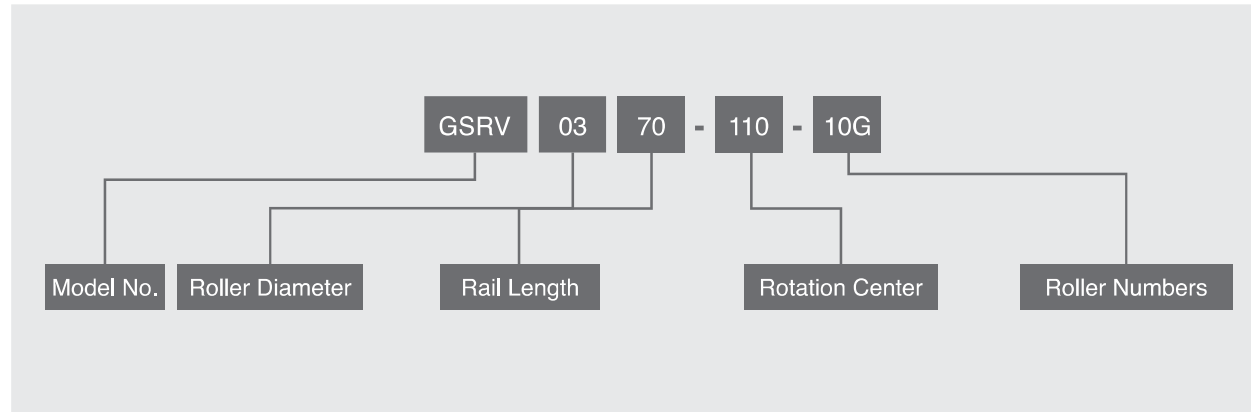
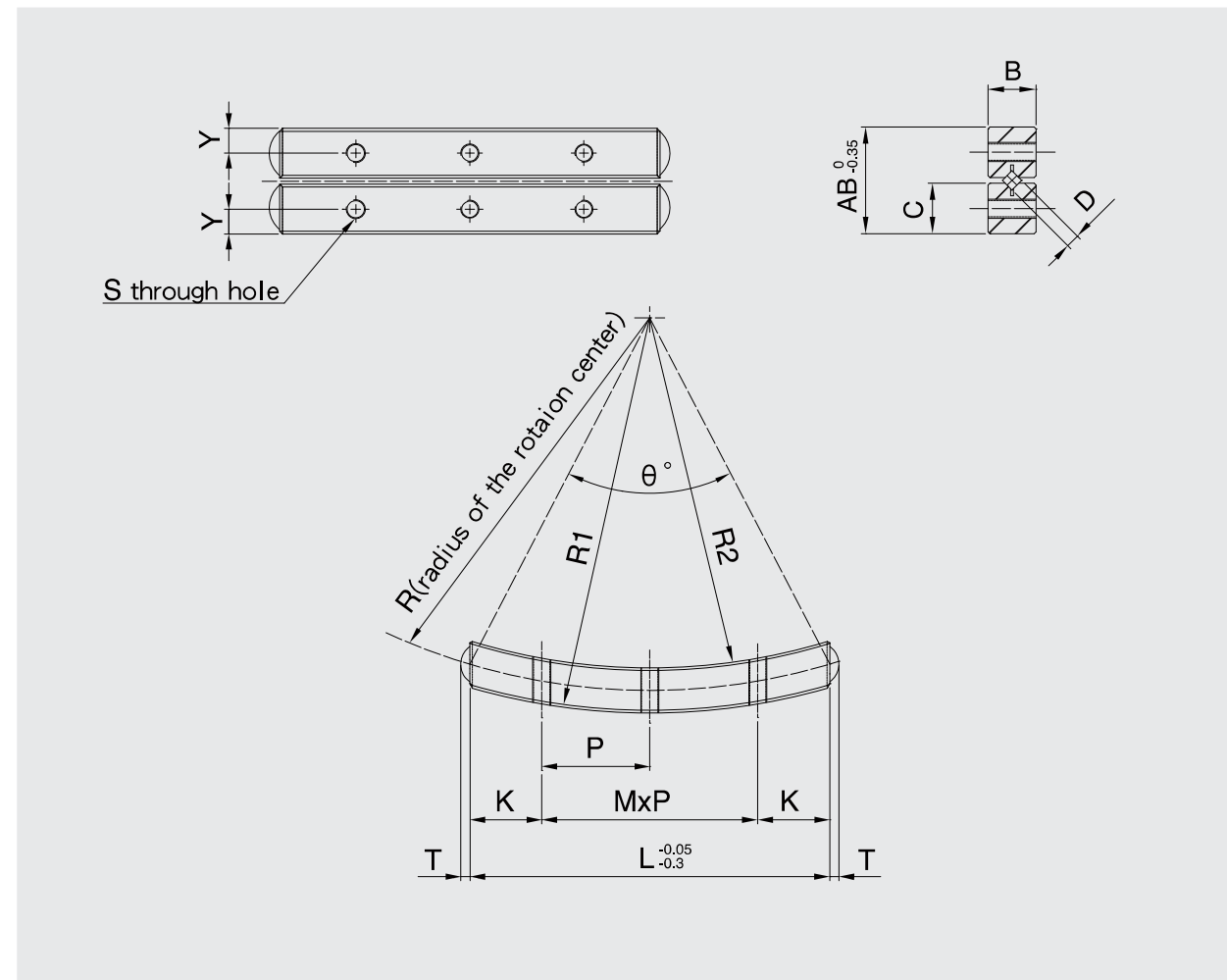


