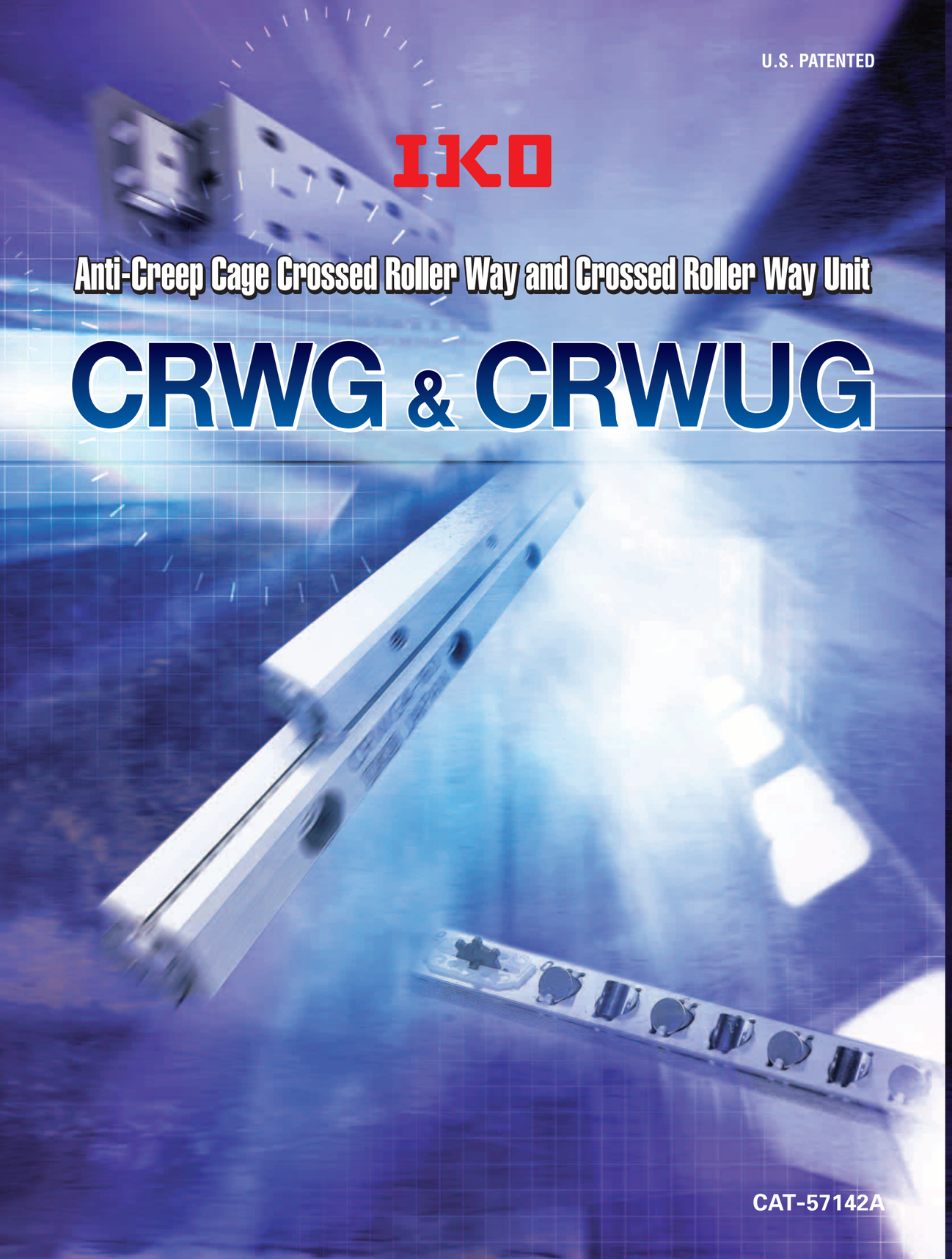
U.S. PATENTED

IKO

Anti-Creep Cage Crossed Roller Way and Crossed Roller Way Unit

CRWG & CRWUG



CAT-57142A

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IKO Website

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No man is free who can not control himself

IKO strives to be a leader in Technology. Our primary source for development is listening to the customer wants and needs. Our performance and work separate us from others by utilizing our creative thinking and original technologies. IKO is constantly developing and implementing new and advanced technologies in pursuit of excellent motion performance and service for your cost savings.

