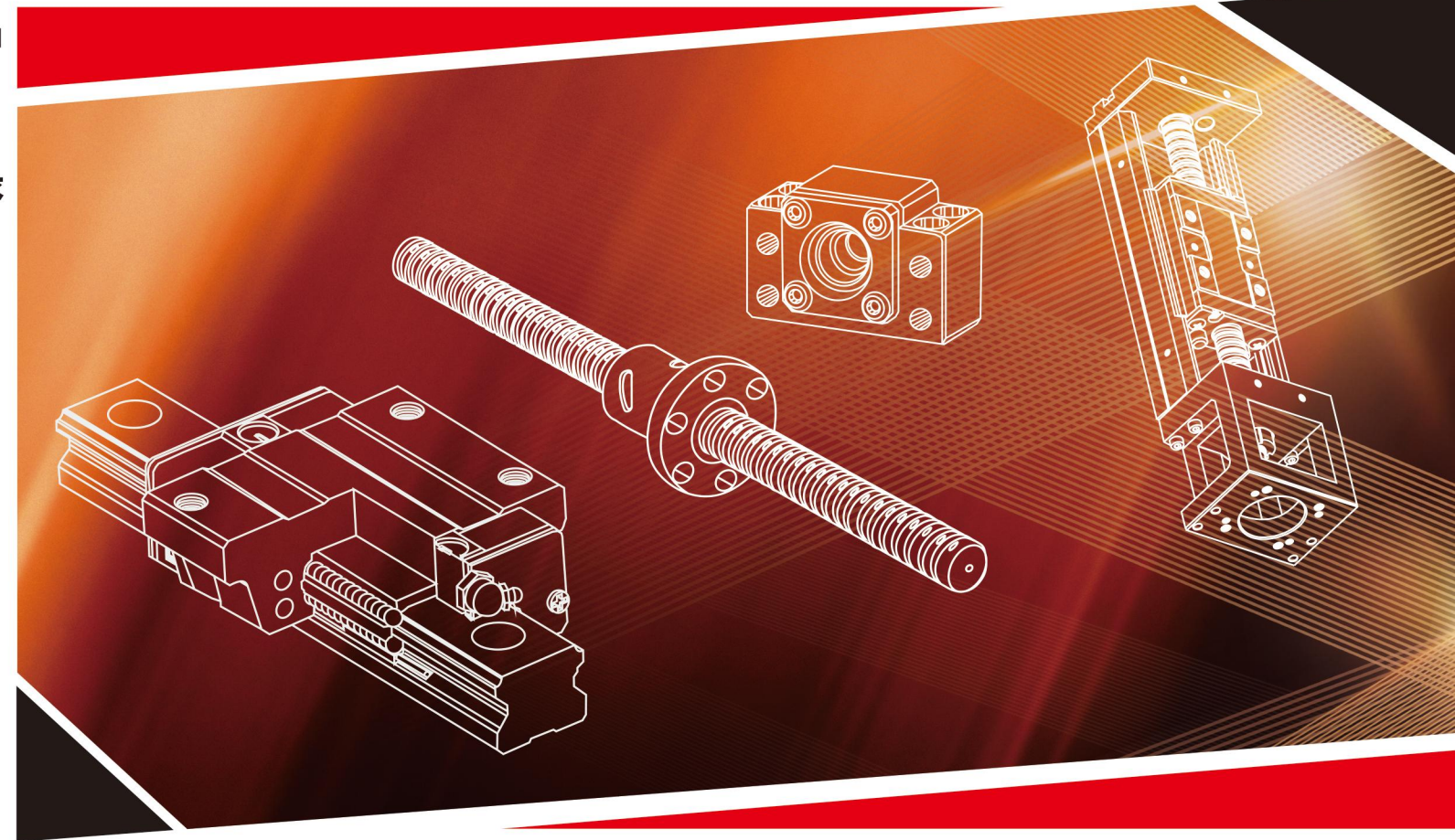




綜合產品目錄

**LINEAR GUIDEWAYS BALL SCREWS**

**SUPPORT UNIT OF BALL SCREW LINEAR MODULE**



線性導軌·滾珠螺桿·螺桿支撐座·線性模組

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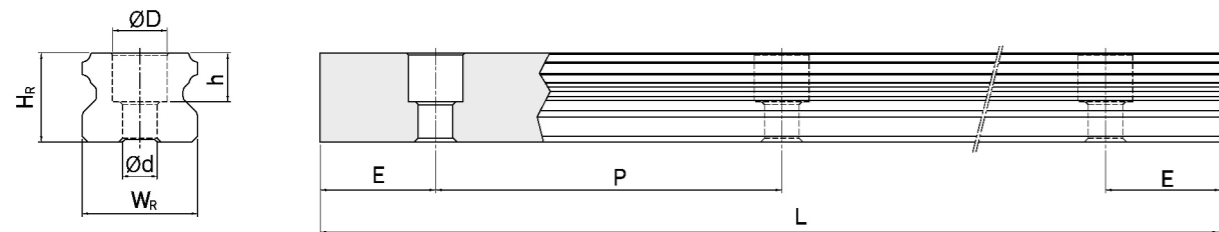
本型录内容仅供参考，如与实物不符，请以实物为准。本公司保留产品尺寸变更或停用之权利。

Note:the appearance and specification may be changed without prior notice only if the requirement improves performance.

