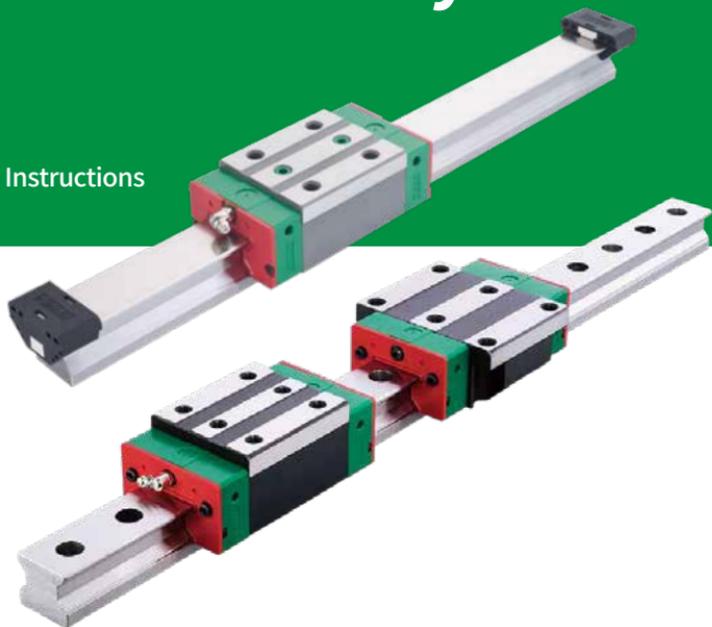


Linear Guideway

Installation Instructions



Linear Guideway

Installation Instructions

Index

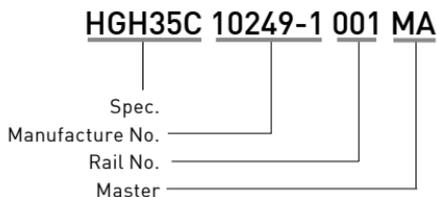
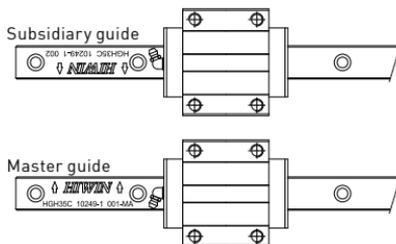
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1. Mounting Procedures

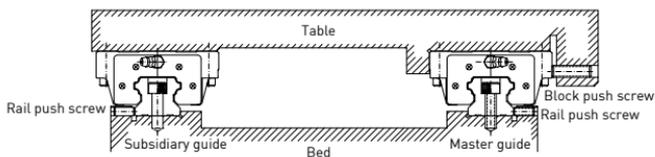
Three installation methods are recommended based on the required running accuracy and the degree of impacts and vibrations.

1-1 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" marked on the rail, as shown in the figure below.



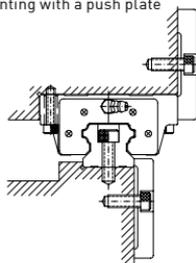
1-2 Installation to Achieve High Accuracy and Rigidity



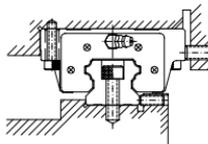
(1) Mounting methods

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.

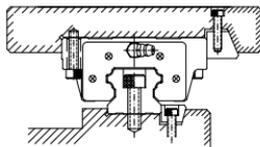
Mounting with a push plate



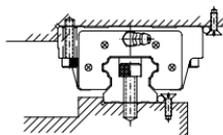
Mounting with push screws



Mounting with taper gib

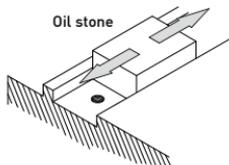


Mounting with needle roller

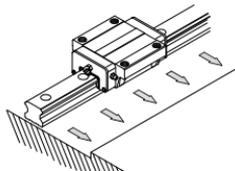


[2] Procedure of rail installation

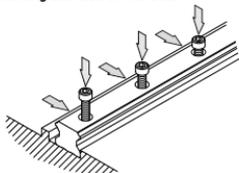
1. Before starting, remove all dirt from the mounting surface of the machine.



