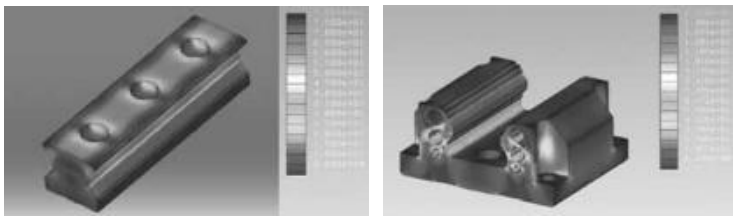
# 2-9 RG Series – High Rigidity Roller Type Linear Guideway

## 2-9-1 Advantages and features

The new RG series from Hiwin features a roller as the rolling element instead of steel balls. The roller series offers super high rigidity and very high load capacities. The RG series is designed with a 45-degree angle of contact. Elastic deformation of the linear contact surface, during load, is greatly reduced thereby offering greater rigidity and higher load capacities in all 4 load directions.The RG series linear guideway offers high performance for high-precision manufacturing and achieving longer service life.

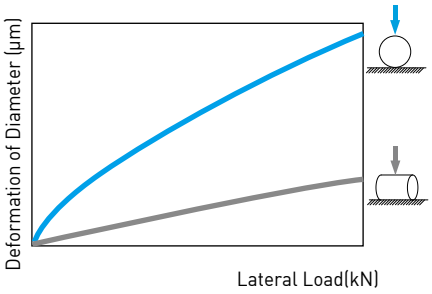
### (1) Optimal design

FEM analysis was performed to determine the optimal structure of the block and the rail. The unique design of the circulation path allows the RG series linear guideway to offer smoother linear motion.



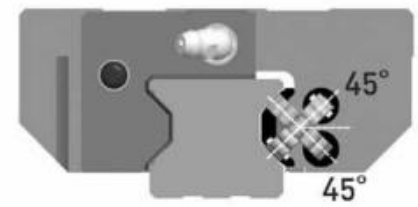
### (2) Super high rigidity

The RG series is a type of linear guideway that uses rollers as the rolling elements. Rollers have a greater contact area than balls so that the roller guideway features higher load capacity and greater rigidity. The figure shows the rigidity of a roller and a ball with equal volume.




### (3) Super high load capacity

With the four rows of rollers arranged at a contact angle of 45-degrees, the RG series linear guideway has equal load ratings in the radial, reverse radial and lateral directions. The RG series has a higher load capacity in a smaller size than conventional, ball-type linear guideways.




### (4) Operating life increased

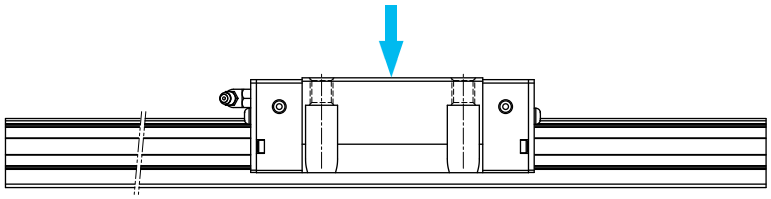
Compare with the ball element, the contact pressure of rolling element is distributed on the line region. Therefore, stress concentration was reduced siginificantly and the RG series offers longer running life. The nominal life of RG series can be calculated by using Eq.

# Linear Guideways

## RG Series

### (5) Test Data

### 1. Nominal life test



Model of the test system

Table 2-9-1

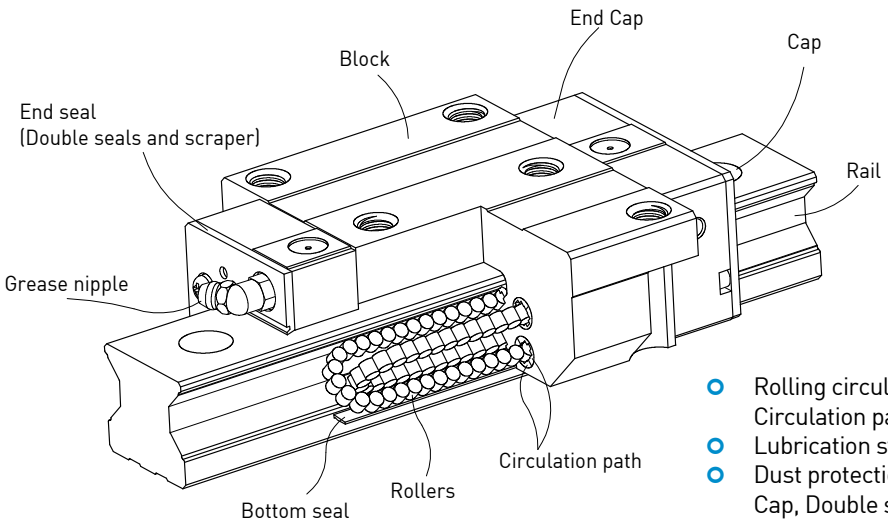
| | |
|---|---|
| **Tested model 1: RGH35CA**<br>Preload: ZA class<br>Max. Speed: 60m/min<br>Acceleration: 1G<br>Stroke: 0.55m<br>Lubrication: grease held every 100km<br>External load: 15kN<br>Traveling distance: 1135km | **Test results:**<br>The nominal life of RGH35CA is 1000km.<br>After traveling 1135km, fatigue flaking did not appear on the surface of the raceway or rollers.<br> |

### 2. Durability Test

| | |
|---|---|
| **Tested model 2: RGW35CC**<br>Preload: ZA class<br>Max. Speed: 120m/min<br>Acceleration: 1G<br>Stroke: 2m<br>Lubrication: oil feed rate: 0.3cm$^3$/hr<br>External load: 0kN<br>Traveling distance: 15000km | **Test results:**<br>Fatigue flaking did not appear on the surface of the raceway or rollers after traveling 15000km.<br> |

Note: The data listed are from samples.

## 2-9-2 Construction of RG Series

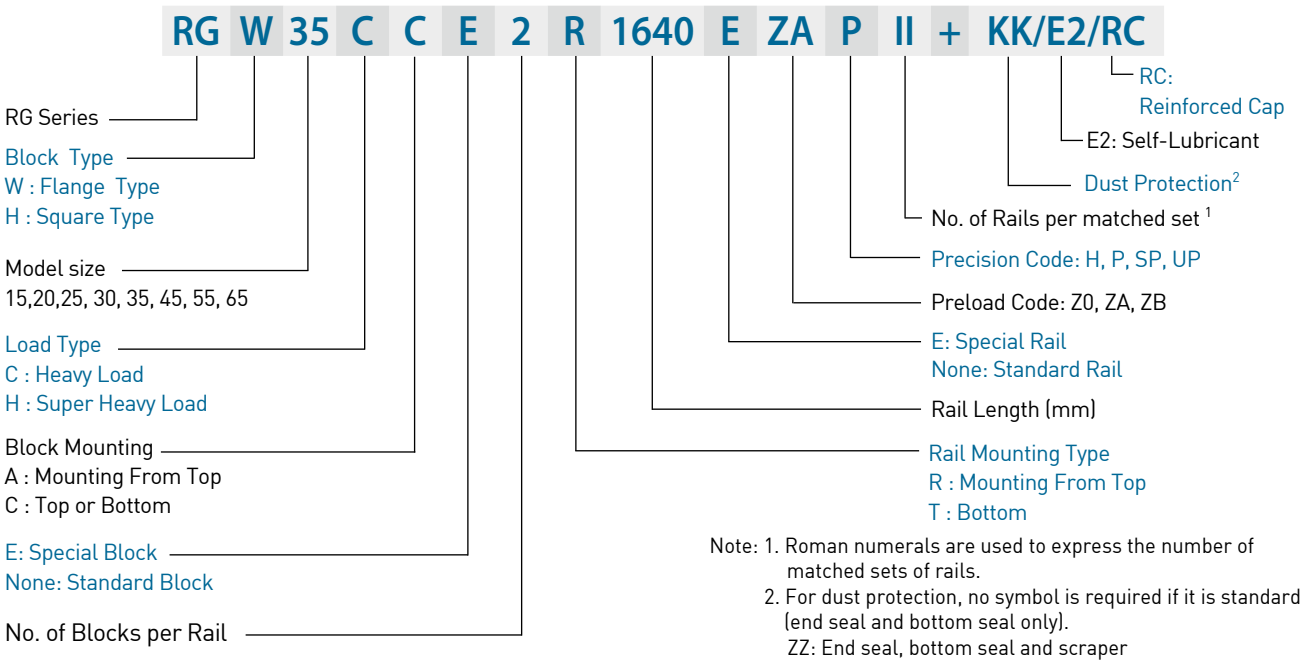



- Rolling circulation system: Block, Rail, End cap, Circulation path, rollers
- Lubrication system: Grease nipple and piping joint
- Dust protection system: End seal, Bottom seal, Cap, Double seals and Scraper

## 2-9-3 Model Number of RG series

RG series linear guideways are classified into non-interchangeable and interchangeable types. The sizes of these two types are the same as one another. The main difference is that the interchangeable type of blocks and rails can be freely exchanged and they can maintain P-class accuracy. Because of strict dimensional control, the interchangeable type linear guideways are a wise choice for customers when rails do not need to be matched for an axis. The model number of the RG series identifies the size, type, accuracy class, preload class, etc.