**Jiangsu Zcf Precision Technology Co.,Ltd**

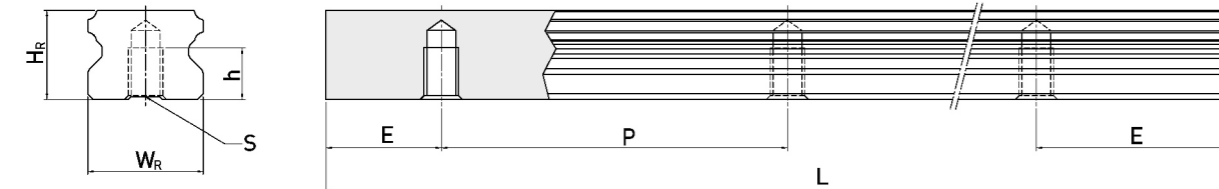
## Linear Guideways CE Series

### (4) Top mounting (extra-large bolt hole diameter) rail dimensions



Model	Rail Mounting Bolt Dimensions (mm)	Rail Dimensions (mm)							Weight (kg/m)
		$W_R$	$H_R$	D	h	d	P	E	
CER15U	M4x16	15	12.5	7.5	5.3	4.5	60	20	1.23
CER30U	M8x25	28	23	14	12	9	80	20	4.23

### (5) Bottom mounting rail dimensions



Model	Rail Dimensions (mm)						Weight (kg/m)
	$W_R$	$H_R$	S	h	P	E	
CER15T	15	12.5	M5 x 0.8P	7	60	20	1.26
CER20T	20	15.5	M6 x 1P	9	60	20	2.15
CER25T	23	18	M6 x 1P	10	60	20	2.79
CER30T	28	23	M8 x 1.25P	14	80	20	4.42
CER35T	34	27.5	M8x1.25P	14	80	20	6.34

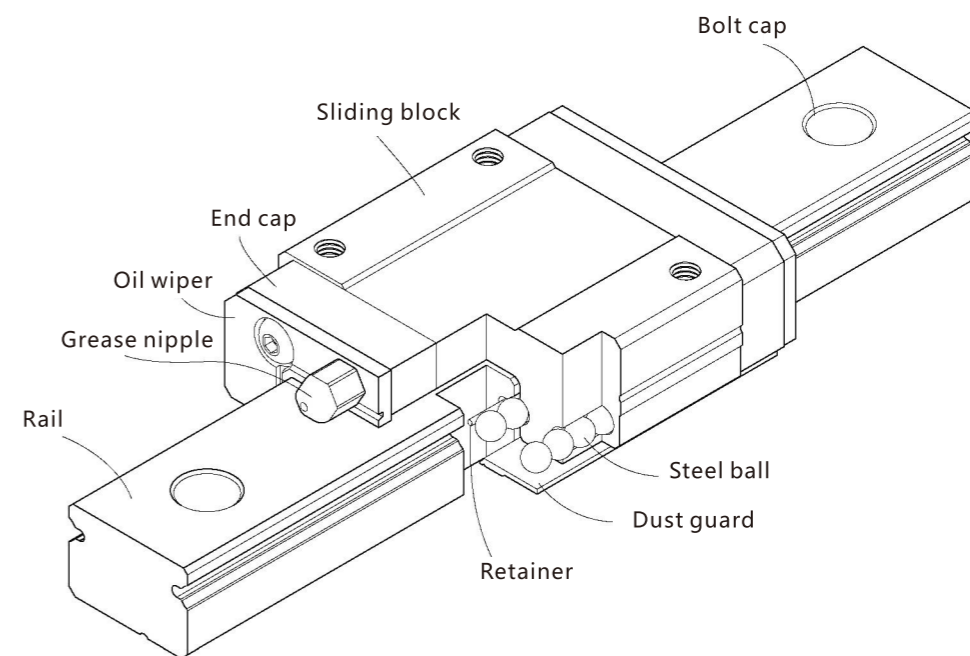
Weight

## 2-3 CGN/CGW Series – Miniature Linear Guideway

### 2-3-1 Features of CGN Series Miniature Linear Guideway

1. Small, light & quite suitable for small equipment
2. Material of sliding block and rail: stainless steel. Linear guideways made of stainless steel mean the sliding block, rail and other metal accessories (e.g. steel ball, retainer, etc.) are all made of stainless steel and therefore rust-proof.
3. The Gothic four-point contact design can carry loads from all directions and features high rigidity, high accuracy, etc.
4. The steel ball retainer design allows interchangeability if the accuracy permits.