Perfect solution for the cage creep problem. Super high accuracy with ultra smooth linear motion with no cage-creep is achieved by incorporating IKO's exclusive rack and pinion mechanism.

U.S. PATENT No. 6736541

IKO Anti-Creep Cage Crossed Roller Way
CRWG

IKO Anti-Creep Cage Crossed Roller Way Unit
CRWUG

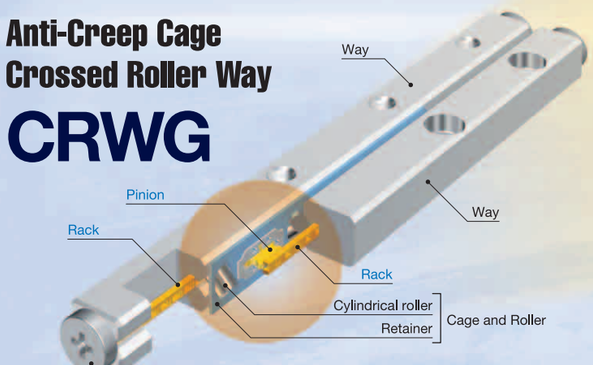
IKO Anti-Creep Cage Crossed Roller Way & Anti-Creep Cage Crossed Roller Way Unit

CRWG • CRWUG

IKO Anti-Creep Cage Crossed Roller Way is the product with a cage creep proof function using a rack and pinion mechanism originated from IKO Crossed Roller Way, featuring smooth linear motion with super high accuracy.

Anti-Creep Cage Crossed Roller Way

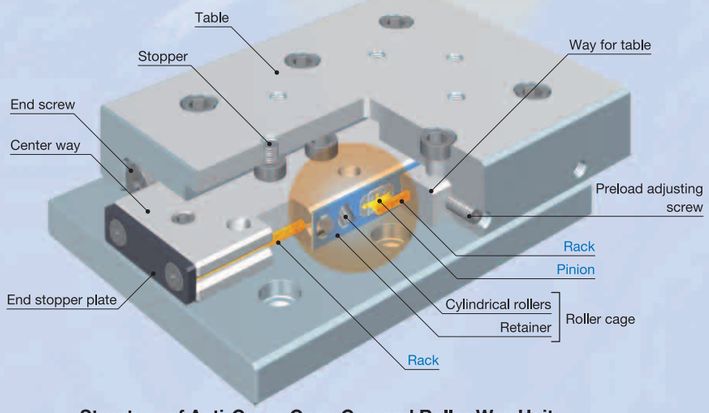
CRWG



Structure of Anti-Creep Cage Crossed Roller Way

Anti-Creep Cage Crossed Roller Way Unit

CRWUG



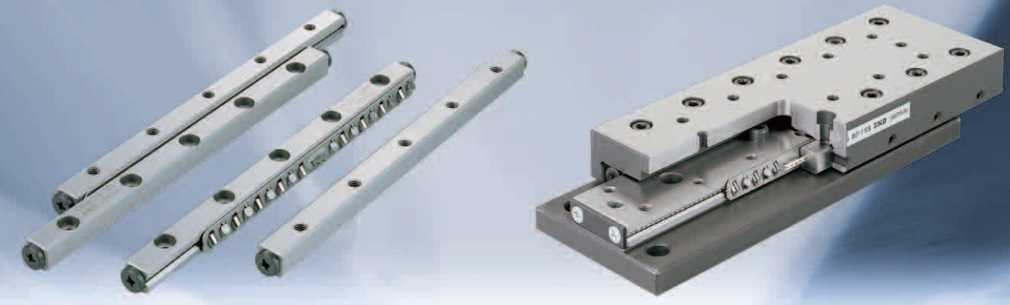
Structure of Anti-Creep Cage Crossed Roller Way Unit

Series and sizes

Material	Series	Shape	Model code	Size	Length
Carbon steel	IKO Anti-Creep Cage Crossed Roller Way	Standard	CRWG	2	30 45 60 75 90 105 120 135 150
				3	50 75 100 125 150 175 200 225 250
				4	80 120 160 200 240 280 320
				6	100 150 200 250 300 350
	IKO Anti-Creep Cage Crossed Roller Way Unit	Unit type	CRWUG	40	35 50 65 80 95 110 125
				60	55 80 105 130 155
				80	85 125 165 205

Built in rack and pinion mechanism solves cage creep problem.