## Model No. Introductions



## Product Specification

© One set of GSRV models contains 4 gonio way rails, 2 roller retainers and 8 retaining screws.



## Product Introduction

Are non-circulating arc movement rails whose precise cross rollers have extremely low friction resistance to provide a stable arc movement.

They are mainly used in locating operations where rotation centers remain unchanged and correct changes of tilting degrees are required, they may also be applied to meet the purposes of optical instruments and measuring devices requiring high accuracy.

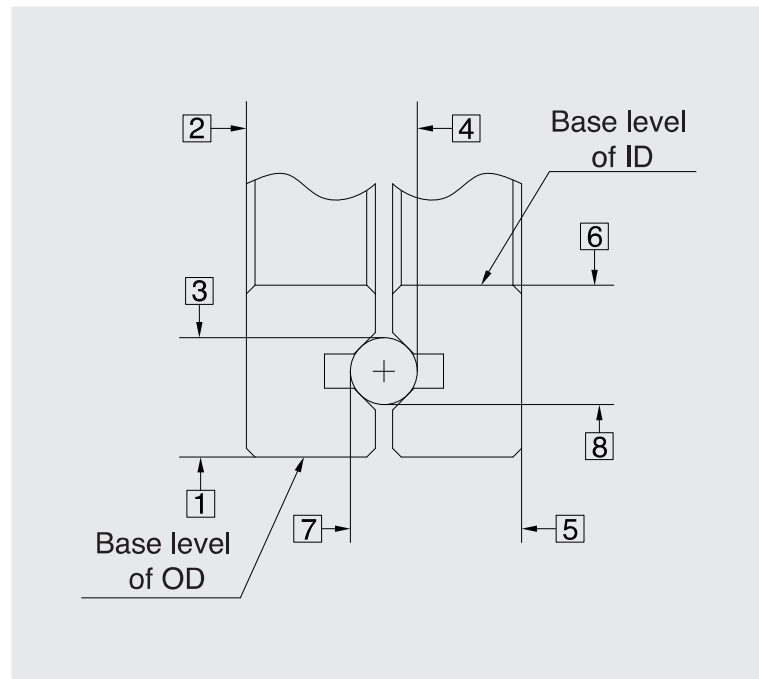
## Product Features

- © High rigidity and high loads
- © Identical locations of rotation centers
- © Low friction and accurate movement
- © Easy installation
- © Low noise

### Accuracy

© The accuracy of GSRV models of gonio ways is measured by the method shown in the following figure which measures the mutual deviations among the 4 rails along their full length.