### 2-3-2 Construction of CGN Series



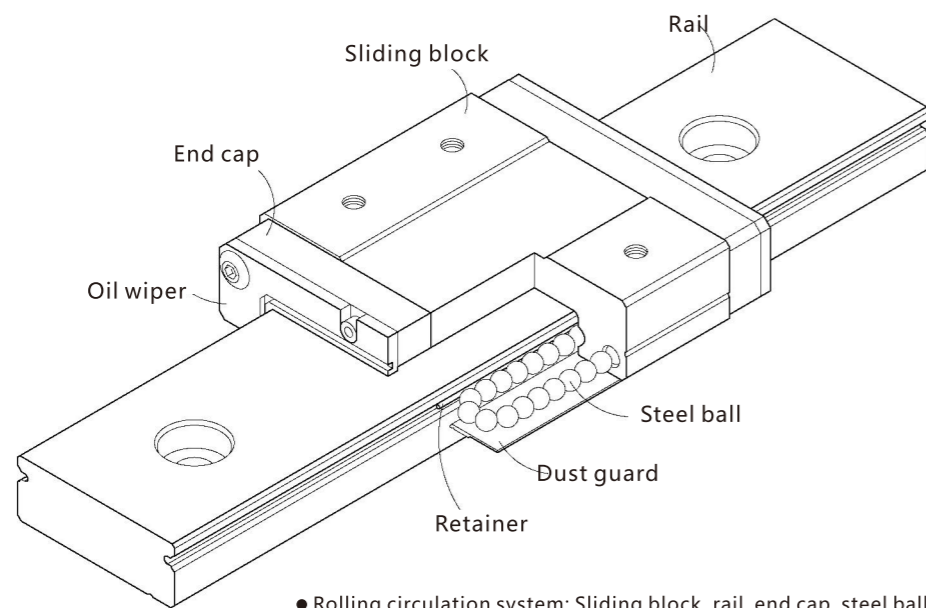
- Rolling circulation system: Sliding block, rail, end cap, steel ball and retainer
- Lubrication system: For CGN15, there is a grease nipple on the end cap side for customers to fill grease; for CGN7, 9 and 12, a filler hole is reserved on the end cap side to inject oil or grease into the sliding block for lubrication
- Dust protection system: Oil wiper, dust guard (optional for specifications 9, 12 and 15) and bolt cap (for specifications 12 and 15).

## Linear Guideways CG Series

### 2-3-3 Features of CGW Series Miniature Wide Linear Guideway

1. The widened rail design significantly enhances the moment loading capacity and realizes single-axis utilization.
2. The Gothic four-point contact design can carry loads from all directions and features high rigidity.
3. The sliding block is equipped with miniature retainer to hold the steel balls which will not fall out even when the sliding block is removed.
4. The rail, sliding block and all metal accessories are made of stainless steel and therefore corrosion resistant.

### 2-3-4 Construction of CGW Series



- Rolling circulation system: Sliding block, rail, end cap, steel ball and retainer
- Lubrication system: For CGW15, there is a grease nipple on the end cap side for customers to fill grease; for CGW7, 9 and 12, a filler hole is reserved on the end cap side to inject oil or grease into the sliding block for lubrication
- Dust protection system: Oil wiper, dust guard (optional for specifications 9, 12 and 15) and bolt cap (for specifications 12 and 15).

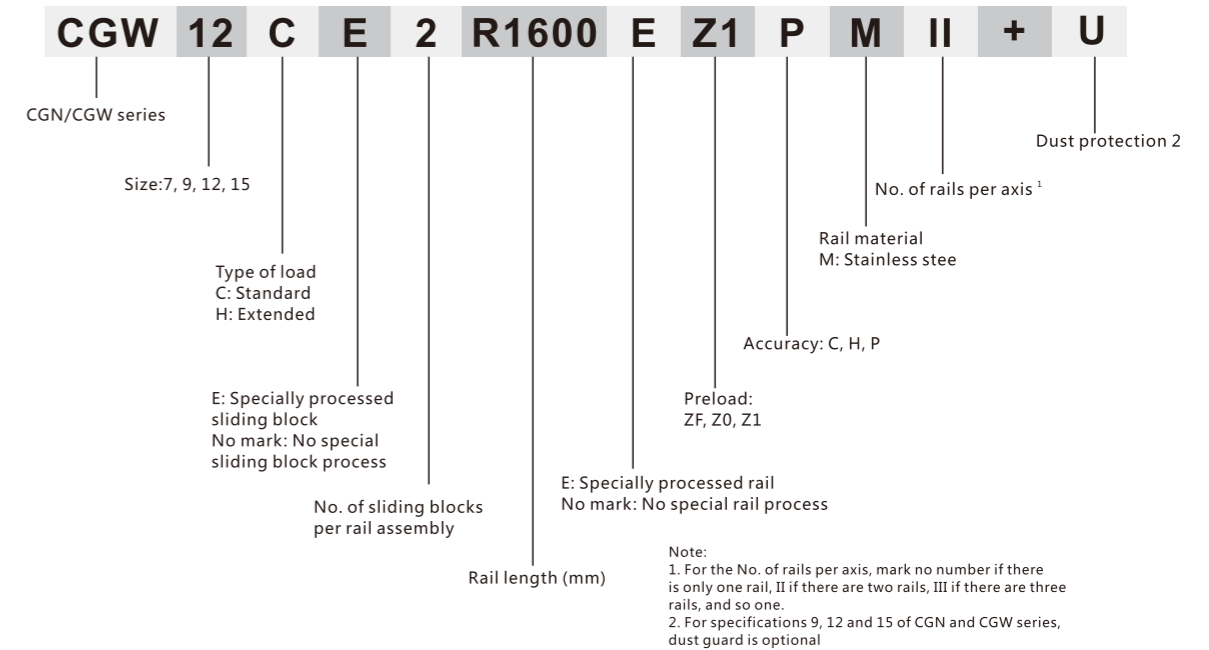
### 2-3-5 Scope of Application

The CGN/CGW series are intended for: semiconductor manufacture equipment, PCB IC assembly equipment, medical equipment, robots, precision measuring instruments, office automation equipment and other miniature linear slides.