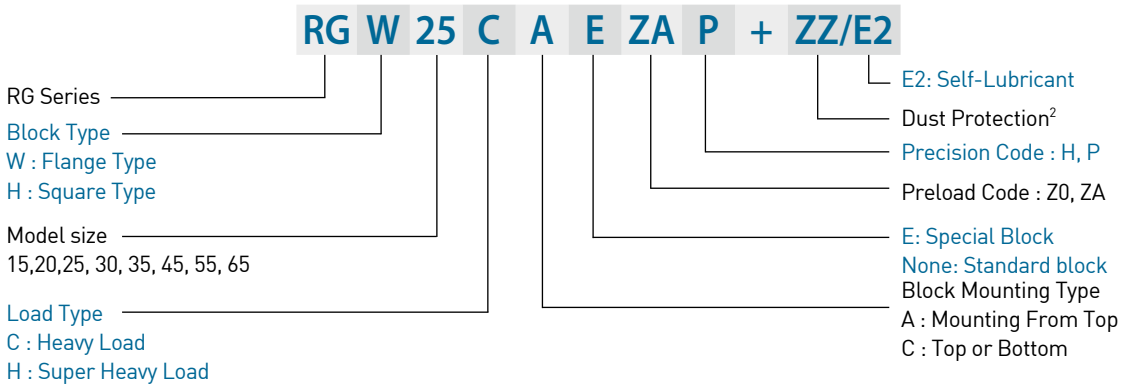
### (1) Non-interchangeable type



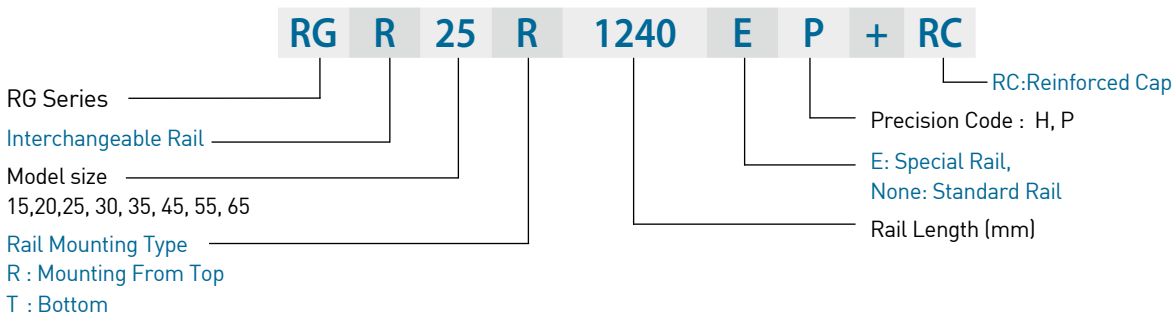

Note: 1. Roman numerals are used to express the number of matched sets of rails.
2. For dust protection, no symbol is required if it is standard (end seal and bottom seal only).
ZZ: End seal, bottom seal and scraper
KK: Double seals, bottom seal and scraper
DD: Double seals and bottom seal

### (2) Interchangeable type

- **Model Number of RG Block**




- **Model Number of RG Rail**



# Linear Guideways

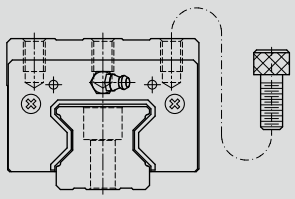
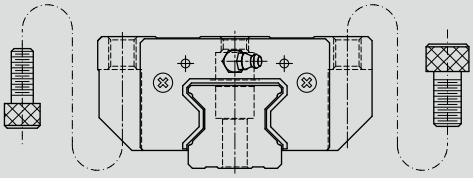
## RG Series

### 2-9-4 Types

#### (1) Block types

HIWIN offers two types of guide blocks, flange and square type. Because of the low assembly height and large mounting surface, the flange type is excellent for heavy moment load applications.

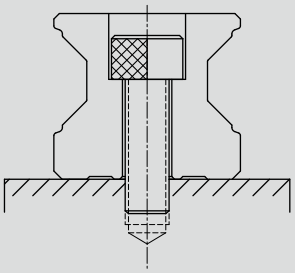
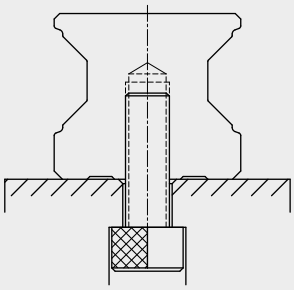
Table 2-9-2 **Block Types**

| Type | Model | Shape | Height (mm) | Rail Length (mm) | Main Applications |
|---|---|---|---|---|---|
| Square | RGH-CA<br>RGH-HA |  | 28<br>↓<br>90 | 100<br>↓<br>4000 | ○ Automation Systems<br>○ Transportation equipment<br>○ CNC machining centers<br>○ Heavy duty cutting machines<br>○ CNC grinding machines<br>○ Injection molding machines<br>○ Plano millers<br>○ Devices requiring high rigidity<br>○ Devices requiring high load capacity<br>○ Electric discharge machines |
| Flange | RGW-CC<br>RGW-HC |  | 24<br>↓<br>90 | 100<br>↓<br>4000 | |

#### (2) Rail types

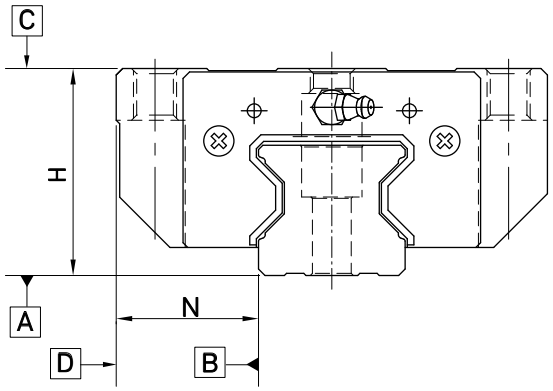
In addition to the standard top mounting type, HIWIN also offers the bottom mounting type of rails.

Table 2-9-3 **Rail Types**

| Mounting from Top | Mounting from Bottom |
|---|---|
|  |  |

## 2-9-5 Accuracy Classes

The accuracy of the RG series can be classified into four classes: high (H), precision (P), super precision (SP) and ultra precision (UP). Customers may choose the class by referencing the accuracy requirements of the applied equipment.




### (1) Accuracy of non-interchangeable

Table 2-9-4 **Accuracy Standards** Unit: mm

| Item | RG - 15, 20 | | | |
|---|---|---|---|---|
| Accuracy Classes | High (H) | Precision (P) | Super Precision (SP) | Ultra Precision (UP) |
| Dimensional tolerance of height H | ± 0.03 | 0<br>- 0.03 | 0<br>- 0.015 | 0<br>- 0.008 |
| Dimensional tolerance of width N | ± 0.03 | 0<br>- 0.03 | 0<br>- 0.015 | 0<br>- 0.008 |
| Variation of height H | 0.01 | 0.006 | 0.004 | 0.003 |
| Variation of width N | 0.01 | 0.006 | 0.004 | 0.003 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | | | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | | | |

Table 2-9-5 **Accuracy Standards** Unit: mm

| Item | RG - 25, 30, 35 | | | |
|---|---|---|---|---|
| Accuracy Classes | High (H) | Precision (P) | Super Precision (SP) | Ultra Precision (UP) |
| Dimensional tolerance of height H | ± 0.04 | 0<br>- 0.04 | 0<br>- 0.02 | 0<br>- 0.01 |
| Dimensional tolerance of width N | ± 0.04 | 0<br>- 0.04 | 0<br>- 0.02 | 0<br>- 0.01 |
| Variation of height H | 0.015 | 0.007 | 0.005 | 0.003 |
| Variation of width N | 0.015 | 0.007 | 0.005 | 0.003 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | | | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | | | |