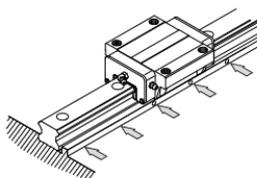
2. Place the linear guideway gently on the bed. Bring the guideway into close contact with the datum plane of the bed.



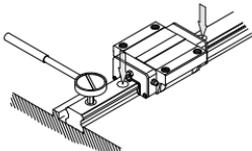
3. Check for correct thread engagement when inserting a bolt into the mounting hole while the rail is being placed on the mounting surface of the bed.



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



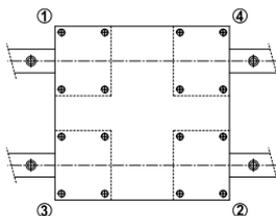
5. Tighten the mounting bolts with a torque wrench to the specified torque.



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

*Please refer to the table called "Mounting Torque of Rail Bolts for Installation" on page 14.

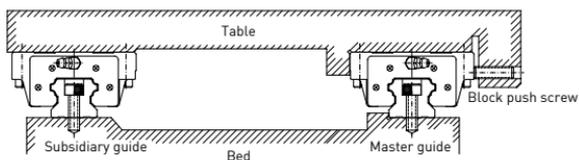
[3] Procedure of block installation



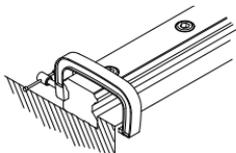
- Place the table gently on the blocks. Next, hand-tighten the block mounting bolts temporarily.
- Push the blocks against the datum plane of the table and position the table by tightening the push screws.
- The table can be fixed uniformly by tightening the mounting bolts on master guide side and subsidiary side in 1 to 4 sequences.

1-3 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.

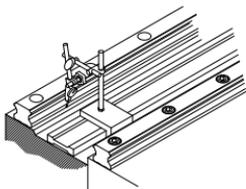


(1) Installation of the rail on the subsidiary guide side



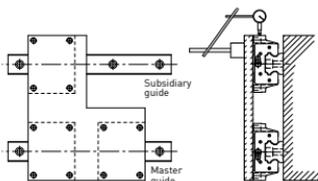
- Using a vice
Place the rail into the mounting plane of the bed. Tighten the mounting bolts temporarily; then use a vice to push the rail against the side datum plane of the bed. Tighten the mounting bolts in sequence to the specified torque.

[2] Installation of the rail on the subsidiary guide side



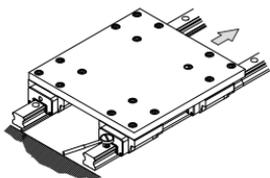
○ Method with use of a straight edge

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.



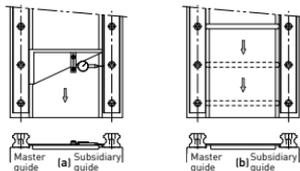
○ Method with use of a table

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.



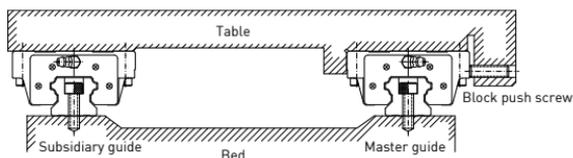
○ Method with use of a jig

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

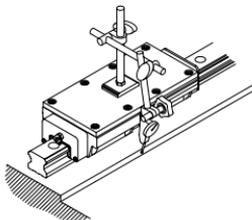
*Please refer to the table called "Mounting Torque of Rail Bolts for Installation" on page 14.

1-4 Installation Without Side Surface

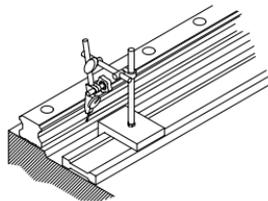
To ensure parallelism between the subsidiary guide and the master guide when there is no side surface, the following rail installation method is recommended. The installation of the blocks is the same as mentioned previously.



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



- Using a provisional datum plane
Two blocks are fixed in close contact by the measuring plate. A datum plane provided on the bed is used for straight alignment of the rail from one end to the other. Move the blocks and tighten the mounting bolts to the specified torque in sequence.