### 2-3-6 Product Specification

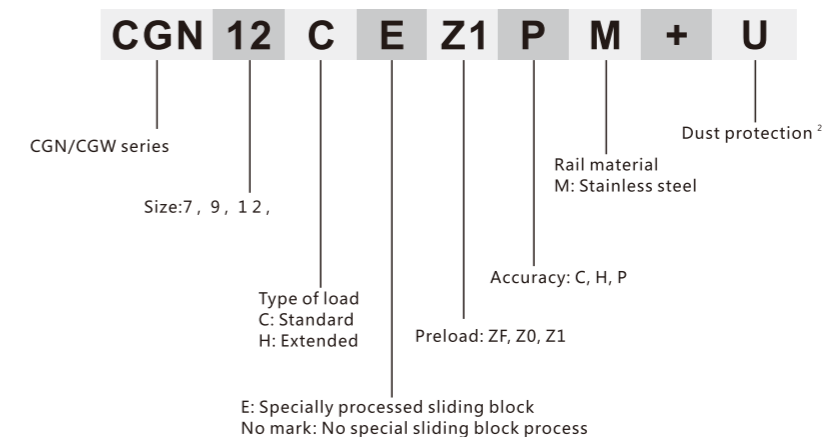
There are two types of linear guideways: non-interchangeable and interchangeable, and they have the same size. Their main difference is that the sliding blocks and rails of the interchangeable type can be easily exchanged individually but the assembly accuracy cannot reach the ultra high precision of the non-interchangeable type. Nevertheless, because of the excellent dimensional control and strict quality requirements of ZCF with respect to manufacture, the assembly accuracy of the interchangeable type has now reached a certain level and it is a good choice for customers without the need of paired linear guideways. The product specification of linear guideways mainly shows the size, type, accuracy class, preload and other specification requirements of the linear guideway, to facilitate both parties' verification of the product when an order is being placed.

### (1) Model of non-interchangeable linear guideways

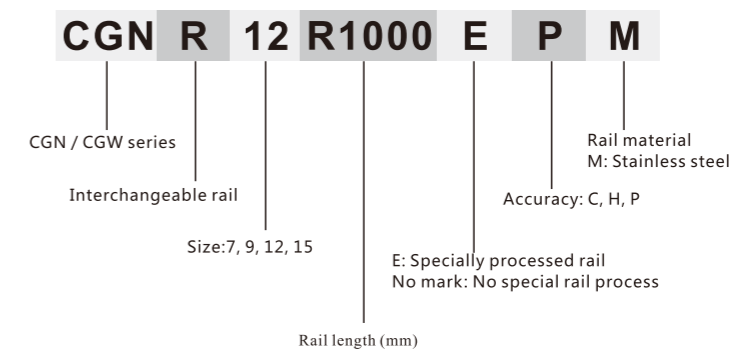


### (2) Model of interchangeable linear guideways

#### ● Model of interchangeable sliding block



#### ● Model of interchangeable rail

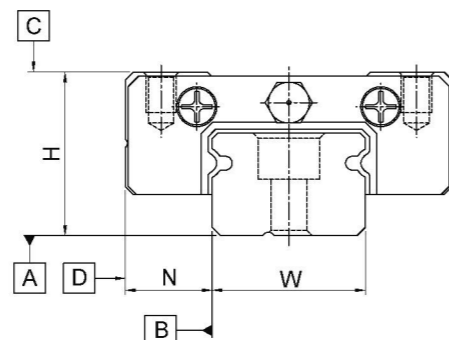




## Linear Guideways CG Series

### 2-3-7 Accuracy Classes

The accuracy of the CGN and CGW series miniature guideways can be classified into three classes: common, high and precision. Customers can select the accuracy based on equipment accuracy.



#### (1) Accuracy of non-interchangeable linear guideways

The assembly height H is measured at the center of the top reference plane of the sliding block and the assembly width N is measured at the center of the side reference plane of the sliding block.

Table 2.48 Accuracy Table

In: mm

Accuracy Class	Common (C)	High (H)	Precision (P)
Allowable dimension error of height H	± 0.04	± 0.02	± 0.01
Allowable dimension error of width N	± 0.04	± 0.025	± 0.015
Variation of height H of a pair	0.03	0.015	0.007
Variation of width N of a pair (reference rail)	0.03	0.02	0.01
Traveling parallelism of sliding block surface C and rail surface A	Traveling parallelism (see Table 2.50)		
Traveling parallelism of sliding block surface D and rail surface B	Traveling parallelism (see Table 2.50)		

#### (2) Accuracy of interchangeable linear guideways

With regard to the accuracy of interchangeable linear guideways, if the sliding block is mounted on a single rail, the pair height and width accuracies are the same as those of non-interchangeable linear guideways, but if it is mounted on different rails, the pair height and width accuracies are poorer than those of non-interchangeable linear guideways due to the rail height variation and they still have the same traveling parallelism accuracy.