IKO original rack and pinion structure



Solves cage creep problem

Perfect solution for cage creep problems by a built in rack and pinion mechanism as an IKO original design.

Freedom in mounting

This series is reliable for applications such as a vertical axis where Crossed Roller Way may have chances of cage creep.

High-speed and high-tact operation

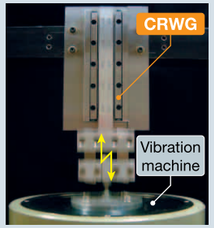
Any corrective operation for cage creep is not necessary even for a longtime operation. Energy saving in the operation is possible.

No cage creep even under high-tact operation in vertical axis

《Durability test》

Test condition

Model number	CRWG3	
Test method	Vibration test machine	
Condition	Posture	Vertical
	Maximum speed	827 mm/s
	Acceleration	15 G
	Number of cycle	31 Hz
	Stroke length	8 mm
	Mass of moving part	330 g
Total cycles	100,000,000 cycles	

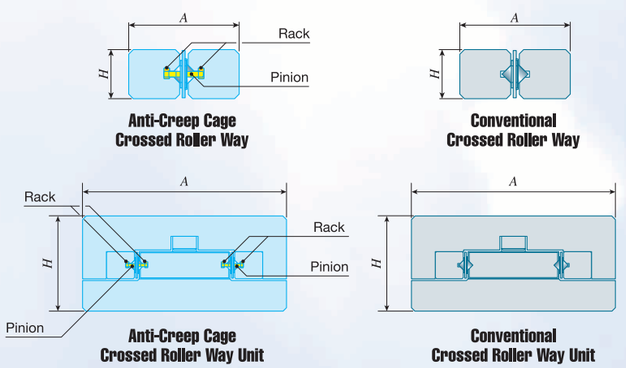


《Result》

No cage creep nor material damage in any component is found.

Interchangeable in dimensions

CRWG and CRWUG are dimensionally interchangeable to IKO Crossed Roller Way and Crossed Roller Way Unit.
Since they have the same external dimensions to those of the existing Crossed Roller Way and Crossed Roller Way Unit, existing Crossed Roller Way and Crossed Roller Way Unit can be replaced without any modification.



Smooth and accurate operation

Combination of precisely finished raceways and non-recirculating cages with super high precision rollers provides superbly smooth motion with very high accuracy.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Identification Number

● Identification Number of Anti-Creep Cage Crossed Roller Way

CRWG

The specification of Anti-Creep Cage Crossed Roller Way is indicated by the identification number. Indicate each specification by using a model code, size, part code, classification symbol, and supplemental codes. The ordering unit is a set of the combination of four ways and two roller cages.

Example of identification number

CRWG 3 — 150 SP ／B

❶ Series	Model code
❷ Size of rolling guide	Size
❸ Length of way	Part code
❹ Accuracy class	Classification symbol
❺ Optional specification	Supplemental code

❶ Series

CRWG

❷ Size of rolling guide

2, 3, 4, 6

❸ Length of way

○

The length of way is indicated in millimeters. For applicable way lengths, please refer to Table 1

Table 1 Length of way

Model number	Length of way mm								
CRWG 2	30	45	60	75	90	105	120	135	150
CRWG 3	50	75	100	125	150	175	200	225	250
CRWG 4	80	120	160	200	240	280	320	—	—
CRWG 6	100	150	200	250	300	350	—	—	—

❹ Accuracy class

Standard : No symbol
Super precision : SP

For the allowable values of parallelism of the raceway to the reference mounting surface, see Fig.5 on page 9.

❺ Optional specification

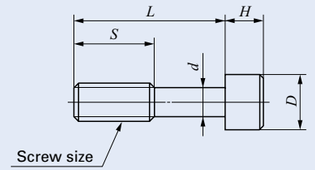
/B

The special mounting screws for ways are appended.
Applicable sizes are shown below.

Special mounting screw /B

The way on the preload adjustment side is moved when the preload is adjusted. There should be some allowance for movement between the way fixing screw and the mounting hole. When such allowance cannot be provided or when the fixing screw is installed from the way side as shown in Fig.1, it is convenient to use the attached special mounting screws.
This special mounting screw is also useful when the positional accuracy of the mounting holes and female screws of the machine on which the fixed side ways are mounted is not sufficient.