Table 2-9-6 **Accuracy Standards** Unit: mm

| Item | RG - 45, 55 | | | |
|---|---|---|---|---|
| Accuracy Classes | High (H) | Precision (P) | Super Precision (SP) | Ultra Precision (UP) |
| Dimensional tolerance of height H | ± 0.05 | 0<br>- 0.05 | 0<br>- 0.03 | 0<br>- 0.02 |
| Dimensional tolerance of width N | ± 0.05 | 0<br>- 0.05 | 0<br>- 0.03 | 0<br>- 0.02 |
| Variation of height H | 0.015 | 0.007 | 0.005 | 0.003 |
| Variation of width N | 0.02 | 0.01 | 0.007 | 0.005 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | | | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | | | |

# Linear Guideways

## RG Series

Table 2-9-7 **Accuracy Standards** Unit: mm

| Item | RG - 65 | | | |
|---|---|---|---|---|
| Accuracy Classes | High (H) | Precision (P) | Super Precision (SP) | Ultra Precision (UP) |
| Dimensional tolerance of height H | ± 0.07 | 0<br>- 0.07 | 0<br>- 0.05 | 0<br>- 0.03 |
| Dimensional tolerance of width N | ± 0.07 | 0<br>- 0.07 | 0<br>- 0.05 | 0<br>- 0.03 |
| Variation of height H | 0.02 | 0.01 | 0.007 | 0.005 |
| Variation of width N | 0.025 | 0.015 | 0.01 | 0.007 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | | | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | | | |

### (2) Accuracy of interchangeable

Table 2-9-8 **Accuracy Standards** Unit: mm

| Item | RG - 15, 20 | |
|---|---|---|
| Accuracy Classes | High (H) | Precision (P) |
| Dimensional tolerance of height H | ± 0.03 | ± 0.015 |
| Dimensional tolerance of width N | ± 0.03 | ± 0.015 |
| Variation of height H | 0.01 | 0.006 |
| Variation of width N | 0.01 | 0.006 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | |

Table 2-9-9 **Accuracy Standards** Unit: mm

| Item | RG - 25, 30, 35 | |
|---|---|---|
| Accuracy Classes | High (H) | Precision (P) |
| Dimensional tolerance of height H | ± 0.04 | ± 0.02 |
| Dimensional tolerance of width N | ± 0.04 | ± 0.02 |
| Variation of height H | 0.015 | 0.007 |
| Variation of width N | 0.015 | 0.007 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | |

Table 2-9-10 **Accuracy Standards** Unit: mm

| Item | RG - 45, 55 | |
|---|---|---|
| Accuracy Classes | High (H) | Precision (P) |
| Dimensional tolerance of height H | ± 0.05 | ± 0.025 |
| Dimensional tolerance of width N | ± 0.05 | ± 0.025 |
| Variation of height H | 0.015 | 0.007 |
| Variation of width N | 0.02 | 0.01 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | |

Table 2-9-11 **Accuracy Standards**

Unit: mm

| Item | RG - 65 | |
|---|---|---|
| Accuracy Classes | High (H) | Precision (P) |
| Dimensional tolerance of height H | ± 0.07 | ± 0.035 |
| Dimensional tolerance of width N | ± 0.07 | ± 0.035 |
| Variation of height H | 0.02 | 0.01 |
| Variation of width N | 0.025 | 0.015 |
| Running parallelism of block surface C to surface A | See Table 2-9-12 | |
| Running parallelism of block surface D to surface B | See Table 2-9-12 | |

### (3) Accuracy of running parallelism

Table 2-9-12 **Accuracy of Running Parallelism**

| Rail Length (mm) | Accuracy (μm) H | P | SP | UP |
|---|---|---|---|---|
| ~ 100 | 7 | 3 | 2 | 2 |
| 100 ~ 200 | 9 | 4 | 2 | 2 |
| 200 ~ 300 | 10 | 5 | 3 | 2 |
| 300 ~ 500 | 12 | 6 | 3 | 2 |
| 500 ~ 700 | 13 | 7 | 4 | 2 |
| 700 ~ 900 | 15 | 8 | 5 | 3 |
| 900 ~ 1,100 | 16 | 9 | 6 | 3 |
| 1,100 ~ 1,500 | 18 | 11 | 7 | 4 |
| 1,500 ~ 1,900 | 20 | 13 | 8 | 4 |
| 1,900 ~ 2,500 | 22 | 15 | 10 | 5 |
| 2,500 ~ 3,100 | 25 | 18 | 11 | 6 |
| 3,100 ~ 3,600 | 27 | 20 | 14 | 7 |
| 3,600 ~ 4,000 | 28 | 21 | 15 | 7 |

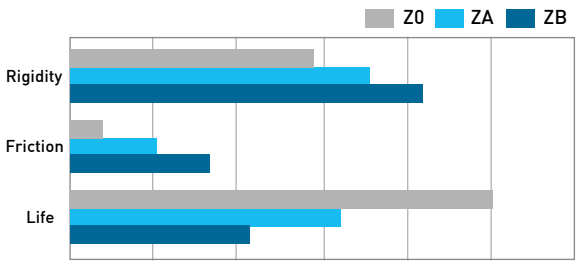
## 2-9-6 Preload

A preload can be applied to each guideway using oversized rollers. Generally, a linear motion guideway has negative clearance between the raceway and rollers to improve stiffness and maintain high precision. The RG series linear guideway offers three standard preloads for various applications and conditions.

Table 2-9-13

| Class | Code | Preload | Condition |
|---|---|---|---|
| Light Preload | Z0 | 0.02C~ 0.04C | Certain load direction, low impact, low precision required |
| Medium Preload | ZA | 0.07C~0.09C | High rigidity required, high precision required |
| Heavy Preload | ZB | 0.12C~ 0.14C | Super high rigidity required, with vibration and impact |

The figure shows the relationship between the rigidity, friction and nominal life. A preload no larger than ZA would be recommended for smaller model sizes to avoid over-preload affecting the life of the guideway.



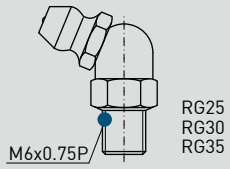
# Linear Guideways

## RG Series

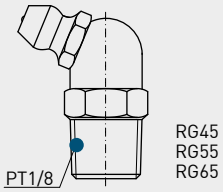
### 2-9-7 Lubrication

#### (1) Grease

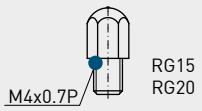
**Grease nipple**



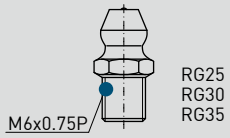

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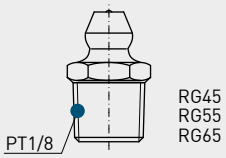

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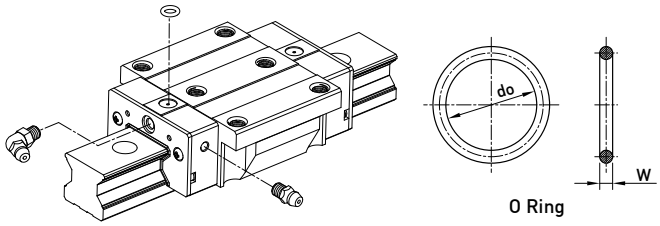

NO.34310003(OPTION)




NO.3431000B(OPTION)

**Mounting location**

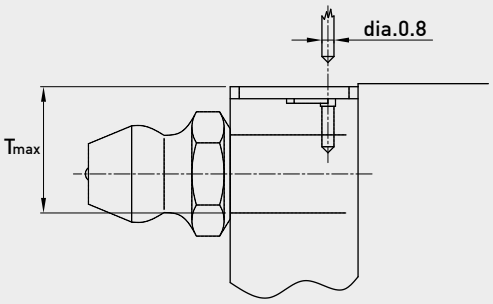
The standard location of the grease fitting is at both ends of the block, but the nipple can be mounted in the side or the top of block. For lateral installation, we recommend that the nipple be mounted at the non-reference side, otherwise please contact us. It is possible to carry out the lubrication by using an oil-piping joint. The figure shows the locations of the grease fitting.