Table 2.49 Interchangeable Linear Guideway Accuracy Table

In: mm

Accuracy Class	Common (C)	High (H)	Precision (P)
Allowable dimension error of height H	± 0.04	± 0.02	± 0.01
Allowable dimension error of width N	± 0.04	± 0.025	± 0.015
When paired with one rail	Variation of height H	0.03	0.015
	Variation of Width N	0.03	0.02
When paired with plural rails: Variation of height H	0.07	0.04	0.02
Traveling parallelism of sliding block surface C and rail surface A	Traveling parallelism (see Table 2.50)		
Traveling parallelism of sliding block surface D and rail surface B	Traveling parallelism (see Table 2.50)		

### (3) Accuracy of traveling parallelism

The traveling parallelism of rail C to A and D to B depends on the rail accuracy and length. The values are listed below.

Table 2.50 Traveling Parallelism

Rail Length (mm)	Accuracy Class (μm)			Rail Length (mm)	Accuracy Class (μm)		
	(C)	(H)	(P)		(C)	(H)	(P)
50 以下	12	6	2	315 ~ 400	18	11	6
50 ~ 80	13	7	3	400 ~ 500	19	12	6
80 ~ 125	14	8	3.5	500 ~ 630	20	13	7
125 ~ 200	15	9	4	630 ~ 800	22	14	8
200 ~ 250	16	10	5	800 ~ 1,000	23	16	9
250 ~ 315	17	11	5	1,000 ~ 1,200	25	18	11

### 2-3-8 Preload

The CGN/CGW series offers three types of preload: common gap, no preload and light preload.

Table 2.51 Preload Classes

Preload Class	Mark	Preload	Applicable Accuracy
Common gap	ZF	Precise gap: 4~10 μm	C
No preload	Z0	0	C~P
Light preload	Z1	0.02C	C~P

Note: C in the preload field indicates the dynamic rated load.

### 2-3-9 Dust Protection Accessories

The standard dust protection contains oil wipers on both ends of the sliding block, to prevent dust or impurities from entering the sliding block and affecting the life and accuracy of the linear guideway. The dust guard is mounted on the bottom of the sliding block to prevent dust or impurities from entering the sliding block from the bottom and the code +U is required behind the model if customers want the dust guard. For specification 7, the gap (H<sub>1</sub>) between the sliding block and the bottom bearing surface is small and no dust guard is fitted, but the dust guard is optional for specifications 9, 12 and 15. when selecting the dust guard, customers should note that the gap (H<sub>1</sub>) may reduce and that the height of the side bearing surface should not exceed H<sub>1</sub>, to avoid interference between sliding block and side bearing surface during running.

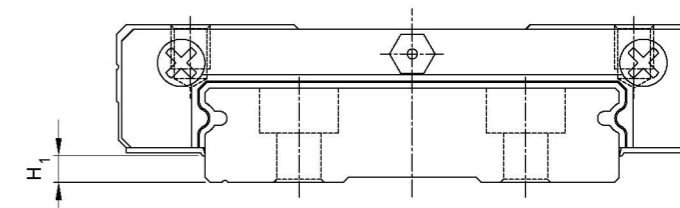


Table 2.52 H<sub>1</sub> Between Sliding Block with Dust Guard and Mounting Surface

Model	Dust Guard	H <sub>1</sub> mm
CGN 7	-	-
CGN 9	●	1
CGN 12	●	2
CGN 15	●	3
CGW 7	-	-
CGW 9	●	2.1
CGW 12	●	2.6
CGW 15	●	2.6



## Linear Guideways CG Series

### 2-3-10 Precautions for Installation

- Shoulder height and fillet of mounting surface

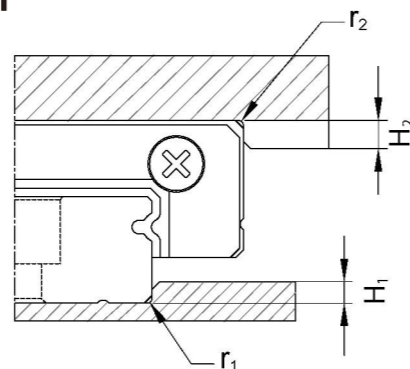


Table 2.53 Shoulder Height and Fillet

Spec.	Max. Fillet Radius of Shoulder r <sub>1</sub> (mm)	Max. Fillet Radius of Shoulder r <sub>2</sub> (mm)	Shoulder Height of Rail H <sub>1</sub> (mm)	Shoulder Height of Sliding Block H <sub>2</sub> (mm)
CGN 7	0.2	0.2	1.2	3
CGN 9	0.2	0.3	1.7	3
CGN 12	0.3	0.4	1.7	4
CGN 15	0.5	0.5	2.5	5
CGW 7	0.2	0.2	1.7	3
CGW 9	0.3	0.3	2.5	3
CGW 12	0.4	0.4	3	4
CGW 15	0.4	0.8	3	5

### ● Torques of rail mounting screws

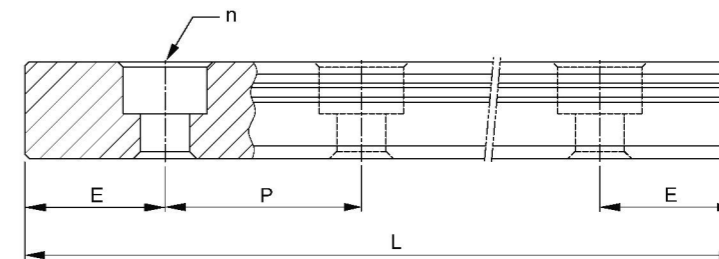
Whether the rail is tightly pressed against the reference plane at the time of installation directly and seriously affects the accuracy of the linear guideway. Hence, it is recommended to use the following torques so as to tighten every single screw.