Table 2 Dimensions of special mounting screws



unit: mm

Size of CRWG	Screw size	*d*	*D*	*H*	*L*	*S*
3	M3	2.3	5	3	12	5
4	M4	3.1	6	4	15	6
6	M5	3.9	8	5	20	8

Remark: Not applicable to size 2

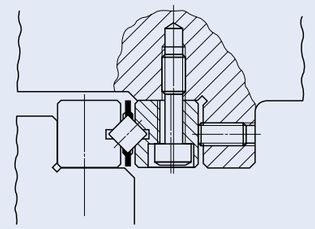


Fig. 1 Mounting example with special mounting screw

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

● Identification Number of Anti-Creep Cage Crossed Roller Way Unit

CRWUG

The specification of Anti-Creep Cage Crossed Roller Way Unit is indicated by the model number. Indicate each specification by using a model code and size.

Example of identification number

CRWUG 60 – 130

- ❶Series — Model code
- ❷Width — Size
- ❸Length — Size

❶ Series	CRWUG	
❷ Width	40, 60, 80	Indicate the width of table unit in mm.
❸ Length	○	Indicate the length of table unit in mm. For applicable lengths, please refer to Table 3.

Table 3 Length of table unit

Model number	Length mm						
CRWUG 40	35	50	65	80	95	110	125
CRWUG 60	55	80	105	130	155	–	–
CRWUG 80	85	125	165	205	–	–	–

Load Rating and Allowable Load

For the load rating and allowable load of Anti-Creep Cage Crossed Roller Way, values for a downward load provided when a combination of four ways and two roller cages is used in parallel are indicated. An outline of them is described below.
The load ratings and allowable load of Anti-Creep Cage Crossed Roller Way (and Unit) are designed for equal load capacity in downward, upward, and lateral directions.

● Basic dynamic load rating C

CRWG CRWUG

The basic dynamic load rating is defined as a constant load both in direction and magnitude under which a group of identical Crossed Roller Way are individually operated and 90% of those in the group can travel 100×10^3 meters free from material damage due to rolling contact fatigue.

● Basic static load rating C_0

CRWG CRWUG

The basic static load rating is defined as the static load that gives a prescribed constant contact stress at the center of the contact area between a rolling element and raceways receiving the maximum load.

● Allowable load F

CRWG CRWUG

The allowable load is a load under which the sum of elastic deformations of the rolling element and the raceways in the contact area subjected to the maximum contact stress is small enough to guarantee accuracy and smooth rolling movement.
Therefore, where very smooth and highly accurate linear motion is required, make sure to use an Anti-Creep Cage Crosse Roller Way well within the allowable load values.

● Static moment rating T_0

CRWUG

The static moment rating is defined as the static moment load that gives a prescribed constant contact stress at the center of the contact area between the rolling element and raceway receiving the maximum load when a moment is loaded.

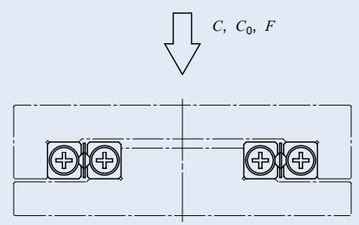


Fig. 2 Load rating direction (for Anti-Creep Cage Crossed Roller Way)

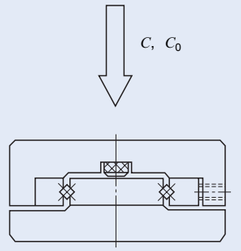


Fig. 3 Load rating direction (for Anti-Creep Cage Crossed Roller Way Unit)

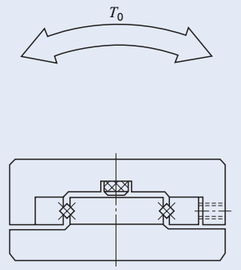


Fig. 4 Moment rating direction (for Anti-Creep Cage Crossed Roller Way Unit)

● Life

CRWG CRWUG

The rating life of Anti-Creep Cage Crossed Roller Way (and Unit) is obtained from the following calculation formula.

$$L = 100\left(\frac{C}{P}\right)^{10/3} \quad \cdots\cdots (1)$$

where, L : Rating life, 10^3m
C : Basic dynamic load rating, N
P : Equivalent load, N

If the stroke length and the number or strokes per minute are known, the life in hours must be corrected by the following formula.