- Method with use of a straight edge
Use a dial gauge and a straight edge to confirm the straightness of the side datum plane of the rail from one end to the other. Make sure the mounting bolts are tightened securely in sequence.

*Please refer to the table called "Mounting Torque of Rail Bolts for Installation" on page 14.

(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.

1-5 Linear Guideway Mounting Notifications

1. HIWIN guideways are supplied with a coating of anti-corrosion oil before being shipped. 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" marked 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.)

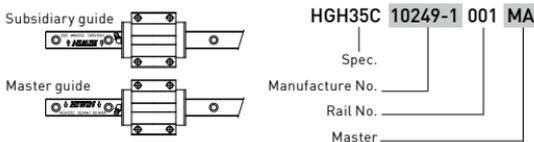


Figure 1

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.

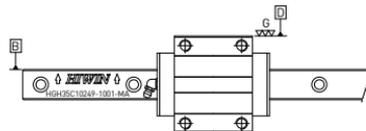


Figure 2

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.

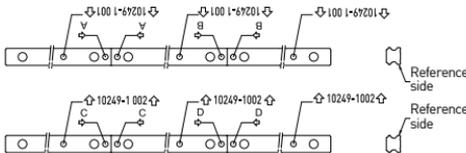


Figure 3

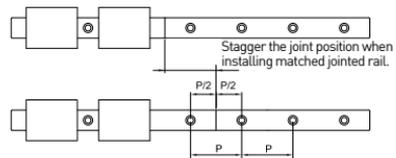


Figure 4

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

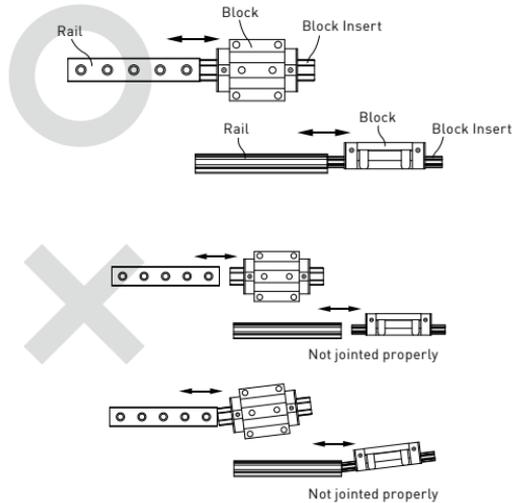
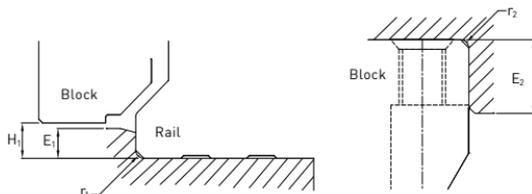
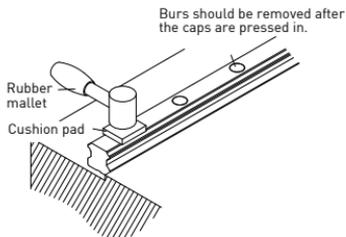
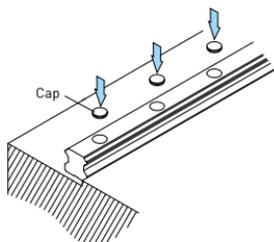


Figure 5

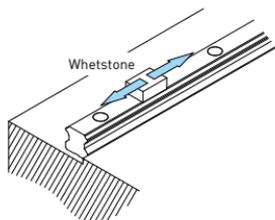
6. Improper shoulder heights and chamfers of mounting surfaces will cause deviations in accuracy and rail or block interference with the chamfered part. When recommended shoulder heights and chamfers are used, problems with installation accuracy should be eliminated.



7. To ensure the lifetime and running accuracy of the linear guideways after assembled on the machine bed, mount caps to prevent dust from entering the blocks.



- Put the caps into the bolt hole
- Cushion pad (such as: flat copper or metal plate) pad should be placed on the caps and use the rubber mallet pressing the caps into the bolt hole. Make sure the caps and rails on the same surface and the burs should be removed.



- When the caps are fitted into the bolt holes, please smooth the top surface of the caps and make sure no burs remained and not higher than the rail.