O Ring

Table 2-9-14 **O-Ring size and max. permissible depth for piercing**

| Size | O-Ring | | Lube hole at top: max. permissible depth for piercing |
|---|---|---|---|
| | do (mm) | W (mm) | $T_{max}$ (mm) |
| RG15 | 2.5±0.15 | 1.5±0.15 | 3.45 |
| RG20 | 2.5±0.15 | 1.5±0.15 | 4 |
| RG25 | 7.5±0.15 | 1.5±0.15 | 5.8 |
| RG30 | 7.5±0.15 | 1.5±0.15 | 6.2 |
| RG35 | 7.5±0.15 | 1.5±0.15 | 8.65 |
| RG45 | 7.5±0.15 | 1.5±0.15 | 9.5 |
| RG55 | 7.5±0.15 | 1.5±0.15 | 11.6 |
| RG65 | 7.5±0.15 | 1.5±0.15 | 14.5 |




**The oil amount for a block filled with grease**

Table 2-9-15 **The oil amount for a block filled with grease**

| Size | Medium Load(cm³) | Heavy Load(cm³) | Size | Medium Load(cm³) | Heavy Load(cm³) |
|---|---|---|---|---|---|
| RG15 | 3 | - | RG35 | 12 | 14 |
| RG20 | 5 | 6 | RG45 | 19 | 23 |
| RG25 | 7 | 8 | RG55 | 28 | 35 |
| RG30 | 9 | 10 | RG65 | 52 | 63 |

**Frequency of replenishment**

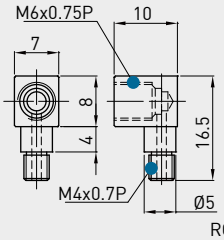
Check the grease every 100 km, or every 3-6 months.

### (2) Oil

The recommended viscosity of oil is about 32~150cSt. If you need to use oil-type lubrication, please inform us.

### Types of oil piping joint

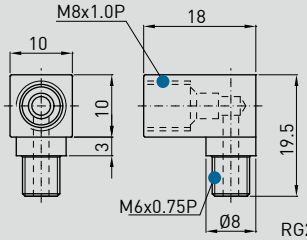
LF-64




RG15
RG20

NO.97000EA1

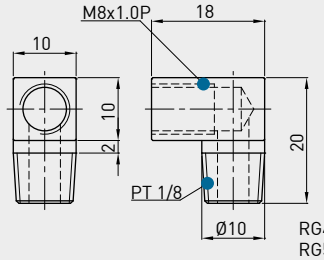
LF-76




RG25
RG30
RG35

NO.970002A1

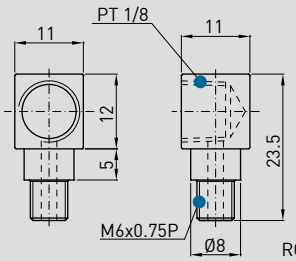
LF-78




RG45
RG55
RG65

NO.970006A1

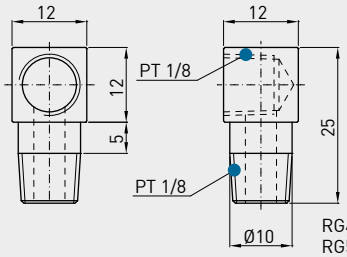
LF-86




RG25
RG30
RG35

NO.970004A1

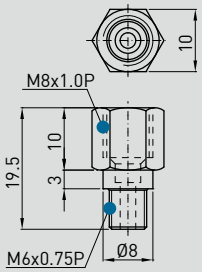
LF-88




RG45
RG55
RG65

NO.970008A1

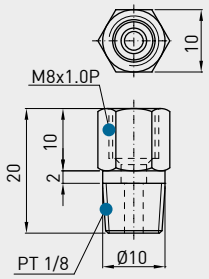
SF-76




RG25
RG30
RG35

NO.970001A1

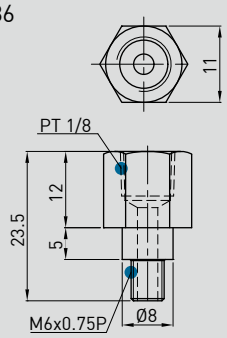
SF-78




RG45
RG55
RG65

NO.970005A1

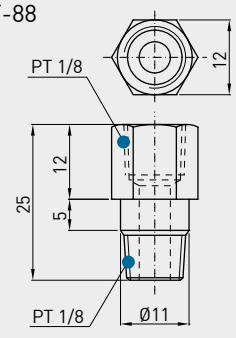
SF-86




RG25
RG30
RG35

NO.970003A1

SF-88




RG45
RG55
RG65

NO.970007A1

# Linear Guideways

## RG Series

### Oil feeding rate

Table 2-9-16 **oil feed rate**

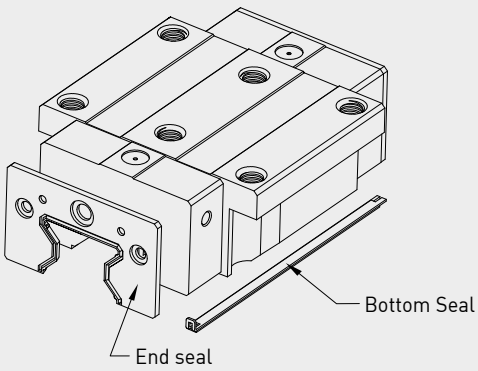
| Size | feed rate ($cm^3$/hr) |
|---|---|
| RG15 | 0.14 |
| RG20 | 0.14 |
| RG25 | 0.167 |
| RG30 | 0.2 |
| RG35 | 0.23 |
| RG45 | 0.3 |
| RG55 | 0.367 |
| RG65 | 0.433 |

## 2-9-8 Dust Proof Accessories

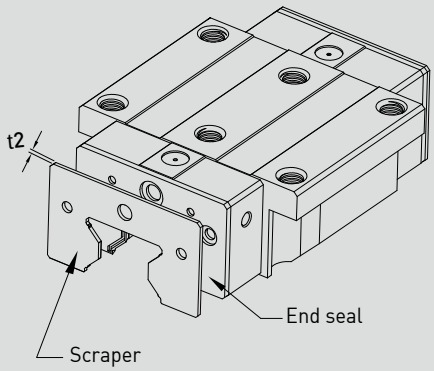
### (1) Codes of accessories

If the following accessories are needed, please add the code followed by the model number.

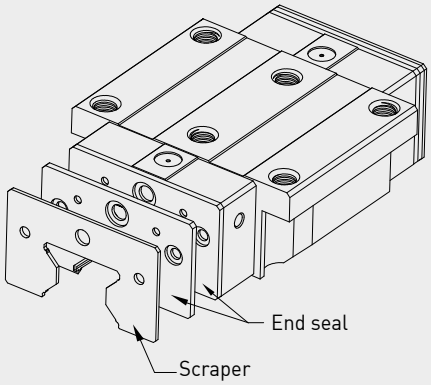
Table 2-9-17



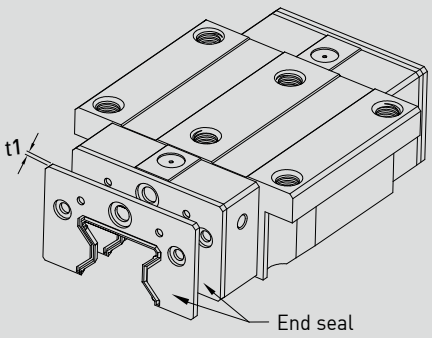

No symbol: Standard Protection (End seal + Bottom Seal)




**ZZ** (End seal + Bottom Seal + Scraper)




**KK** (Double seals + Bottom Seal + Scraper)




**DD** (Double seals + Bottom Seal)

### (2) End seal and bottom seal
To prevent life reduction caused by iron chips or dust entering the block.

### (3) Double seals
Enhances the wiping effect, foreign matter can be completely wiped off.

Table 2-9-18 **Dimensions of end seal**

| Size | Thickness (t1) (mm) | Size | Thickness (t1) (mm) |
|---|---|---|---|
| RG15 ES | 2.2 | RG35 ES | 2.5 |
| RG20 ES | 2.2 | RG45 ES | 3.6 |
| RG25 ES | 2.2 | RG55 ES | 3.6 |
| RG30 ES | 2.4 | RG65 ES | 4.4 |

### (4) Scraper
The scraper removes high-temperature iron chips and larger foreign objects.

Table 2-9-19 **Dimensions of scraper**

| Size | Thickness (t2) (mm) | Size | Thickness (t2) (mm) |
|---|---|---|---|
| RG15 SC | 1.0 | RG35 SC | 1.5 |
| RG20 SC | 1.0 | RG45 SC | 1.5 |
| RG25 SC | 1.0 | RG55 SC | 1.5 |
| RG30 SC | 1.5 | RG65 SC | 1.5 |

### (5) Bolt caps for rail mounting holes
Caps are used to cover the mounting holes to prevent chips or other foreign objects from collecting in the holes. The caps will be enclosed in each rail package.




