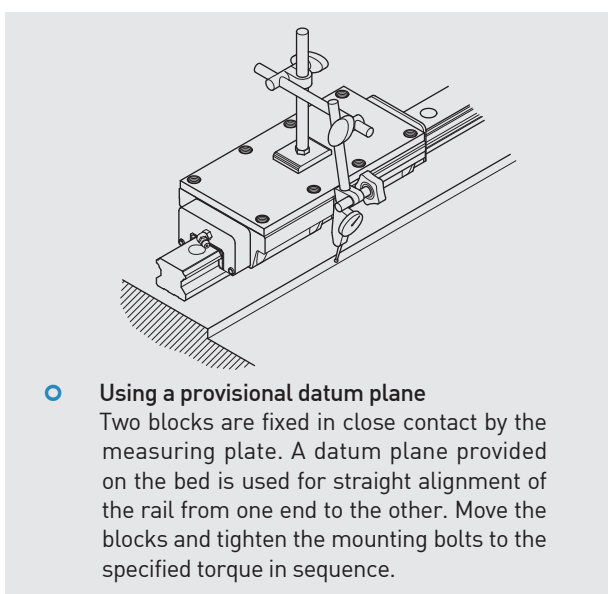
Use a special jig to ensure the rail position on the subsidiary guide side. Tighten the mounting bolts to the specified torque in sequence.

## 1-11-4 Installation Without Side Surface

To ensure parallelism between the subsidiary guide and the master guide when there is no side surface, the following rail installation method is recommended. The installation of the blocks is the same as mentioned previously.



### (1) Installation of the rail on the master guide side



### (2) Installation of the rail on the subsidiary guide side

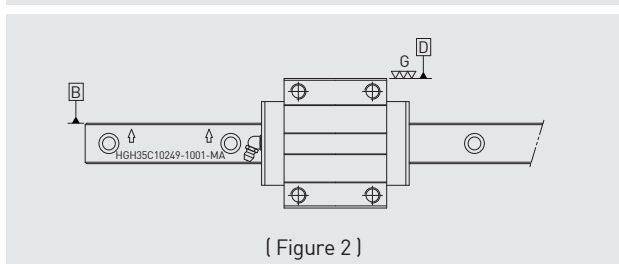
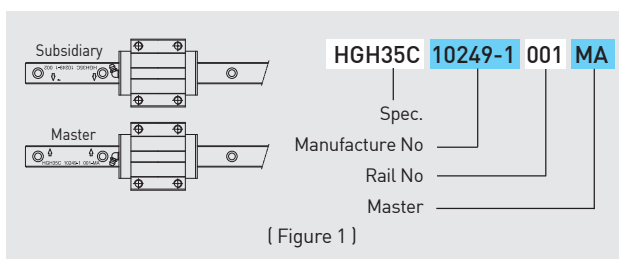
The method of installation for the rail on the subsidiary guide side is the same as the case without push screws.

## 1-11-5 Linear Guideway Mounting Notifications

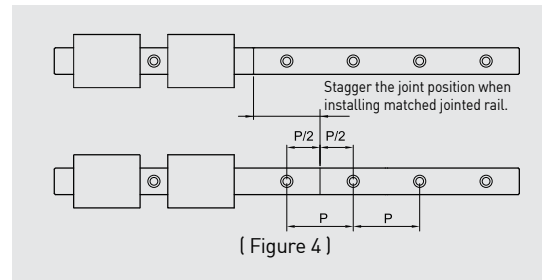
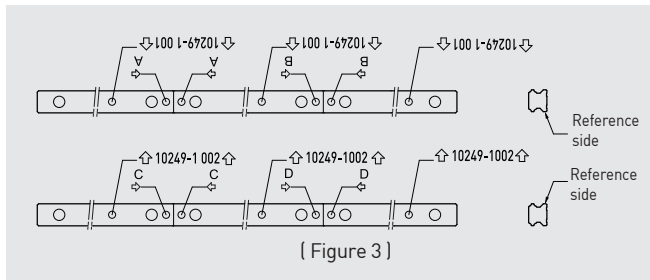
1. HIWIN guideways are applied with rust-proof oil before shipping. Please clean the oil before moving or running the blocks.

2. Recognition of master and subsidiary rails: For non-interchangeable type linear guideways, there are some differences between the master rail and subsidiary rail. The accuracy of the master rail's datum plane is better than the subsidiary's and it can be a reference side for installation. There is a mark "MA" printed on the rail. Check for the correct order before starting the installation. The rail number of master is an odd number and the rail number of subsidiary is an even number. Please install the rails according to the indication and carry on the installation according to the order for multi-rails installment (e.g.: 001 pairs 002 ; 003 pairs 004 etc.)

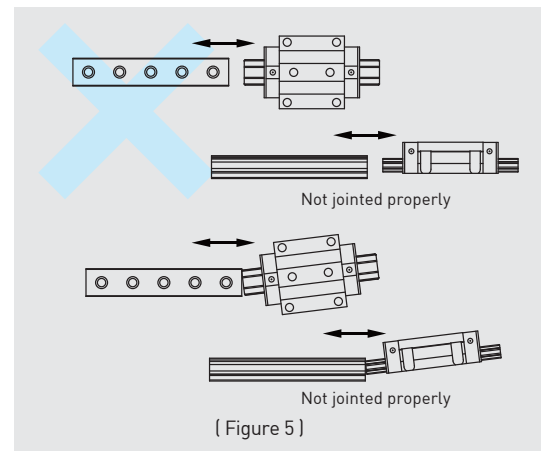
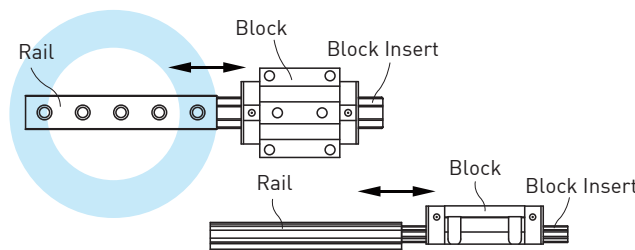
3. Recognition of datum plane: The datum plane [B] of rail is the side indicated by the arrow, which is marked on the top surface of the rail. The datum plane of block is smooth ground surface which shows as D in Figure 2.