Table 1. Shoulder Heights and Fillets of HG series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
HG15	0.5	0.5	3.0	4.0	4.3
HG20	0.5	0.5	3.5	5.0	4.6
HG25	1.0	1.0	5.0	5.0	5.5
HG30	1.0	1.0	5.0	5.0	6.0
HG35	1.0	1.0	6.0	6.0	7.5
HG45	1.0	1.0	8.0	8.0	9.5
HG55	1.5	1.5	10.0	10.0	13.0
HG65	1.5	1.5	10.0	10.0	15.0

Table 2. Shoulder Heights and Fillets of EG series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
EG15	0.5	0.5	2.7	5.0	4.5
EG20	0.5	0.5	5.0	7.0	6.0
EG25	1.0	1.0	5.0	7.5	7.0
EG30	1.0	1.0	7.0	7.0	10.0
EG35	1.0	1.0	7.5	9.5	11.0

Table 3. Shoulder Heights and Fillets of WE series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
WE17	0.4	0.4	2.0	4.0	2.5
WE21	0.4	0.4	2.5	5.0	3.0
WE27	0.5	0.4	3.0	7.0	4.0
WE35	0.5	0.5	3.5	10.0	4.0
WE50	0.8	0.8	6.0	10.0	7.5

Table 4. Shoulder Heights and Fillets of QH series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
QH15	0.5	0.5	3.0	4.0	4.0
QH20	0.5	0.5	3.5	5.0	4.6
QH25	1.0	1.0	5.0	5.0	5.5
QH30	1.0	1.0	5.0	5.0	6.0
QH35	1.0	1.0	6.0	6.0	7.5
QH45	1.0	1.0	8.0	8.0	9.2

Table 5. Shoulder Heights and Fillets of QE series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
QE15	0.5	0.5	2.7	5.0	4.0
QE20	0.5	0.5	5.0	7.0	6.0
QE25	1.0	1.0	5.0	7.5	6.2
QE30	1.0	1.0	7.0	7.0	10.0
QE35	1.0	1.5	7.5	9.5	11.0

Table 6. Shoulder Heights and Fillets of QW series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
QW17	0.4	0.4	2.0	4.0	2.5
QW21	0.4	0.4	2.5	5.0	3.0
QW27	0.5	0.4	2.5	7.0	4.0
QW35	0.5	0.5	2.5	10.0	4.0

Table 7. Shoulder Heights and Fillets of CG series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
CG15	0.5	0.5	3.0	4.0	4.3
CG20	0.5	0.5	3.5	5.0	4.6
CG25	1.0	1.0	5.0	5.0	5.5
CG30	1.0	1.0	5.0	5.0	6.0
CG35	1.0	1.0	6.0	6.0	7.5
CG45	1.0	1.0	8.0	8.0	9.5

Table 8. Shoulder Heights and Fillets of RG series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
RG15	0.5	0.5	3.0	4.0	4.0
RG20	0.5	0.5	3.5	5.0	5.0
RG25	1.0	1.0	5.0	5.0	5.5
RG30	1.0	1.0	5.0	5.0	6.0
RG35	1.0	1.0	6.0	6.0	6.5
RG45	1.0	1.0	7.0	8.0	8.0
RG55	1.5	1.5	9.0	10.0	10.0
RG65	1.5	1.5	10.0	10.0	12.0

Table 9. Shoulder Heights and Fillets of QR series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
QR20	0.5	0.5	3.5	5	5
QR25	1.0	1.0	5	5	5.5
QR30	1.0	1.0	5	5	6
QR35	1.0	1.0	6	6	6.5
QR45	1.0	1.0	7	8	8