Table 2-9-20 **Dimensions of Bolt Caps for Rail Mounting Holes**

| Rail size | Bolt size | Diameter(D) (mm) | Thickness(H) (mm) | Rail size | Bolt size | Diameter(D) (mm) | Thickness(H) (mm) |
|---|---|---|---|---|---|---|---|
| RGR15 | M4 | 7.65 | 1.1 | RGR35 | M8 | 14.3 | 3.3 |
| RGR20 | M5 | 9.65 | 2.2 | RGR45 | M12 | 20.3 | 4.6 |
| RGR25 | M6 | 11.3 | 2.5 | RGR55 | M14 | 23.5 | 5.5 |
| RGR30 | M8 | 14.3 | 3.3 | RGR65 | M16 | 26.6 | 5.5 |

# Linear Guideways

## RG Series

### (6) Dimensions of block equipped with the dustproof parts

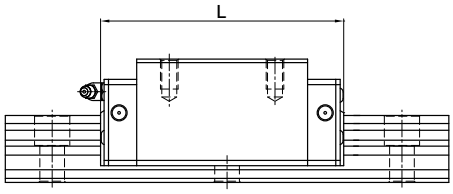



Table 2-9-21 **Overall block length**

unit: mm

| Size | Overall block length (L) | | | |
|---|---|---|---|---|
| | SS | ZZ | DD | KK |
| RG15C | 68 | 70 | 72.4 | 74.4 |
| RG20C | 86 | 88 | 90.4 | 92.4 |
| RG20H | 106 | 108 | 110.4 | 112.4 |
| RG25C | 97.9 | 99.9 | 102.3 | 104.3 |
| RG25H | 114.4 | 116.4 | 118.8 | 120.8 |
| RG30C | 109.8 | 112.8 | 114.6 | 117.6 |
| RG30H | 131.8 | 134.8 | 136.6 | 139.6 |
| RG35C | 124 | 127 | 129 | 132 |
| RG35H | 151.5 | 154.5 | 156.5 | 159.5 |
| RG45C | 153.2 | 156.2 | 160.4 | 163.4 |
| RG45H | 187 | 190 | 194.2 | 197.2 |
| RG55C | 183.7 | 186.7 | 190.9 | 193.9 |
| RG55H | 232 | 235 | 239.2 | 242.2 |
| RG65C | 232 | 235 | 240.8 | 243.8 |
| RG65H | 295 | 298 | 303.8 | 306.8 |

## 2-9-9 Friction

The maximum value of resistance per end seal are as shown in the table.

Table 2-9-22 **Seal Resistance**

| Size | Resistance N (kgf) | Size | Resistance N (kgf) |
|---|---|---|---|
| RG15 | 1.96 (0.2) | RG35 | 3.53 (0.36) |
| RG20 | 2.45 (0.25) | RG45 | 4.21 (0.43) |
| RG25 | 2.74 (0.28) | RG55 | 5.09 (0.52) |
| RG30 | 3.31 (0.31) | RG65 | 6.66 (0.68) |

## 2-9-10 The Accuracy Tolerance of Mounting Surface

### (1) The accuracy tolerance of rail-mounting surface

As long as the accuracy requirements of the mounting surfaces shown in the following tables are met, the high accuracy, high rigidity and long life of the RG series linear guideway will be maintained without any difficulty.

- **The parallelism tolerance of reference surface (P)**

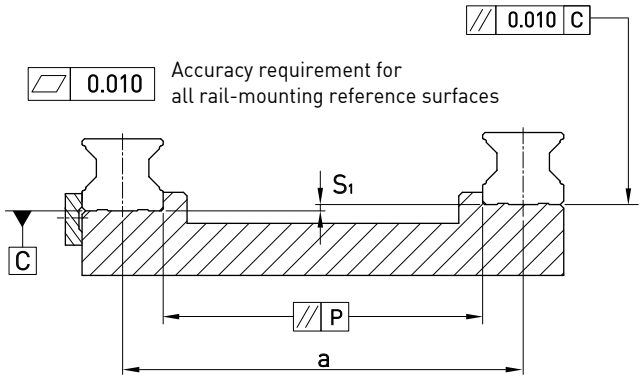



Table 2-9-23 **Max. Parallelism Tolerance (P)** unit: μm

| Size | Preload classes | | |
|---|---|---|---|
| | Light Preload (Z0) | Medium Preload (ZA) | Heavy Preload (ZB) |
| RG15 | 5 | 3 | 3 |
| RG20 | 8 | 6 | 4 |
| RG25 | 9 | 7 | 5 |
| RG30 | 11 | 8 | 6 |
| RG35 | 14 | 10 | 7 |
| RG45 | 17 | 13 | 9 |
| RG55 | 21 | 14 | 11 |
| RG65 | 27 | 18 | 14 |

- **The accuracy tolerance of reference surface height ($S_1$)**

$$S_1 = a \times K$$

$S_1$ : Max. tolerance of height
a : Distance between paired rails
K : Coefficient of tolerance of height

Table 2-9-24 **Coefficient of tolerance of height**

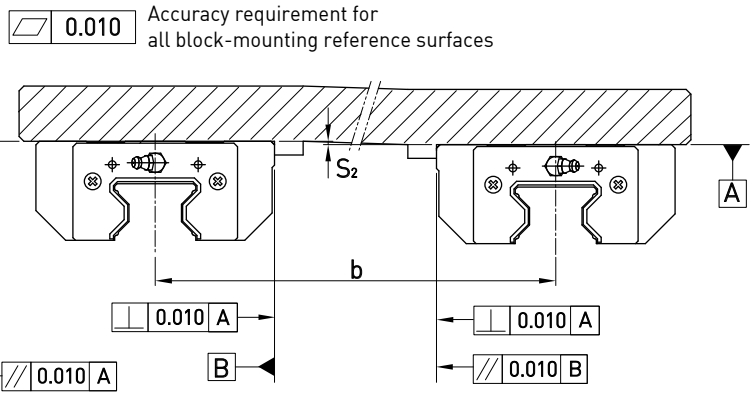
| Size | Preload classes | | |
|---|---|---|---|
| | Light Preload (Z0) | Medium Preload (ZA) | Heavy Preload (ZB) |
| K | $2.2\times10^{-4}$ | $1.7\times10^{-4}$ | $1.2\times10^{-4}$ |

# Linear Guideways

## RG Series

### (2) The accuracy tolerance of block-mounting surface

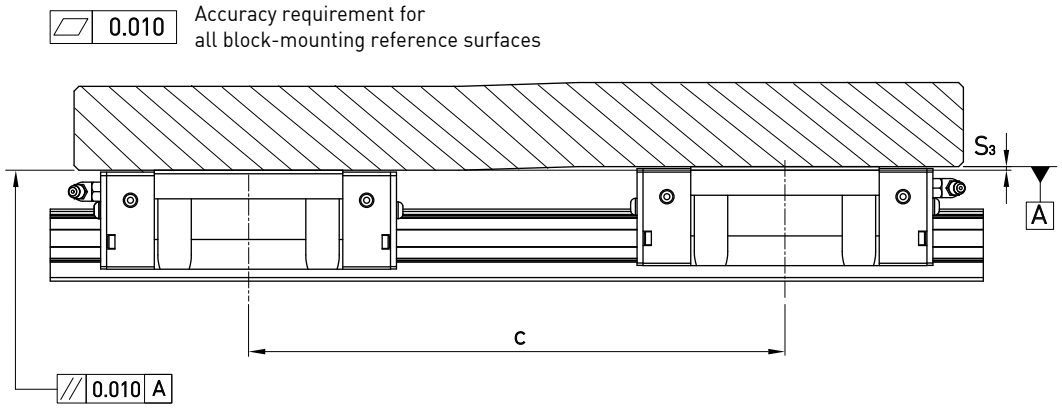
- **The tolerance of the height of reference surface when two or more pieces are used in parallel ($S_2$)**




$$S_2 = b \times 4.2 \times 10^{-5}$$

$S_2$ : Max. tolerance of height
b : Distance between paired blocks

- **The tolerance of the height of reference surface when two or more pieces are used in parallel ($S_3$)**




$$S_3 = c \times 4.2 \times 10^{-5}$$

$S_3$ : Max. tolerance of height
c : Distance between paired blocks

## 2-9-11 Cautions for Installation

### (1) Shoulder heights and fillets

Improper shoulder heights and fillets of mounting surfaces will cause a deviation in accuracy and interference with the chamfered part of the rail or block.
By following the recommended shoulder heights and fillets, accuracy problems in installation can be eliminated.