Table 2.54 Torque

Spec.	Screw Spec.	Torque (kgf-cm)
CGN 7	M2	5.9
CGN 9	M3	19
CGN 12	M3	19
CGN 15	M3	19
CGW 7	M3	19
CGW 9	M3	19
CGW 12	M4	40
CGW 15	M4	40

### 2-3-11 Standard and Max. Lengths of a Single Rail

Customers are provided with the inventory of standard rail lengths. If the customer orders rails of non-standard length, the end face distance E should not exceed 1/2P, to prevent excessively high E from causing rear instability after rail assembly and reducing accuracy of the linear guideway. However, the excessively low E (<E<sub>min</sub>) also should not be adopted, to avoid damaging the bolt holes.



$$L = (n-1) \times P + 2 \times E \quad \text{Eq.2.3}$$

L: Total length of rail (mm)

n: Number of bolt holes

P: Distance between bolt holes (mm)

E: Distance from bolt hole to end face (mm)

Table 2.55 Rail Length

In: mm

Spec.	CGNR	CGNR	CGNR	CGNR	CGWR	CGWR	CGWR	CGWR
	7M	9M	12M	15M	7M	9M	12M	15M
Standard length L (n)	40(3)	55(3)	70(3)	70(2)	80(3)	80(3)	110(3)	110(3)
	55(4)	75(4)	95(4)	110(3)	110(4)	110(4)	150(4)	150(4)
	70(5)	95(5)	120(5)	150(4)	140(5)	140(5)	190(5)	190(5)
	85(6)	115(6)	145(6)	190(5)	170(6)	170(6)	230(6)	230(6)
	100(7)	135(7)	170(7)	230(6)	200(7)	200(7)	270(7)	270(7)
	130(9)	155(8)	195(8)	270(7)	260(9)	230(8)	310(8)	310(8)
		175(9)	220(9)	310(8)		260(9)	350(9)	350(9)
		195(10)	245(10)	350(9)		290(10)	390(10)	390(10)
		275(14)	270(11)	390(10)		350(14)	430(11)	430(11)
		375(19)	320(13)	430(11)		500(19)	510(13)	510(13)
			370(15)	470(12)		710(24)	590(15)	590(15)
			470(19)	550(14)		860(29)	750(19)	750(19)
		570(23)	670(17)			910(23)	910(23)	
		695(28)	870(22)			1070(27)	1070(27)	
Distance (P)	15	20	25	40	30	30	40	40
Standard end distance (E)	5	7.5	10	15	10	10	15	15
Max. length at standard end distance	595(40)	995(40)	1995(80)	1990(50)	590(20)	1190(40)	1990(50)	1990(50)
Max. length	600	1000	2000	2000	600	1200	2000	2000

Note:

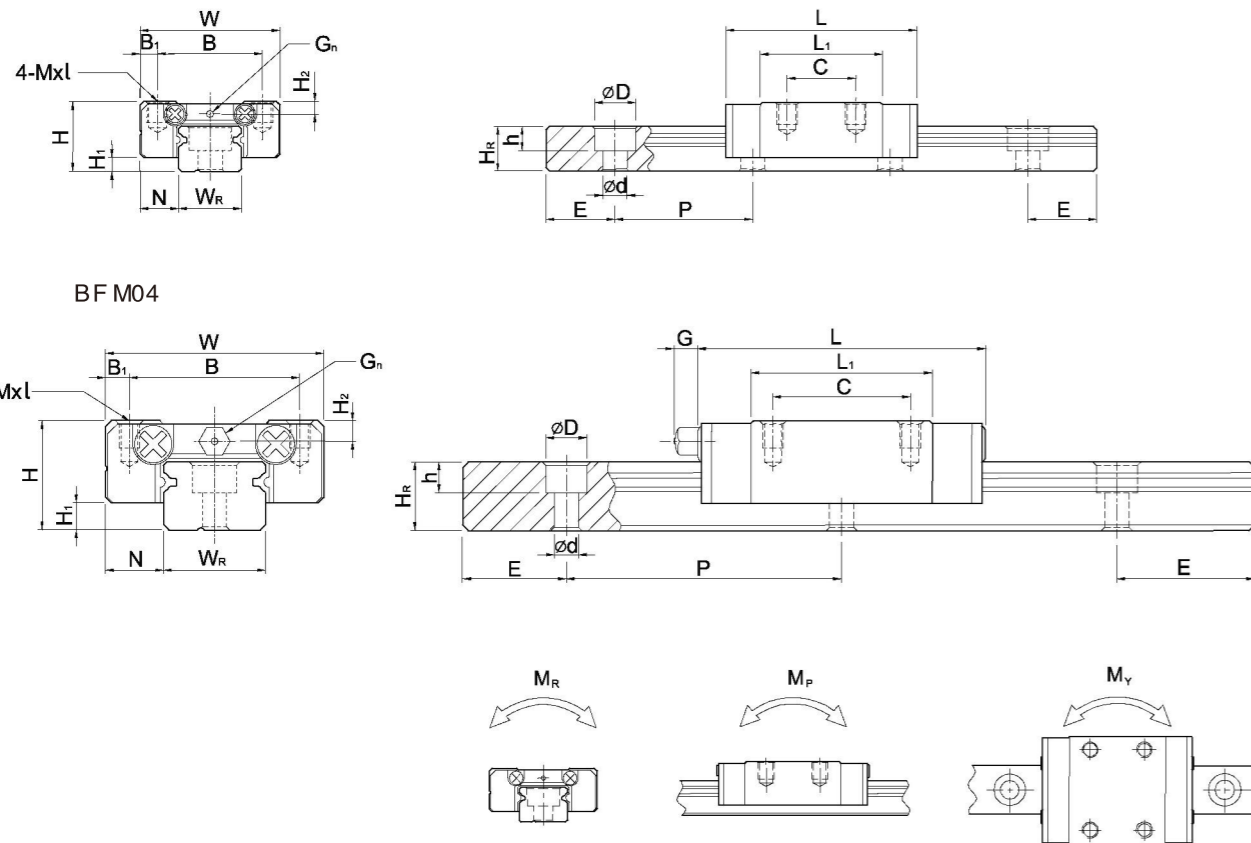
- The tolerance of E for common rails is 0.5~0.5 mm; the tolerance of E for rail joint is more strict: 0~0.3 mm.
- Max. length at standard end distance refers to the maximum length of a rail with standard end distances on both sides.
- In the Spec. field, "M" indicates the material of stainless steel (SUS) and no "M" indicates the material of alloy steel.
- The Max. length field indicates the length within the specification. Please contact ZCF if it is otherwise required.
- Please contact ZCF if there is the need of a different E.