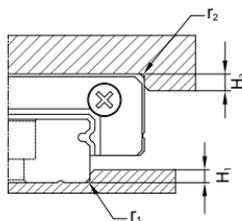


Table 10. Shoulder Heights and Fillets of MG series

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height H_1 (mm)	Shoulder height H_2 (mm)
MGN2	0.1	0.2	0.5	1.5
MGN3	0.1	0.2	0.6	1.5
MGN5-O	0.1	0.2	1.2	2
MGN7(-O)	0.2	0.2	1.2	3
MGN9(-O)	0.2	0.3	1.7	3
MGN12(-O)	0.3	0.4	1.7	4
MGN15(-O)	0.5	0.5	2.5	5
MGW2	0.1	0.2	0.6	1.5
MGW3	0.1	0.2	0.6	2
MGW5-O	0.1	0.2	1.2	2
MGW7(-O)	0.2	0.2	1.7	3
MGW9(-O)	0.3	0.3	2.5	3
MGW12(-O)	0.4	0.4	3	4
MGW14	0.4	0.4	3	5
MGW15(-O)	0.4	0.8	3	5

8. Please do not randomly mix block units and rails for non interchangeable type to avoid any installation problem.
9. To ensure the straightness of rail, please tighten the mounting bolts sequentially with a torque wrench to the specified torque.

Table 11. Mounting Torque of Rail Bolts for Installation

Bolt Size	Torque Iron N-cm(kgf-cm)	Torque Casting N-cm(kgf-cm)	Torque Aluminum N-cm(kgf-cm)
M2×0.4P	57(5.9)	39.2(4)	29.4(3)
M2.5×0.45P	118(12)	78.4(8)	58.5(6)
M3×0.5P	186(19)	127(13)	98(10)
M4×0.7P	392(40)	274(28)	206(21)
M5×0.8P	883(90)	588(60)	441(45)
M6×1P	1373(140)	921(94)	686(70)
M8×1.25P	3041(310)	2010(205)	1470(150)
M10×1.5 P	6760(689)	4510(460)	3330(339)
M12×1.75P	11772(1200)	7840(800)	5880(600)
M14×2P	15696(1600)	10500(1100)	7840(800)
M16×2P	19620(2000)	13100(1350)	9800(1000)

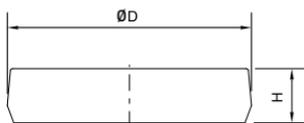


Table 12. Dimensions of Bolt Caps for Rail Mounting Holes

Bolt size	Diameter(D) (mm)	Thickness(H) (mm)	Rail size
M3	6.15	1.2	EGR15R, MGNR12R, MGNR15R
M4	7.65	1.1	HGR15R, EGR15U, WER17R, WER21R, WER27R, CGR15R, RGR15R
M4	8.15	2.2	MGWR12R, MGWR14, MGWR15R
M5	9.65	2.5	HGR20R, EGR20R, CGR20R, RGR20R
M6	11.15	2.5	HGR25R, EGR25R, EGR30R, CGR25R, RGR25R, WER35R
M8	14.20	3.5	HGR30R, HGR35R, EGR35R, EGR30U, CGR30R, CGR35R, WER50R, RGR30R, RGR35R
M12	20.25	4.5	HGR45R, CGR45R, RGR45R
M14	23.25	5.0	HGR55R, RGR55R
M16	26.35	5.0	HGR65R, RGR65R

2. Lubrication

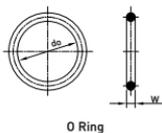
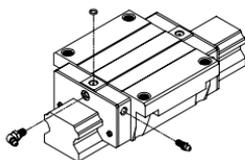
Supplying insufficient lubrication to the guideway will greatly reduce the service life due to an increase in rolling friction. The lubricant provides the following functions :

1. Reduces the rolling friction between the contact surfaces to avoid abrasion and surface burning of the guideway.
2. Generates a lubricant film between the rolling surfaces and decreases fatigue.
3. Anti-corrosion.