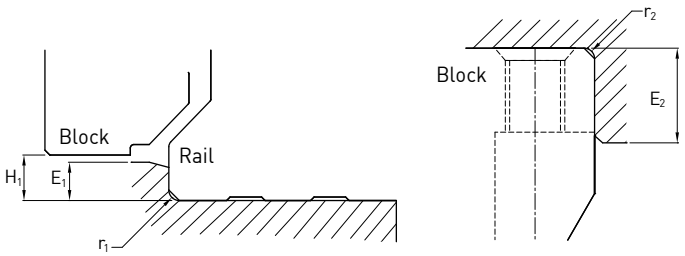



Table 2-9-25

| 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 | 4 | 4 | 4 |
| RG20 | 0.5 | 0.5 | 5 | 5 | 5 |
| RG25 | 1.0 | 1.0 | 5 | 5 | 5.5 |
| RG30 | 1.0 | 1.0 | 5 | 5 | 6 |
| RG35 | 1.0 | 1.0 | 6 | 6 | 6.5 |
| RG45 | 1.0 | 1.0 | 7 | 8 | 8 |
| RG55 | 1.5 | 1.5 | 9 | 10 | 10 |
| RG65 | 1.5 | 1.5 | 10 | 10 | 12 |

### (2) Tightening Torque of Mounting Bolts

Improper tightening of mounting bolts will seriously influence the accuracy of a linear guideway. The following tightening torque for the different sizes of bolt is recommended.

Table 2-9-26

| Size | Bolt size | Torque N-cm(kgf-cm) | | |
|---|---|---|---|---|
| | | Iron | Casting | Aluminum |
| RG15 | M4×0.7P×16L | 392 (40) | 274 (28) | 206 (21) |
| RG20 | M5×0.8P×20L | 883 (90) | 588 (60) | 441 (45) |
| RG25 | M6×1P×20L | 1373 (140) | 921 (94) | 686 (70) |
| RG30 | M8×1.25P×25L | 3041 (310) | 2010 (205) | 1470 (150) |
| RG35 | M8×1.25P×25L | 3041 (310) | 2010 (205) | 1470 (150) |
| RG45 | M12×1.75P×35L | 11772 (1200) | 7840 (800) | 5880 (600) |
| RG55 | M14×2P×45L | 15696 (1600) | 10500 (1100) | 7840 (800) |
| RG65 | M16×2P×50L | 19620 (2000) | 13100 (1350) | 9800 (1000) |

# Linear Guideways

## RG Series

### 2-9-12 Standard and Maximum Lengths of Rail

HIWIN offers a number of standard rail lengths. Standard rail lengths feature end mounting hole placements set to predetermined values (E). For non-standard rail lengths, be sure to specify the E-value to be no greater than 1/2 the pitch (P) dimension. An E-value greater than this will result in unstable rail ends.

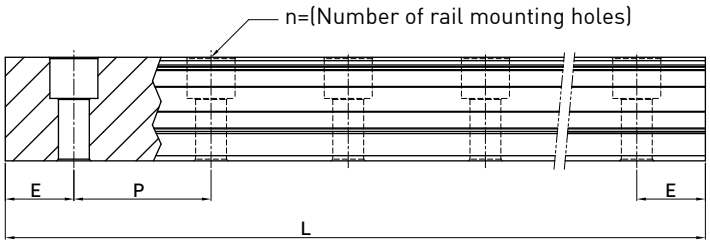



Table 2-9-27

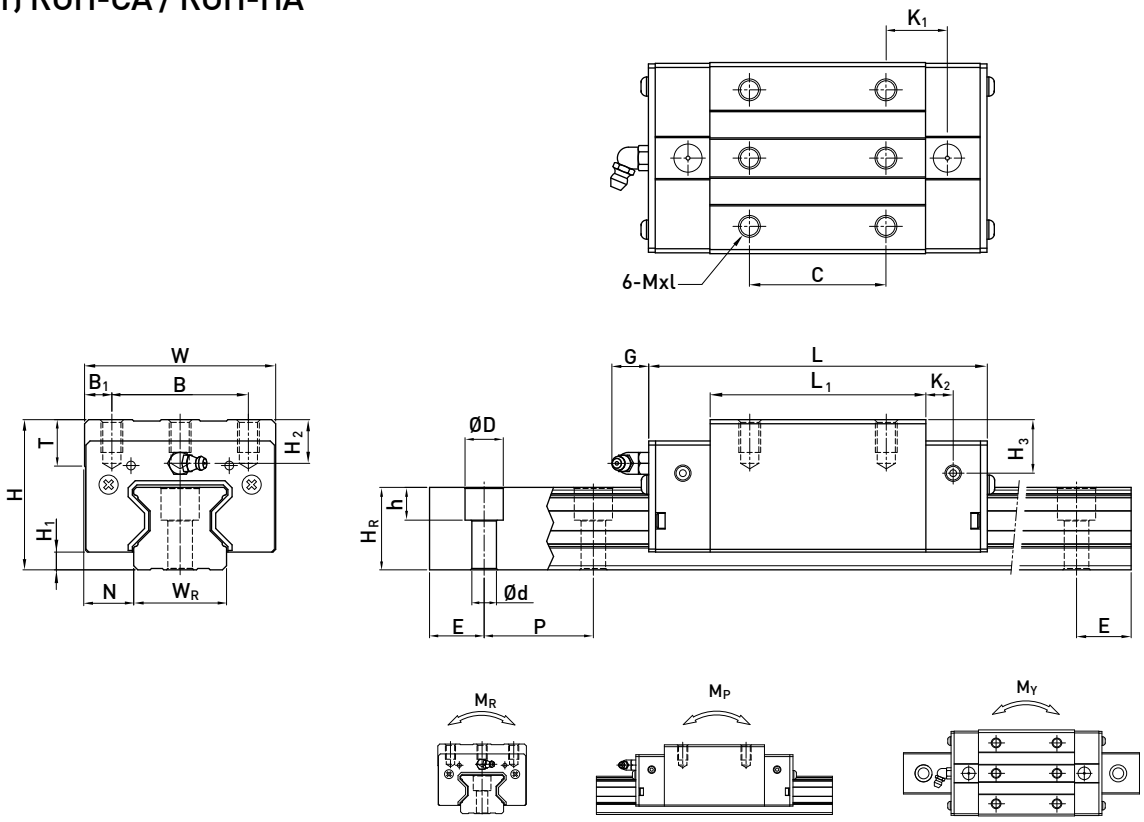
unit: mm

| Item | RGR15 | RGR20 | RGR25 | RGR30 | RGR35 | RGR45 | RGR55 | RGR65 |
|---|---|---|---|---|---|---|---|---|
| Standard Length L(n) | 160 (5) | 220 (7) | 220 (7) | 280 (7) | 280 (7) | 570 (11) | 780 (13) | 1,270 (17) |
| | 220 (7) | 280 (9) | 280 (9) | 440 (11) | 440 (11) | 885 (17) | 1020 (17) | 1,570 (21) |
| | 340 (11) | 340 (11) | 340 (11) | 600 (15) | 600 (15) | 1,200 (23) | 1,260 (21) | 2,020 (27) |
| | 460 (15) | 460 (15) | 460 (15) | 760 (19) | 760 (19) | 1,620 (31) | 1,500 (25) | 2,620 (35) |
| | 580 (19) | 640 (21) | 640 (21) | 1,000 (25) | 1,000 (25) | 2,040 (39) | 1,980 (33) | - |
| | 700 (23) | 820 (27) | 820 (27) | 1,640 (41) | 1,640 (41) | 2,460 (47) | 2,580 (43) | - |
| | 940 (31) | 1000 (33) | 1,000 (33) | 2,040 (51) | 2,040 (51) | 2,985 (57) | 2,940 (49) | |
| | 1120 (37) | 1180 (39) | 1,240 (41) | 2,520 (63) | 2,520 (63) | 3,090 (59) | 3,060 (51) | - |
| | 1360 (45) | 1360 (45) | 1,600 (53) | 3,000 (75) | 3,000 (75) | - | - | - |
| Pitch (P) | 30 | 30 | 30 | 40 | 40 | 52.5 | 60 | 75 |
| Distance to End ($E_s$) | 20 | 20 | 20 | 20 | 20 | 22.5 | 30 | 35 |
| Max. Standard Length | 4,000 (133) | 4,000 (133) | 4,000 (133) | 4,000 (100) | 4,000 (100) | 3,982.5 (76) | 3,960 (66) | 3,970 (53) |
| Max. Length | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |

Note : 1. Tolerance of E value for standard rail is 0.5~-0.5 mm. Tolerance of E value for jointed rail is 0~-0.3 mm.
2. Maximum standard length means the max. rail length with standard E value on both sides.
3. If different E value is needed, please contact HIWIN.