Model No.	Accuracy
GSRV0240-50	10 μm
GSRV0260-60	
GSRV0370-90	
GSRV0370-110	
GSRV03100-160	
Model No.	Accuracy
GSCRV0240-51	10 μm
GSCRV0240-70	
GSCRV0240-89.5	
GSCRV0260-65	
GSCRV0260-89	
GSCRV0260-113.5	
GSCRV0260-138.5	



### Rated Life

- $L_f$  : Rated life( $10^6$  reciprocation number)
- $\theta$  : Rotating angle
- C : Basic dynamic rated load(N)
- F : Action load(N)
- $f_t$  : Temperature coefficient
- $f_L$  : Load coefficient

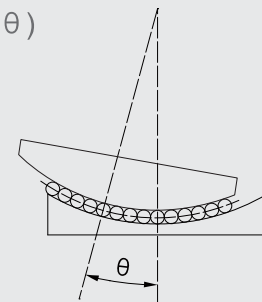
$$L_f = \frac{90}{\theta} \times \left( \frac{f_t}{f_L} \times \frac{C}{F} \right)^{\frac{10}{3}}$$

### Lifetime

- $L_t$  : Lifetime(hr)
- r : Reciprocation number per minute(pm)

$$L_t = \frac{L_f \times 10^6}{60 \times r}$$

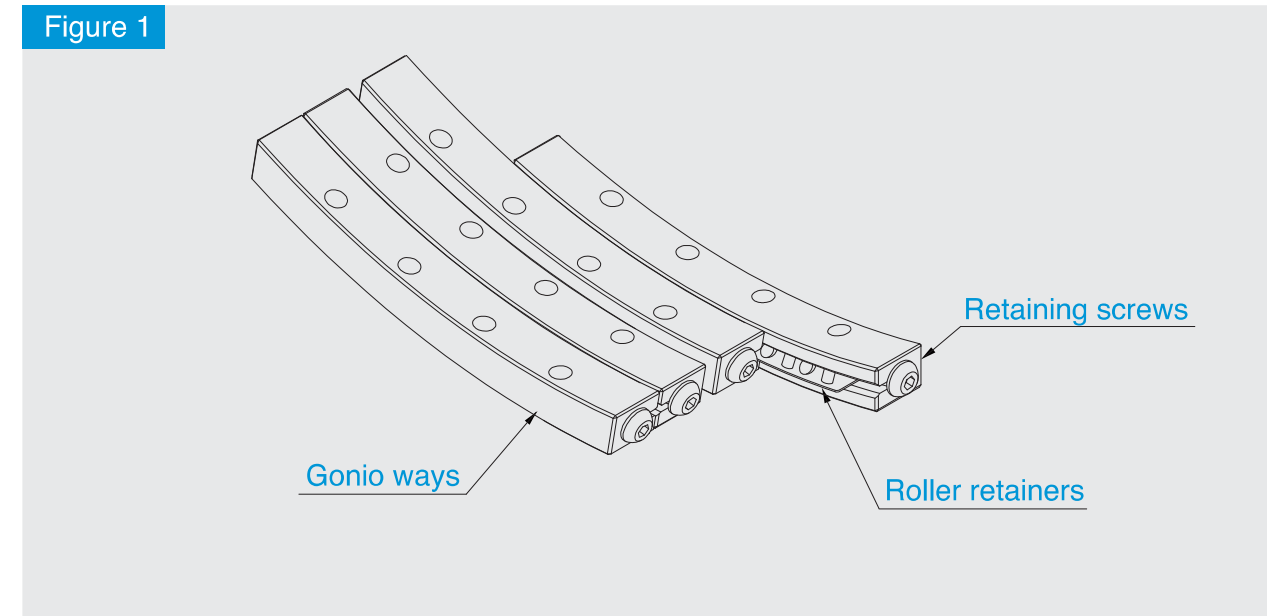
Rotating angle( $\theta$ )



### Product Structure

GSRV model (figure 1) of gonio ways are made up of precisely ground V-shaped rail and retainers equipped with crossed rollers.