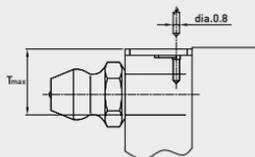
2-1 Grease

1. Grease is applied to the condition that speed do not exceed 60 m/min and cooling effect does not exist. It is possible to carry out the lubrication through the grease nipple.
2. Please check the lubrication condition every 100 km, or every 3-6 months.
3. The standard location of the grease fitting is at the both ends of the block. The grease nipple is for manually supplying oil. For HG, EG, WE, RG, CG series, the grease nipple can also be mounted on lateral side or top side of the end caps, in which case it is common to use straight type grease nipple. For lateral grease fitting installation, mounting the grease fitting at the non-reference side is recommended but not mandatory. Please contact HIWIN if there is a need for lateral grease fitting installation. In the case of lubricating from the top to the block, in which a small recess can be found, please preheat a metal needle whose diameter is 0.8 mm. After that, please use the metal needle to pierce through the small groove in the recess, and then insert an O-Ring into the recess. Please do not drill through the top of the block, which may cause contamination. For those cases using oil-piping joints to automatically supply oil, there are many types of oil-piping joint can be chosen according to your needs.
4. If there is a need for square block type with lube hole at the top of the end cap, please contact HIWIN.
5. When piercing through the top of the block for lube passage, please refer to the following tables called "max. permissible depth for piercing" and choose a suitable O-Ring size.
6. Please contact HIWIN if there is a need for wall-mounting.

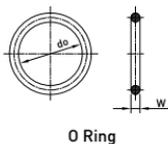
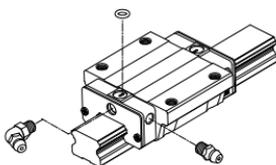
○ O-Ring size and max. permissible depth for piercing of HG series



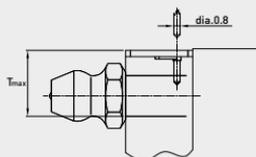
Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
HG 15	2.5±0.15	1.5±0.15	3.75
HG 20	4.5±0.15	1.5±0.15	5.7
HG 25	4.5±0.15	1.5±0.15	5.8
HG 30	4.5±0.15	1.5±0.15	6.3
HG 35	4.5±0.15	1.5±0.15	8.8
HG 45	4.5±0.15	1.5±0.15	8.2
HG 55	4.5±0.15	1.5±0.15	11.8
HG 65	4.5±0.15	1.5±0.15	10.8



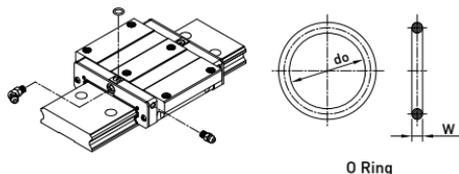
○ O-Ring size and max. permissible depth for piercing of EG series



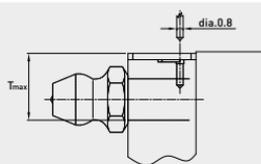
Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
EG 15	2.5±0.15	1.5±0.15	6.9
EG 20	4.5±0.15	1.5±0.15	8.4
EG 25	4.5±0.15	1.5±0.15	10.4
EG 30	4.5±0.15	1.5±0.15	10.4
EG 35	4.5±0.15	1.5±0.15	10.8



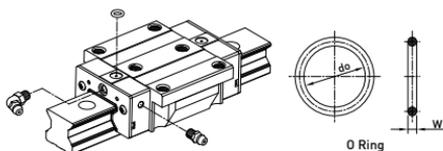
○ O-Ring size and max. permissible depth for piercing of WE series



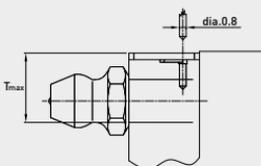
Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
WE 21	2.5±0.15	1.5±0.15	4.2
WE 27	4.5±0.15	1.5±0.15	5.8
WE 35	4.5±0.15	1.5±0.15	7.6
WE 50	4.5±0.15	1.5±0.15	11.8



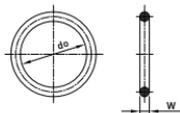
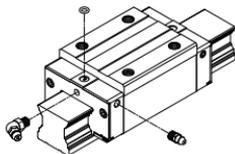
○ O-Ring size and max. permissible depth for piercing of RG series



Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
RG 15	2.5±0.15	1.5±0.15	3.45
RG 20	2.5±0.15	1.5±0.15	4
RG 25	7.5±0.15	1.5±0.15	5.8
RG 30	7.5±0.15	1.5±0.15	6.2
RG 35	7.5±0.15	1.5±0.15	8.65
RG 45	7.5±0.15	1.5±0.15	9.5
RG 55	7.5±0.15	1.5±0.15	11.6
RG 65	7.5±0.15	1.5±0.15	14.5