$$L_h = \frac{10^6 L}{2Sn_1 \times 60} \quad \cdots\cdots (2)$$

where, L_h : Rating life in hours, h
S : Stroke length, mm
n_1 : Number of strokes per minute, cpm

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

● Static safety factor

CRWG CRWUG

The static safety factor f_s of Anti-Creep Cage Crossed Roller Way (and Unit) is given in the following formula, and general values of this factor are shown in Table 4.

$$f_s = \frac{C_0}{P_0} \quad \cdots\cdots(3)$$

$$f_s = \frac{T_0}{M_0} \quad \cdots\cdots(4)$$

where, f_s : Static safety factor
C_0 : Basic static load rating, N
P_0 : Static equivalent load (or maximum load), N
T_0 : Static moment rating, N·m
M_0 : Moment in T_0 direction, N·m

Table 4 Static safety factor

Operating conditions	f_s
Operation with vibration and/or shocks	3～5
High operating performance	2～4
Normal operation	1～3

● Load factor

CRWG CRWUG

Actual loads applied to Anti-Creep Cage Crossed Roller Way (and Unit) sometimes exceed the theoretically calculated load due to vibration and shocks caused by machine operation. The applied load is generally calculated by multiplying the theoretically calculated load by the load factor indicated in Table 5.

Table 5 Load factor

Operating conditions	f_w
Smooth operation free from vibration and/or shocks	1 ～1.2
Normal operation	1.2～1.5
Operation with shock loads	1.5～3

Accuracy

● Accuracy of Anti-Creep Cage Crossed Roller Way

CRWG

For the allowable values of parallelism between two raceways of Anti-Creep Cage Crossed Roller Way, see Fig.5.

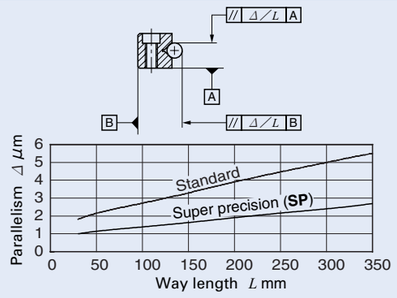


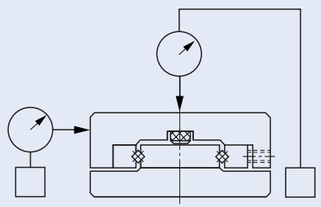
Fig. 5 Accuracy of Anti-Creep Cage Crossed Roller Way

● Accuracy of Anti-Creep Cage Crossed Roller Way Unit

CRWUG

The accuracy of Anti-Creep Cage Crossed Roller Way Unit is shown in Table 6. Parallelism at the table center shows the difference between the maximum and the minimum of table height when the table is stroked. Parallelism at table side shows the difference between the maximum and the minimum of measured values at the table side (opposite to adjusting side) when the table is stroked. The standard height tolerance of the unit is +/-0.1mm. If several units are used on the same mounting surface and the height of those units require a limited height variation, units with a height variation of less than 0.01mm among the several units to be used on the same mounting surface can be supplied on request. If a special accuracy other than those shown in Table 6 is required, consult IKO.

Table 6 Accuracy of Anti-Creep Cage Crossed Roller Way Unit



unit: μm

Unit length mm		Parallelism at table center	Parallelism at table side
over	incl.		
–	50	2	4
50	100	2	5
100	160	3	6
160	310	3	7

Lubrication and dust protection

CRWG CRWUG

Oil or grease shall be used as lubricant for Anti-Creep Cage Crossed Roller Way and Unit Anti-Creep Cage Crossed Roller Way Unit. Oil is generally used for high speed or low friction operation. On the other hand, grease is used when operating speed is low. In case of grease lubrication, good quality lithium-soap base grease is recommended. When operation speed is low and load is light, coat the raceways with grease before use and rubricate periodically. Structure shown in Fig.6 makes the lubrication easy.

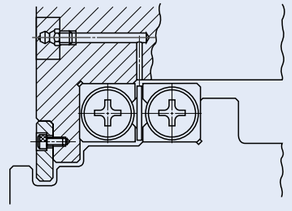


Fig. 6 Example of lubrication method

Dust protection

CRWG CRWUG

Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit are finished very accurately.
If harmful foreign materials such as dust or chips enter inside the ways, this will shorten the life or lower the accuracy. With the object of preventing external harmful foreign materials such as dust, chips and water from entering inside, it is recommended to install a non-contact-type labyrinth seal shown in Fig. 7 or a contact type wiper seal shown in Fig. 8 on both side faces.