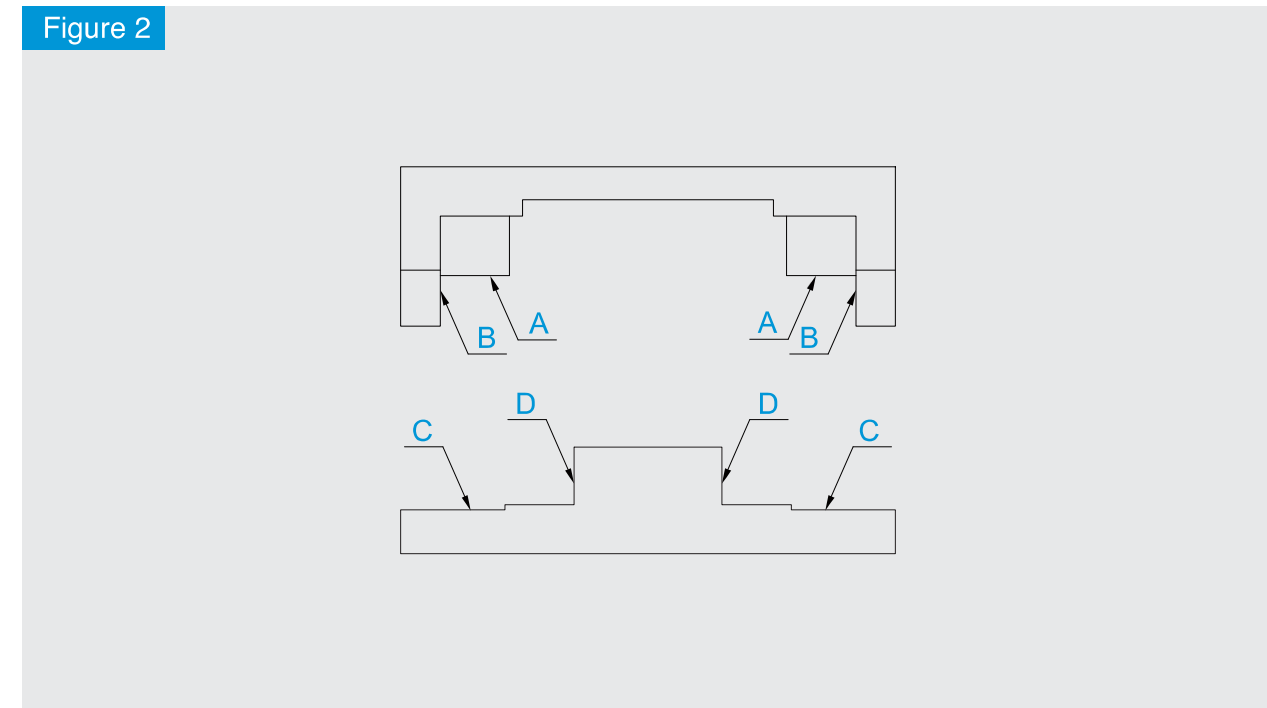
Figure 1



### Product Installation

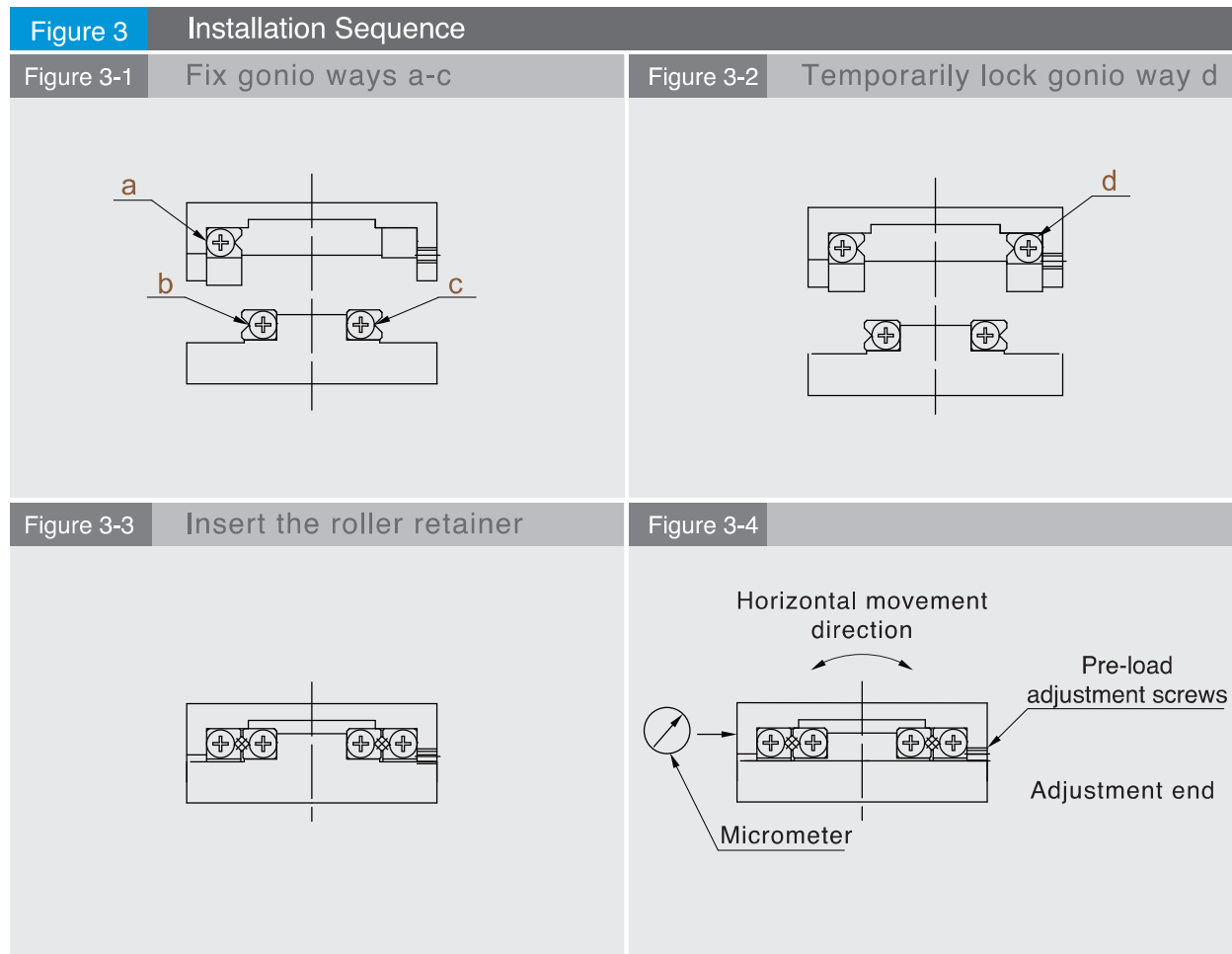
Accuracy of the installation surface as shown in figure 2, surface A, B, C, D accuracy will directly affect the movement accuracy of gonio ways.