# Linear Guideways CG Series

## 2-3-12 Dimensions of CGN/CGW Series Linear Guideway

### (1) CGN-C / CGN-H

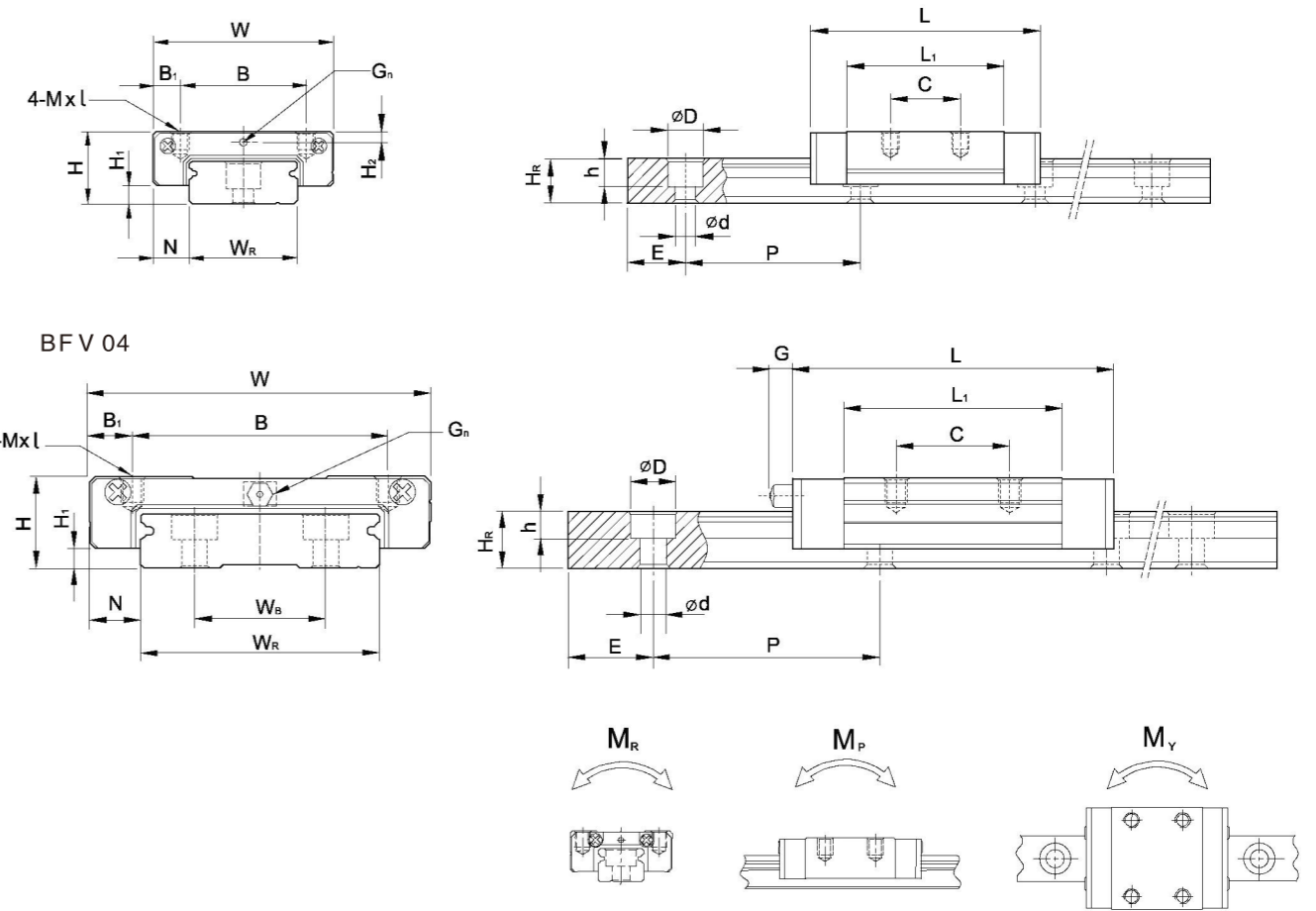
#### CGN7, CGN9, CGN12



Model	Assembly Dimensions (mm)		Sliding Block Dimensions (mm)										Rail Dimensions (mm)					Rail Mounting Bolt Dimensions (mm)	Basic Dynamic Rated Load C (kgf)	Basic Static Rated Load C <sub>0</sub> (kgf)	Allowable Static Moment			Weight					
	H	H <sub>1</sub>	N	W	B	B <sub>1</sub>	C	L <sub>1</sub>	L	G	G <sub>n</sub>	Mxl	H <sub>2</sub>	W <sub>R</sub>	H <sub>R</sub>	D	h				d	P	E	M <sub>R</sub>	M <sub>P</sub>	M <sub>Y</sub>	Sliding block g	Rail kg/m	
																										kgf-m	kgf-m	kgf-m	
CGN 7C	8	1.5	5	17	12	2.5	8	13.5	22.5	-	1.2	M2x2.5	1.5	7	4.8	4.2	2.3	2.4	15	5	M2x6	100	127	0.48	0.29	0.29	10	0.22	
CGN 7H							13	21.8	30.8												140	200	0.78	0.49	0.49	15			
CGN 9C	10	2	5.5	20	15	2.5	10	18.9	28.9	-	1.2	M3x3	1.8	9	6.5	6	3.5	3.5	20	7.5	M3x8	190	260	1.2	0.75	0.75	16	0.38	
CGN 9H							16	29.9	39.9													260	410	2	1.9	1.9	26		
CGN 12C	13	3	7.5	27	20	3.5	15	21.7	34.7	-	1.4	M3x3.5	2.5	12	8	6	4.5	3.5	25	10	M3x8	290	400	2.6	1.4	1.4	34	0.65	
CGN 12H							20	32.4	45.4													380	600	3.9	3.7	3.7	54		
CGN 15C	16	4	8.5	32	25	3.5	20	26.7	42.1	4.5	M3	M3x4	3	15	10	6	4.5	3.5	40	15	M3x10	470	570	4.6	2.2	2.2	59	1.06	
CGN 15H							25	43.4	58.8													650	930	7.5	5.9	5.9	92		

### (2) CGW-C / CGW-H

#### CGW7, CGW9, CGW12



Model	Assembly Dimensions (mm)		Sliding Block Dimensions (mm)										Rail Dimensions (mm)					Rail Mounting Bolt Dimensions (mm)	Basic Dynamic Rated Load C (kgf)	Basic Static Rated Load C <sub>0</sub> (kgf)	Allowable Static Moment			Weight					
	H	H <sub>1</sub>	N	W	B	B <sub>1</sub>	C	L <sub>1</sub>	L	G	G <sub>n</sub>	Mxl	H <sub>2</sub>	W <sub>R</sub>	W <sub>B</sub>	H <sub>R</sub>	D				h	d	P	E	M <sub>R</sub>	M <sub>P</sub>	M <sub>Y</sub>	Sliding block g	Rail kg/m
																										kgf-m	kgf-m	kgf-m	
CGW 7C	9	1.9	5.5	25	19	3	10	21	31.2	-	1.2	M3x3	1.85	14	-	5.2	6	3.2	3.5	30	10	M3x6	140	210	1.6	0.73	0.73	20	0.51
CGW 7H							19	30.8	41														180	320	2.39	1.58	1.58	29	
CGW 9C	12	2.9	6	30	21	4.5	12	27.5	39.3	-	1.4	M3x3	2.4	18	-	7	6	4.5	3.5	30	10	M3x8	280	420	4.09	1.93	1.93	40	0.91
CGW 9H							23	3.5	24														38.5	50.7	350	600	5.56	3.47	
CGW 12C	14	3.4	8	40	28	6	15	31.3	46.1	-	1.4	M3x3.6	2.8	24	-	8.5	8	4.5	4.5	40	15	M4x8	400	570	7.17	2.83	2.83	71	1.49
CGW 12H							28	45.6	60.4														520	840	10.47	5.85	5.85	103	
CGW 15C	16	3.4	9	60	45	7.5	20	38	54.8	5.2	M3	M4x4.2	3.2	42	23	9.5	8	4.5	4.5	40	15	M4x10	690	940	20.32	5.78	5.78	143	2.86
CGW 15H							35	57	73.8														910	1410	30.48	12.5	12.5	215	