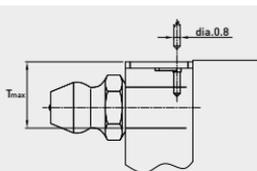


○ O-Ring size and max. permissible depth for piercing of CG series

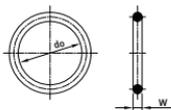
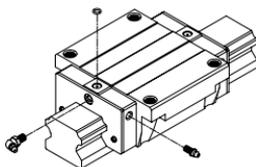


O Ring

Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
CG 15	2.5±0.15	1.5±0.15	3.75
CG 20	4.5±0.15	1.5±0.15	5.7
CG 25	4.5±0.15	1.5±0.15	5.8
CG 30	4.5±0.15	1.5±0.15	6.3
CG 35	4.5±0.15	1.5±0.15	8.8
CG 45	4.5±0.15	1.5±0.15	8.2

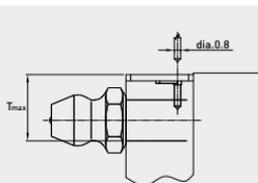


○ O-Ring size and max. permissible depth for piercing of QH series

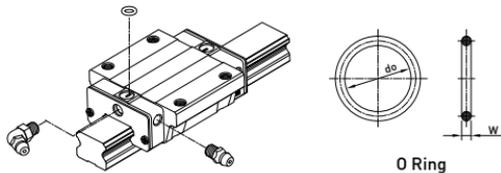


O Ring

Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
QH 15	3±0.15	1±0.15	3.75
QH 20	4.5±0.15	1.5±0.15	5.7
QH 25	4.5±0.15	1.5±0.15	5.8
QH 30	4.5±0.15	1.5±0.15	6.3
QH 35	4.5±0.15	1.5±0.15	8
QH 45	4.5±0.15	1.5±0.15	8.2

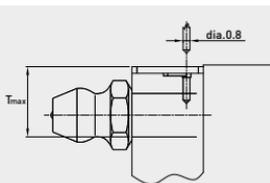


○ O-Ring size and max. permissible depth for piercing of QE series

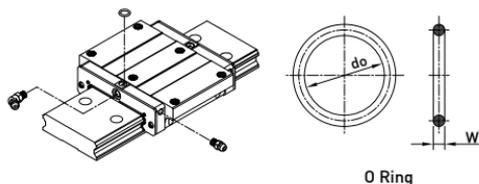


O Ring

Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
QE 15	2.5±0.15	1.5±0.15	5.3
QE 20	4.5±0.15	1.5±0.15	5.8
QE 25	3±0.15	2.5±0.15	7
QE 30	4.5±0.15	1.5±0.15	7.8
QE 35	4.5±0.15	1.5±0.15	8.3

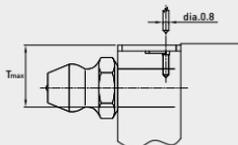


○ O-Ring size and max. permissible depth for piercing of QW series

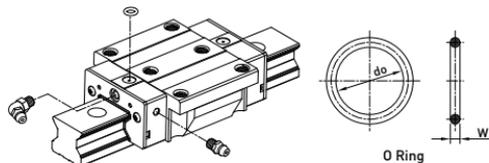


O Ring

Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
QW 21	2.5±0.15	1.5±0.15	4.2
QW 27	2.5±0.15	1.5±0.15	5.7
QW 35	4.5±0.15	1.5±0.15	7.6



○ O-Ring size and max. permissible depth for piercing of QR series



Size	O-Ring		Lube hole at top: max. permissible depth for piercing T_{max} (mm)
	do (mm)	W (mm)	
QR 20	2.5±0.15	1.5±0.15	4
QR 25	7.5±0.15	1.5±0.15	5.8
QR 30	7.5±0.15	1.5±0.15	6.2
QR 35	7.5±0.15	1.5±0.15	8.65
QR 45	7.5±0.15	1.5±0.15	9.5

5. For the HIWIN recommended lubricant amount of each series under different load, please refer to the following table.

○ The lubricant amount for a block filled with grease of HG series

Size	Heavy load[cm ³]	Super heavy load[cm ³]	Size	Heavy load[cm ³]	Super heavy load[cm ³]
HG 15	1	-	HG 35	10	12
HG 20	2	3	HG 45	17	21
HG 25	5	6	HG 55	26	33
HG 30	7	8	HG 65	50	61