Figure 2

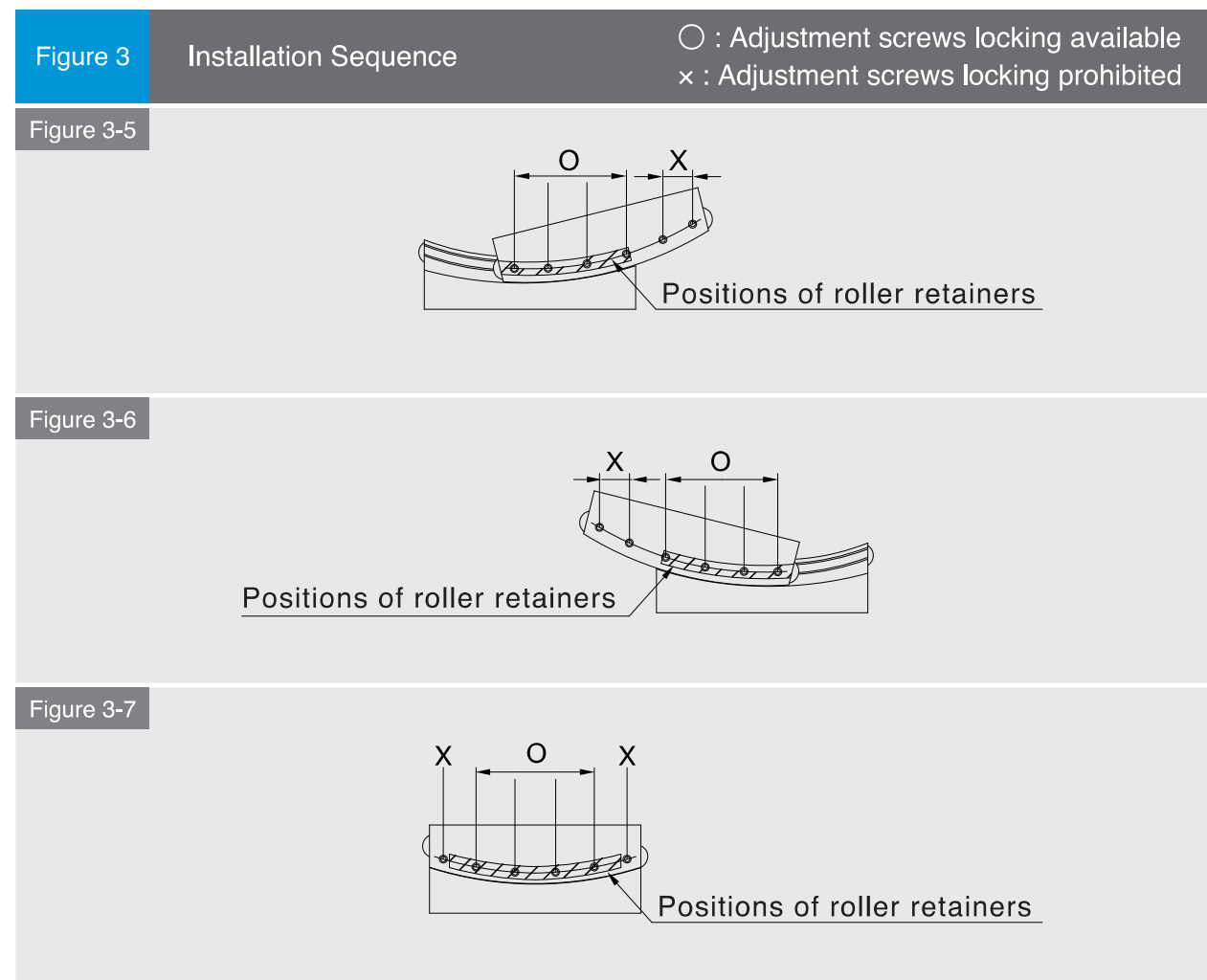


## Installation Sequence

- (1) Firstly, clean the sliding ways and the installation surface on the seat to prevent the entry of foreign objects during installation.
- (2) Apply low viscosity lubricant onto each installation surface and lock gonio ways a, b, c to each surface intallation by using the suggested torque force.(Figure 3-1)
- (3) Temporarily lock gonio by way d.(Figure 3-2)
- (4) Remove the retaining screws from any end and insert the roller retainers into the central position of the gonio way, upon the completion of the above operations, restore the screw to its original position.(Figure 3-3)
- (5) Try moving the sliding way horizontally to its maximal traveling end and adjust the roller retainer to its central position.(Figure 3-4)
- (6) Install a micrometer at the side of the sliding way base level.(Figure 3~4).



- (7) Move the sliding way to the traveling end at any side and slightly lock pre-load adjustment screw above the roller retainer. (Figure 3-5)
- (8) Move the sliding way to the traveling end at the other side and slightly lock pre-load adjustment screw.(Figure 3-6)
- (9) Move the sliding way to the central position and slightly lock the adjustment screw at the central position.(Figure 3-7)
- (10) Repeat operations from (7) to (9) until there is no backlash when moving the slide. Caution against applying excessiye pre-load.
- (11) Once there is no back lash in moving direction, the micromer reading is minimal and stable when the sliding way is moving, at this time, carry out final calibration of the pre-load by repeating operations from (7) to (9) by the torque force recommended to lock.
- (12) Tighten the gonio way d which has been temporarily locked per pre-load adjustment screws in sequence locking available.



## Precaution

### ◎ Lubrication of Retainers

Use lithium soap based lubricating grease.

### ◎ Deviation of Retainers

Retainers will deviate from their correct positions when gonio ways are used under conditions of high speed, vibrations and unbalanced loads.

To minimize this deviation, maintain additional travel distance and avoid excessive pre-stressed loads.

### ◎ Dust-Proof

Gonio ways may not realize their ideal performance due to dust or foreign objects likely to penetrate into their interior depending on operating environment. It is recommended to protect gonio ways by using external dust-proof covers on them if they are to be used in harsh environments.

### ◎ Damping Boards

Screws are installed on the end faces of the gonio ways to prevent the retainers falling.

### ◎ Environment for Using Gonio Ways

It is recommended to use our gonio ways in environments with temperature ranging from  $-20^{\circ}$  to  $110^{\circ}$ .