## 2-9-13 Dimensions for RG series

### (1) RGH-CA / RGH-HA



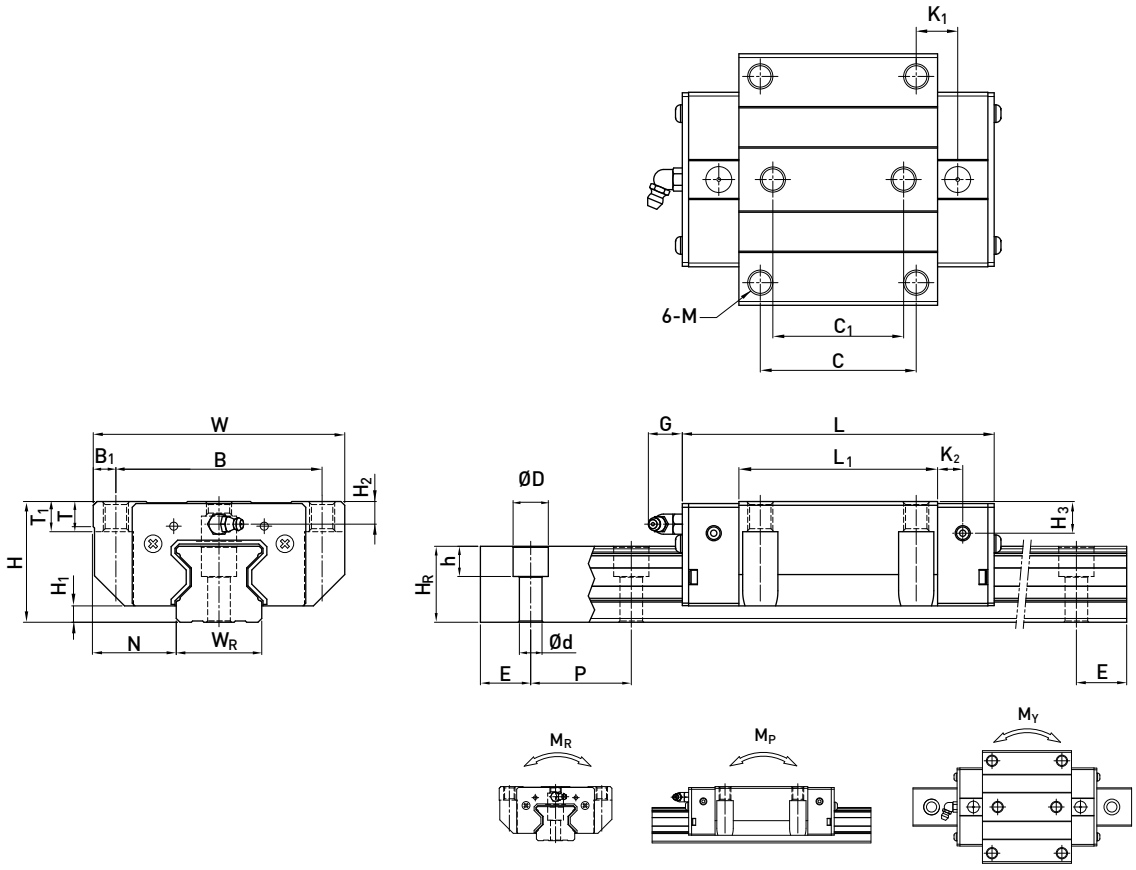

| Model No. | Dimensions of Assembly (mm) | | | Dimensions of Block (mm) | | | | | | | | | | | | | Dimensions of Rail (mm) | | | | | | | Mounting Bolt for Rail | Basic Dynamic Load Rating | Basic Static Load Rating | Static Rated Moment | | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H | $H_1$ | N | W | B | $B_1$ | C | $L_1$ | L | $K_1$ | $K_2$ | G | Mxl | T | $H_2$ | $H_3$ | $W_R$ | $H_R$ | D | h | d | P | E | (mm) | C(kN) | $C_0$ (kN) | $M_R$ kN-m | $M_P$ kN-m | $M_Y$ kN-m | Block kg | Rail kg/m |
| RGH15CA | 28 | 4 | 9.5 | 34 | 26 | 4 | 26 | 45 | 68 | 13.4 | 4.7 | 5.3 | M4 x 8 | 6 | 7.6 | 10.1 | 15 | 16.5 | 7.5 | 5.7 | 4.5 | 30 | 20 | M4 x16 | 11.3 | 24 | 0.311 | 0.173 | 0.173 | 0.20 | 1.70 |
| RGH20CA | 34 | 5 | 12 | 44 | 32 | 6 | 36 | 57.5 | 86 | 15.8 | 6 | 5.3 | M5 x 8 | 8 | 8.3 | 8.3 | 20 | 21 | 9.5 | 8.5 | 6 | 30 | 20 | M5 x20 | 21.3 | 46.7 | 0.647 | 0.46 | 0.46 | 0.40 | 2.66 |
| RGH20HA | | | | | | | 50 | 77.5 | 106 | 18.8 | | | | | | | | | | | | | | | 26.9 | 63 | 0.872 | 0.837 | 0.837 | 0.53 | |
| RGH25CA | 40 | 5.5 | 12.5 | 48 | 35 | 6.5 | 35 | 64.5 | 97.9 | 20.75 | 7.25 | 12 | M6 x 8 | 9.5 | 10.2 | 10 | 23 | 23.6 | 11 | 9 | 7 | 30 | 20 | M6 x20 | 27.7 | 57.1 | 0.758 | 0.605 | 0.605 | 0.61 | 3.08 |
| RGH25HA | | | | | | | 50 | 81 | 114.4 | 21.5 | | | | | | | | | | | | | | | 33.9 | 73.4 | 0.975 | 0.991 | 0.991 | 0.75 | |
| RGH30CA | 45 | 6 | 16 | 60 | 40 | 10 | 40 | 71 | 109.8 | 23.5 | 8 | 12 | M8 x10 | 9.5 | 9.5 | 10.3 | 28 | 28 | 14 | 12 | 9 | 40 | 20 | M8 x25 | 39.1 | 82.1 | 1.445 | 1.06 | 1.06 | 0.90 | 4.41 |
| RGH30HA | | | | | | | 60 | 93 | 131.8 | 24.5 | | | | | | | | | | | | | | | 48.1 | 105 | 1.846 | 1.712 | 1.712 | 1.16 | |
| RGH35CA | 55 | 6.5 | 18 | 70 | 50 | 10 | 50 | 79 | 124 | 22.5 | 10 | 12 | M8 x12 | 12 | 16 | 19.6 | 34 | 30.2 | 14 | 12 | 9 | 40 | 20 | M8 x25 | 57.9 | 105.2 | 2.17 | 1.44 | 1.44 | 1.57 | 6.06 |
| RGH35HA | | | | | | | 72 | 106.5 | 151.5 | 25.25 | | | | | | | | | | | | | | | 73.1 | 142 | 2.93 | 2.6 | 2.6 | 2.06 | |
| RGH45CA | 70 | 8 | 20.5 | 86 | 60 | 13 | 60 | 106 | 153.2 | 31 | 10 | 12.9 | M10x17 | 16 | 20 | 24 | 45 | 38 | 20 | 17 | 14 | 52.5 | 22.5 | M12 x35 | 92.6 | 178.8 | 4.52 | 3.05 | 3.05 | 3.18 | 9.97 |
| RGH45HA | | | | | | | 80 | 139.8 | 187 | 37.9 | | | | | | | | | | | | | | | 116 | 230.9 | 6.33 | 5.47 | 5.47 | 4.13 | |
| RGH55CA | 80 | 10 | 23.5 | 100 | 75 | 12.5 | 75 | 125.5 | 183.7 | 37.75 | 12.5 | 12.9 | M12x18 | 17.5 | 22 | 27.5 | 53 | 44 | 23 | 20 | 16 | 60 | 30 | M14 x45 | 130.5 | 252 | 8.01 | 5.4 | 5.4 | 4.89 | 13.98 |
| RGH55HA | | | | | | | 95 | 173.8 | 232 | 51.9 | | | | | | | | | | | | | | | 167.8 | 348 | 11.15 | 10.25 | 10.25 | 6.68 | |
| RGH65CA | 90 | 12 | 31.5 | 126 | 76 | 25 | 70 | 160 | 232 | 60.8 | 15.8 | 12.9 | M16 x20 | 25 | 15 | 15 | 63 | 53 | 26 | 22 | 18 | 75 | 35 | M16x50 | 213 | 411.6 | 16.20 | 11.59 | 11.59 | 8.89 | 20.22 |
| RGH65HA | | | | | | | 120 | 223 | 295 | 67.3 | | | | | | | | | | | | | | | 275.3 | 572.7 | 22.55 | 22.17 | 22.17 | 12.13 | |