○ The lubricant amount for a block filled with grease of EG series

Size	Medium Load[cm ³]	Heavy load[cm ³]	Size	Medium Load[cm ³]	Heavy load[cm ³]
EG 15	0.8	1.4	EG 30	3.7	6.3
EG 20	1.5	2.4	EG 35	5.6	6.6
EG 25	2.8	4.6			

○ The lubricant amount for a block filled with grease of WE series

Size	Heavy load [cm ³]	Size	Heavy load [cm ³]
WE 17	1.4	WE 35	9.5
WE 21	2.4	WE 50	20
WE 27	3.6		

○ The lubricant amount for a block filled with grease of RG series

Size	Heavy load[cm ³]	Super heavy load[cm ³]	Size	Heavy load[cm ³]	Super heavy load[cm ³]
RG 15	3	-	RG 35	12	14
RG 20	5	6	RG 45	19	23
RG 25	7	8	RG 55	28	35
RG 30	9	10	RG 65	52	63

○ The lubricant amount for a block filled with grease of CG series

Size	Heavy load[cm ³]	Super heavy load[cm ³]	Size	Heavy load[cm ³]	Super heavy load[cm ³]
CG 15	1	-	CG 30	3.5	5
CG 20	2	3	CG 35	7	9
CG 25	2.5	4	CG 45	8.5	-

2-2 Oil

1. The recommended viscosity of oil is about 30~150cSt. The standard grease nipple may be replaced by an oil piping joint for oil lubrication.
2. Since oil evaporates quicker than grease, the recommended oil feed rate is approximate 0.3cm³ /hr.
3. Please refer to the following tables for the HIWIN recommended oil filling rate of each series.

○ Oil refilling rate of HG series

Size	Refilling rate [cm ³ /hr]	Size	Refilling rate [cm ³ /hr]
HG 15	0.2	HG 35	0.3
HG 20	0.2	HG 45	0.4
HG 25	0.3	HG 55	0.5
HG 30	0.3	HG 65	0.6

○ Oil refilling rate of EG series

Size	Refilling rate [cm ³ /hr]	Size	Refilling rate [cm ³ /hr]
EG 15	0.1	EG 30	0.2
EG 20	0.133	EG 35	0.233
EG 25	0.167		

○ Oil refilling rate of WE series

Size	Refilling rate [cm ³ /hr]	Size	Refilling rate [cm ³ /hr]
WE 17	0.15	WE 35	0.3
WE 21	0.2	WE 50	0.4
WE 27	0.2		

○ Oil refilling rate of RG series

Size	Refilling rate [cm ³ /hr]	Size	Refilling rate [cm ³ /hr]
RG 15	0.14	RG 35	0.23
RG 20	0.14	RG 45	0.3
RG 25	0.167	RG 55	0.367
RG 30	0.2	RG 65	0.433

○ Oil refilling rate of CG series

Size	Refilling rate [cm ³ /hr]	Size	Refilling rate [cm ³ /hr]
CG 15	0.2	CG 30	0.3
CG 20	0.2	CG 35	0.3
CG 25	0.3	CG 45	0.4

3. Linear Guideway Usage Instructions

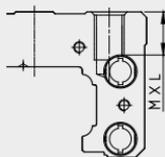
1. Lubricate the blocks after assembling the guideways in machines. Use a lithium soap-base grease or oil.
2. The guideways are packaged with anti-corrosion oil before delivery. If the rails were cleaned before installation, remember to lubricate the rails after assembling the guideways in machine. (Please 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°C~50°C. For Q types (Quiet linear guideway), the range is -10°C~80°C. The maximum service temperature of the SE type (Metallic end cap) is 150°C and for other standard types it is 100°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 Q type guideways (QH & QE), please pay attention to the following instructions:

1. When assembling and disassembling the Q blocks, please use the block insert that is provided. (One block insert is equipped per block).
2. Special accessories are used in the Q type guideways, any adjustment on the preload is prohibited.
3. For some of our Q 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



Linear Guideway Installation Instructions

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