### ◎ Using a Paired Set Is a Principle

The accuracy for using gonio ways is based on the unit of a complete set to realize a precise control on the mutual deviation range.

The mixed use of gonio ways from different sets will result in a reduction of their accuracy, exercise caution when assembling gonio ways.

### ◎ Adjustments

When used under such circumstances where the accuracy on the installation face or the pre-load has not been fully adjusted, their movement accuracy will drop, thus resulting in the deflection or distortion and rendering it likely to reduce their use performance and life, exercise extreme caution during adjustment.

### ◎ Allowable Load

Please refer to the highest values of loads when the total flexible distortion on the contact parts remains small and a smooth rolling can still be performed under the maximal contact stress on the rolling body and rail surface.

In request of high accuracy and smooth environment, please handle within its design and permitted loads.



Product  
Specification  
**Gonio Ways**

### GSRV Model

Model No.	Gonio Sliding Range	Roller Dia. (D)(mm)	Roller Number (G)	Main Dimensions						
				L (mm)	R (mm)	R <sub>1</sub> (mm)	R <sub>2</sub> (mm)	AB (mm)	B (mm)	C (mm)
GSRV0240-50-7G	±10°	2	7	40	50	53	47	15	6	7.25
GSRV0260-60-12G			12	60	60	63	57			
GSRV0370-90-11G		3	11	70	90	94	86	18	8	8.5
GSRV0370-110-10G			10		110	114	106			
GSRV03100-160-14G			14		100	160	164			
Model No.	Weight Per Set (g)	Allowable Load (F)(N)	Basic Capacity		θ°	T (mm)	S	Y (mm)	K (mm)	MxP (mm)
			Static Load (C <sub>0</sub> )(N)	Dynamic Load (C)(N)						
GSRV0240-50-7G	47	480	1420	800	47.1°	1.5	M3	2.5	7.5	2x12.5
GSRV0260-60-12G	78	930	2870	1430	59.9°				11.25	3x12.5
GSRV0370-90-11G	135	1820	5480	2620	45.7°	1.9	3	12.5	12.5	3x15
GSRV0370-110-10G	131	1800	5600	2420	37°					
GSRV03100-160-14G	191	2600	7870	2840	36.3C					

### GSCRV Model

Model No.	Gonio Sliding Range	Roller Dia. (D)(mm)	Roller Number (G)	Main Dimensions						
				L (mm)	R (mm)	R <sub>1</sub> (mm)	R <sub>2</sub> (mm)	AB (mm)	B (mm)	C (mm)
GSCRV0240-51-7G	±8°	2	7	40	51	53.5	48.5	11.3	5	5.25
GSCRV0240-70-7G	±6°				70	72.5	67.5			
GSCRV0240-89.5-7G	±5°				89.5	92	87			
GSCRV0260-65-11G	±8°		11	60	65	68	62	16	6	7.6
GSCRV0260-89-11G					89	92	86			
GSCRV0260-113.5-11G	±6°		9	9	113.5	116.5	110.5	16	6	7.6
GSCRV0260-138.5-9G	±5°				138.5	141.5	135.5			
Model No.	Weight Per Set (g)	Allowable Load (F)(N)	Basic Capacity		θ°	T (mm)	S	Y (mm)	K (mm)	MxP (mm)
			Static Load (C <sub>0</sub> )(N)	Dynamic Load (C)(N)						
GSCRV0240-51-7G	29	480	1420	800	46.2°	1.5	M2	2	8	2x12
GSCRV0240-70-7G					33.2°					
GSCRV0240-89.5-7G					25.8°					
GSCRV0260-65-11G	79	853	2629	1320	55°	1.5	M3	2.5	11.25	3x12.5
GSCRV0260-89-11G	77				39.4°					
GSCRV0260-113.5-11G					30.7°					
GSCRV0260-138.5-9G					25°					

### Product Models and Specifications

#### GSRU

#### Inner ring integrated with outer ring type

Mounting holes on the assembly base have been fixed, no flange discs and supporting seats needs, therefore, reliable rotation accuracy and torque moments are well performed.



#### GSRB

#### Rotating inner rings and with split outer rings

Have split outer ring and inner ring connected with the main, body and it's the most appropriate product for application requiring high rotation accuracy of inner ring.