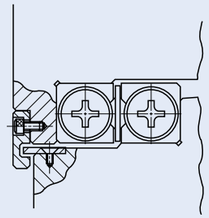


Fig. 7 Example of labyrinth seal

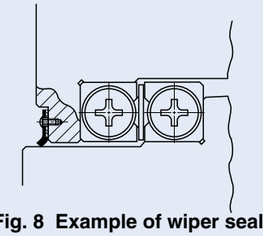


Fig. 8 Example of wiper seal

Precautions for use

❶ Specifications of product CRWG CRWUG

Check if the operating characteristics of the selected Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit are suitable for the application of the machine or equipment.

❷ Handling CRWG CRWUG

Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit are finished in production very accurately, so handle carefully.
A pinion is assembled in the roller cage. If the cage is dropped or handled roughly, the pinion may come off. As cutting off the cage may cause the pinion coming off or damage to the pinion mounting part, so please avoid cutting off the cage. A rack is assembled in the way and fixed its position with the end screws. When assembling, the rack may come out from the way by removing the end screws.

❸ Accuracy of the mounting part CRWG

The general configuration of mating mounting surfaces for Anti-Creep Cage Crossed Roller Way is shown in Fig. 9.
Accuracy of the mating mounting surfaces are, in general, as shown in Table 7. The accuracy of the mating mounting surfaces directly affects the operating accuracy and performance of Anti-Creep Cage Crossed Roller Way. If very precise operating accuracy is required, higher accuracy of mating mounting surfaces than the values shown in Table 7 may be needed.

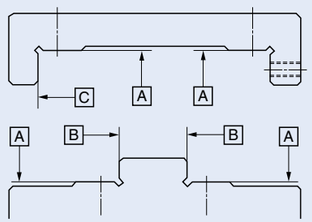


Fig. 9 Example of the mating mounting surfaces

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Table 7 Example of the mating mounting surfaces

A surface	・This accuracy directly affects the running accuracy. For the flatness of the respective two mounting surfaces on the table side and bed side, the value close to the parallelism shown in Fig. 5 on page 9 is recommended.
B and C surfaces	・Flatness Flatness of these surfaces directly affects preload. For the flatness, the value close to the parallelism shown in Fig. 5 on page 9 is recommended. ・Squareness This accuracy directly affects the rigidity in the preload direction of the mounting part of Anti-Creep Cage Crossed Roller Way. Consequently, a high accuracy finish is necessary.

❹ Shape of the mounting part CRWG

It is recommended to make a relieved fillet at the corner of the mating mounting surfaces as shown in Fig.10. Allow a clearance of 0.5 mm or more between the way and the mating material of the other side.

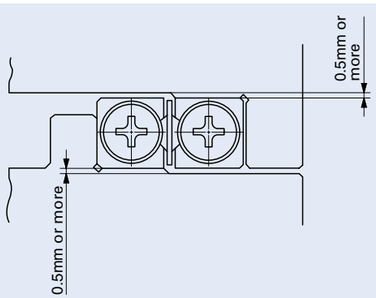


Fig. 10 Shape of the mounting part

❺ Preload method CRWG

Preload adjusting screws are generally used for setting preload, as shown in Fig.11. The size of the preload adjusting screws are the same as that of the mounting screws for the ways. The position of the preload adjusting screws is at the same position as the mounting screws of the ways. For centering, use half of way height *H*.

Preload amounts differ according to the application of machine or equipment. Excessive preloads deteriorate life and often damage the raceways. Therefore, zero or minimal preload is recommended in general. If accuracy and rigidity are important, a setting plate as shown in Fig.12.1 or a tapered jib as shown in Fig.12.2 may be used.

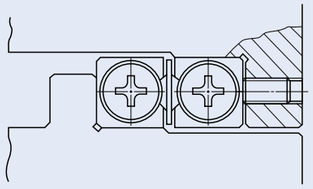


Fig. 11 General example of preload

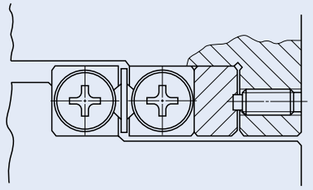


Fig. 12.1 Example of setting plate

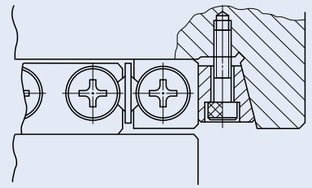


Fig. 12. 2 Example of tapered jib

❻ Preload re-adjustment CRWUG

Preload of Anti-Creep Cage Crossed Roller Way Unit is adjusted to zero or minimal amount of preload in the delivery. If adjustment is required, please refer "❻Preload adjustment" on page 14.