Note : 1 kgf = 9.81 N

# Linear Guideways

## RG Series

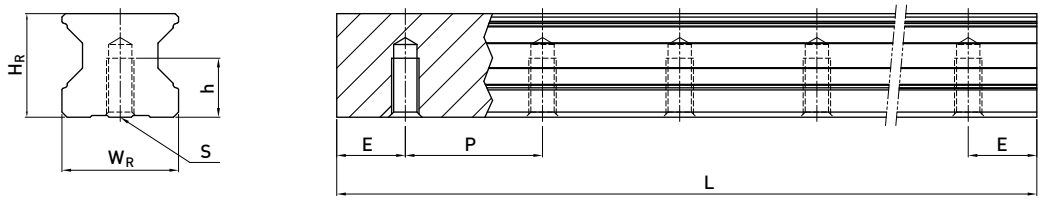
### (2) RGW-CC / RGW-HC




| Model No. | Dimensions of Assembly (mm) | | | Dimensions of Block (mm) | | | | | | | | | | | | | | | Dimensions of Rail (mm) | | | | | | | Mounting Bolt for Rail | Basic Dynamic Load Rating | Basic Static Load Rating | Static Rated Moment | | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H | $H_1$ | N | W | B | $B_1$ | C | $C_1$ | $L_1$ | L | $K_1$ | $K_2$ | G | M | T | $T_1$ | $H_2$ | $H_3$ | $W_R$ | $H_R$ | D | h | d | P | E | (mm) | C(kN) | $C_0$ (kN) | $M_R$ kN-m | $M_P$ kN-m | $M_Y$ kN-m | Block kg | Rail kg/m |
| RGW15CC | 24 | 4 | 16 | 47 | 38 | 4.5 | 30 | 26 | 45 | 68 | 11.4 | 4.7 | 5.3 | M5 | 6 | 6.95 | 3.6 | 6.1 | 15 | 16.5 | 7.5 | 5.7 | 4.5 | 30 | 20 | M4x16 | 11.3 | 24 | 0.311 | 0.173 | 0.173 | 0.22 | 1.70 |
| RGW20CC | 30 | 5 | 21.5 | 63 | 53 | 5 | 40 | 35 | 57.5 | 86 | 13.8 | 6 | 5.3 | M6 | 8 | 10 | 4.3 | 4.3 | 20 | 21 | 9.5 | 8.5 | 6 | 30 | 20 | M5x20 | 21.3 | 46.7 | 0.647 | 0.46 | 0.46 | 0.47 | 2.66 |
| RGW20HC | | | | | | | | | 77.5 | 106 | 23.8 | | | | | | | | | | | | | | | | 26.9 | 63 | 0.872 | 0.837 | 0.837 | 0.63 | |
| RGW25CC | 36 | 5.5 | 23.5 | 70 | 57 | 6.5 | 45 | 40 | 64.5 | 97.9 | 15.75 | 7.25 | 12 | M8 | 9.5 | 10 | 6.2 | 6 | 23 | 23.6 | 11 | 9 | 7 | 30 | 20 | M6x20 | 27.7 | 57.1 | 0.758 | 0.605 | 0.605 | 0.72 | 3.08 |
| RGW25HC | | | | | | | | | 81 | 114.4 | 24 | | | | | | | | | | | | | | | | 33.9 | 73.4 | 0.975 | 0.991 | 0.991 | 0.91 | |
| RGW30CC | 42 | 6 | 31 | 90 | 72 | 9 | 52 | 44 | 71 | 109.8 | 17.5 | 8 | 12 | M10 | 9.5 | 10 | 6.5 | 7.3 | 28 | 28 | 14 | 12 | 9 | 40 | 20 | M8x25 | 39.1 | 82.1 | 1.445 | 1.06 | 1.06 | 1.16 | 4.41 |
| RGW30HC | | | | | | | | | 93 | 131.8 | 28.5 | | | | | | | | | | | | | | | | 48.1 | 105 | 1.846 | 1.712 | 1.712 | 1.52 | |
| RGW35CC | 48 | 6.5 | 33 | 100 | 82 | 9 | 62 | 52 | 79 | 124 | 16.5 | 10 | 12 | M10 | 12 | 13 | 9 | 12.6 | 34 | 30.2 | 14 | 12 | 9 | 40 | 20 | M8x25 | 57.9 | 105.2 | 2.17 | 1.44 | 1.44 | 1.75 | 6.06 |
| RGW35HC | | | | | | | | | 106.5 | 151.5 | 30.25 | | | | | | | | | | | | | | | | 73.1 | 142 | 2.93 | 2.6 | 2.6 | 2.40 | |
| RGW45CC | 60 | 8 | 37.5 | 120 | 100 | 10 | 80 | 60 | 106 | 153.2 | 21 | 10 | 12.9 | M12 | 14 | 15 | 10 | 14 | 45 | 38 | 20 | 17 | 14 | 52.5 | 22.5 | M12x35 | 92.6 | 178.8 | 4.52 | 3.05 | 3.05 | 3.43 | 9.97 |
| RGW45HC | | | | | | | | | 139.8 | 187 | 37.9 | | | | | | | | | | | | | | | | 116 | 230.9 | 6.33 | 5.47 | 5.47 | 4.57 | |
| RGW55CC | 70 | 10 | 43.5 | 140 | 116 | 12 | 95 | 70 | 125.5 | 183.7 | 27.75 | 12.5 | 12.9 | M14 | 16 | 17 | 12 | 17.5 | 53 | 44 | 23 | 20 | 16 | 60 | 30 | M14x45 | 130.5 | 252 | 8.01 | 5.4 | 5.4 | 5.43 | 13.98 |
| RGW55HC | | | | | | | | | 173.8 | 232 | 51.9 | | | | | | | | | | | | | | | | 167.8 | 348 | 11.15 | 10.25 | 10.25 | 7.61 | |
| RGW65CC | 90 | 12 | 53.5 | 170 | 142 | 14 | 110 | 82 | 160 | 232 | 40.8 | 15.8 | 12.9 | M16 | 22 | 23 | 15 | 15 | 63 | 53 | 26 | 22 | 18 | 75 | 35 | M16x50 | 213 | 411.6 | 16.20 | 11.59 | 11.59 | 11.63 | 20.22 |
| RGW65HC | | | | | | | | | 223 | 295 | 72.3 | | | | | | | | | | | | | | | | 275.3 | 572.7 | 22.55 | 22.17 | 22.17 | 16.58 | |

Note : 1 kgf = 9.81 N

## (3) Dimensions for RGR-T (Rail Mounting from Bottom)




| Model No. | Dimensions of Rail (mm) | | | | | | Weight |
|---|---|---|---|---|---|---|---|
| | $W_R$ | $H_R$ | S | h | P | E | (kg/m) |
| RGR15T | 15 | 16.5 | M5×0.8P | 8 | 30 | 20 | 1.86 |
| RGR20T | 20 | 21 | M6×1P | 10 | 30 | 20 | 2.76 |
| RGR25T | 23 | 23.6 | M6×1P | 12 | 30 | 20 | 3.36 |
| RGR30T | 28 | 28 | M8×1.25P | 15 | 40 | 20 | 4.82 |
| RGR35T | 34 | 30.2 | M8×1.25P | 17 | 40 | 20 | 6.48 |
| RGR45T | 45 | 38 | M12×1.75P | 24 | 52.5 | 22.5 | 10.83 |
| RGR55T | 53 | 44 | M14×2P | 24 | 60 | 30 | 15.15 |
| RGR65T | 63 | 53 | M20×2.5P | 30 | 75 | 35 | 21.24 |