4. Butt-joint rail: Butt-joint rail should be installed by following the arrow sign and ordinal number which is marked on the surface of each rail as shown in the figure 3. To avoid accuracy problems due to discrepancies between the 2 rails such as for matched pair, butt-joint rails, the jointed positions should be staggered as shown in figure 4.



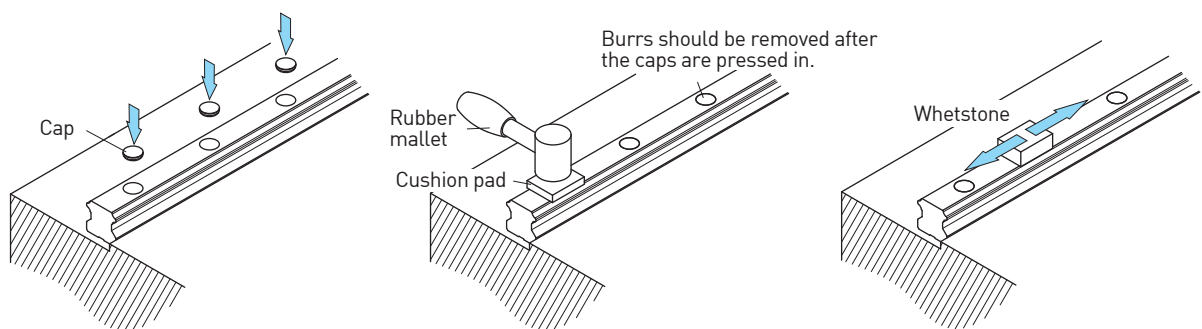
5. Do not remove blocks from rails when assembling the guideways. LiMo recommends using block inserts (please see Figure 5) if it is necessary to remove/ mount block from/ onto rail.



6. LiMo recommends not randomly mixing block units and rails for non interchangeable type to avoid any installation problem.  
 7. To ensure the straightness of rail, please tighten the mounting bolts sequentially with a torque wrench to the specified torque. (Refer to LiMo Technical Information).

### 1-11-6 Linear Guideway Usage Instructions

To ensure a long lifetime and running accuracy of the linear guideways after assembly, it is recommended to cover the rail roles with caps.



1. Put the caps into the bolt hole.
2. Use the cushion pad and rubber mallet to flush the caps and make it even with the bolt holes.
3. When the caps are fitted into the bolt holes, please smoothen the top surface of the cpas and make sure no burrs remained and not higher than the rail.

## 1-11-7 Linear Guideway Usage Instructions

1. Lubricate the blocks after assembling the guideways in machines. Use a lithium soap-base grease or oil.
2. The guideways are packaged with anti-corrosion oil before delivery. If the rails were cleaned before installation, remember to lubricate the rails after assembling the guideways in machine. (Please confirm the compatibility between lubricant & anti rust rail)
3. The blocks are composed of various plastic parts, please avoid prolonged exposure of these parts with any organic solvent when cleaning the blocks to prevent possible damage.
4. Try to avoid any foreign objects from getting into the block as this could result in damage to the product.
5. Please do not disassemble the parts, the incautious actions of disassembly may bring foreign objects into the block and diminish the precision of the guideways or cause possible damage.
6. When handling the guideways please hold them horizontally. Improper handling can cause the blocks to fall off the rail.
7. Please avoid the inappropriate falling or clash on the blocks, which will damage the function of guideways.
8. For special application conditions, please apply the appropriate surface treatment or refer to the Linear Guideway Technical Information catalog for more detailed instructions.
9. The operating temperature range of the E2 type (Self lubricant kit) is  $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$ . For Q1 types (Quiet linear guideway), the range is  $-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$ . The maximum service temperature of the SE type (Metallic end cap) is  $150^{\circ}\text{C}$  and for other standard types it is  $100^{\circ}\text{C}$ .
10. Please refer to the Linear Guideway Technical Information catalog for more detailed instructions. Please do not hesitate to contact HIWIN if there are further questions related to the application.

Note: For Q1 type guideways (QH & QE), please pay attention to the following instructions:

1. When assembling and disassembling the Q1 blocks, please use the block insert that is provided. (one block insert is equipped per block).
2. Special accessories are used in the Q1 type guideways, any adjustment on the preload is prohibited.
3. For some of our Q1 type Linear Guideways, the boreholes for fixing the slider on the block are connected with recirculation channels. Therefore please pay attention to the length of screws, to avoid the screw with longer length might interfere the recirculation parts and influence the operating performance.

Specification	Max. length of screws M x L (mm)
QHH20	M5 x 6
QHH25	M6 x 8
QHH30	M8 x 10
QHH35	M8 x 12
QEH20	M5 x 7
QEH25	M6 x 9
QEH30	M8 x 10
QWH27	M6 x 6
QWH35	M8 x 8