❼ Maximum operating temperature CRWG CRWUG

Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit contains synthetic resin parts. Accordingly, the maximum operating temperature is 120˚C. In case of continuous operation, operating temperature should not exceed 100˚C.

❽ Maximum speed CRWG CRWUG

The operating speed of Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit should not exceed 30m/min.

❾ Tightening torque of mounting screws CRWG CRWUG

Tightening torque of mounting screws is shown in Table 8. If vibration or shock is large, or moment load is applied, it is recommended to tighten the screws by about 1.3 times the values shown in Table 8. If vibration and shock are not present and high operating accuracy is needed, a lower tightening torque than the values shown in Table 8 is suggested. In this case, adhesive or lock-screws may be used to prevent any subsequent loosening of the mounting screws.

Table 8 Tightening torque of screws

Screw size	Tightening torque N・m
M2 × 0.4	0.23
M3 × 0.5	1.4
M4 × 0.7	3.2
M5 × 0.8	6.3
M6 × 1	10.7

Remark: If the screw sizes on table side and bed side are different, use the tightening torque of the smaller screw size for both screws.

Mounting

A general method of Anti-Creep Cage Crossed Roller Way and Anti-Creep Cage Crossed Roller Way Unit is shown in Fig.13. The general procedure is as follows.

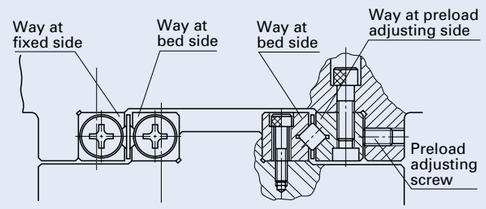


Fig. 13 Mounting example of Anti-Creep Cage Crossed Roller Way

❶ Preparation for mounting CRWG CRWUG

・Anti-Creep Cage Crossed Roller Way is delivered as an individual package containing four ways and two roller cages. The ways in each package are not interchangeable with ways in other packages, so do not mix them.

・Separate the end screws or end stoppers and wash the ways with a clean cleaning agent. After cleaning, apply rust preventive oil or lubricating oil.

❷ Cleaning of mounting surfaces of table and bed CRWG CRWUG

・Remove burrs and blemishes from mounting surfaces of table and bed with an oil-stone, etc. During this process, also pay attention to the corner grooves of the mounting surfaces.

・Wipe off dust with clean cloth and apply rust preventive oil or lubricating oil.

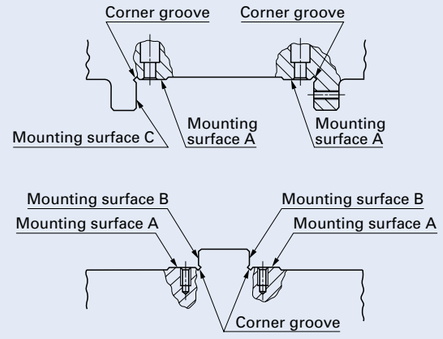


Fig. 14 Mounting surface for Anti-Creep Cage Crossed Roller Way

❸ Mounting of ways at bed side (Fig.15) CRWG

・After fitting mounting surface of ways onto the mating mounting surfaces of bed, temporally tighten the mounting screws with uniform tightening torque.

・After closely fitting the ways to B surfaces (See Fig.14), tighten mounting screws uniformly to the prescribed tightening torque.

・If high accuracy is required, tighten the mounting screws uniformly to the prescribed tightening torque while checking the parallelism of the two ways along the overall way length.

・General tightening torque of mounting screws is shown in Table 8 on page 12.

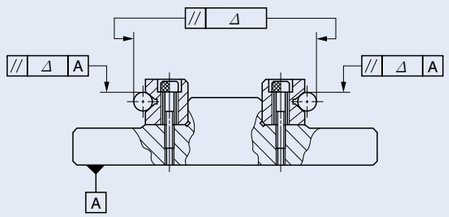


Fig. 15 Mounting accuracy of ways (for Anti-Creep Cage Crossed Roller Way)

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

❹ Mounting of ways at table side (Fig.16) CRWG

- After fitting the mounting surfaces of the way at the fixed side to the mating mounting surfaces of table, temporally tighten the mounting screws at the fixed side with uniform tightening torque.
- After closely fitting the way at the fixed side to C surface, tighten the mounting screws at the fixed side uniformly to the prescribed tightening torque.
- Loosen the preload adjusting screws and temporally tighten the mounting screws of the way at adjusting side with uniform and light tightening torque.

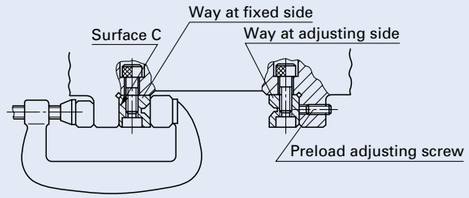


Fig. 16 Mounting of ways at table side (for Anti-Creep Cage Crossed Roller Way)

❺ Assembling of table and bed CRWG

- Remove end screws from the way at table side and way at the bed-side in the side to which the cylindrical rollers with a retainer are inserted. (See Fig.17.1)
- Place the cylindrical rollers with a retainer on the way at bed-side with the center of the pinion gear in the center of the retainer engaged with the end of the rack gear of the way. (See Fig.17.2) Do not bend the retainer.
- Engage the end of the rack gear of the way at table side with the pinion gear while adjusting the longitudinal and traverse positions of the way at table-side and pushing the retainer to secure. Do not give any excessive force to the cage. (See Fig.17.3)
- Slide the table on the base. Do not apply any offset load to the rack gear and the pinion gear and do not deform the cage. Check and make sure the rack gear is over the end of the way. If the rack gear is over the end of the way, gently push the rack gear into the way while moving the table at a little stroke. (See Fig.17.4)
- Slide the table to the center of the stroke and tighten the end screws.(See Fig.17.5)
- Gently move the table at a full stroke and make sure that the cylindrical roller at each end of the retainer does not hit the end screw of the track base within the stroke. If the roller hits the retainer end, repeat the above steps from the first. (See Fig.17.6)

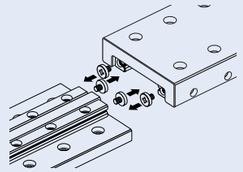


Fig. 17.1

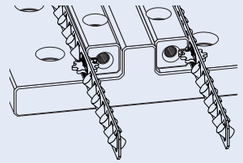


Fig. 17.2

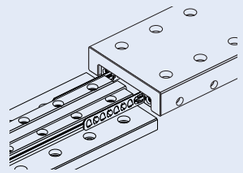


Fig. 17.3

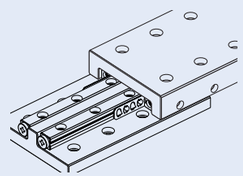


Fig. 17.4

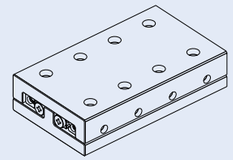


Fig. 17.5

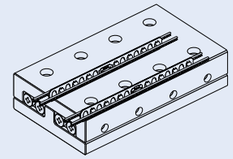


Fig. 17.6

❻ Preload adjustment (Fig.18) CRWG CRWUG

- Preload adjustment is done only when mounting screws for the way at the adjusting side are temporally tightened lightly.
- Preload adjustment is started from the adjusting screw at the center of the way length, proceeding alternately to the left and right.
- While checking the clearance (deflection) at the side surface of table, tighten each amount, then repeat the same process applying a higher tightening torque until a dial gauge indicates zero-clearance. (No more change in deflection) Record the tightening torque of the adjusting screws at zero-clearance.
- When adjusting the screws close to the end of the way, gradually stroke the table and ensure that the roller cage is positioned at the adjusting screws.
- Using the above process, the internal clearance becomes zero or minimal amount of preload, but the preload amount is not uniform along the way length. Therefore, repeat the same process and tighten all adjusting screws uniformly to the recorded tightening torque.

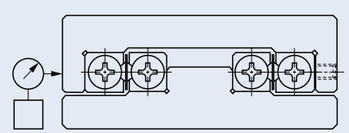


Fig. 18 Example of preload adjustment

❼ Final fixing of the way at adjusting side CRWG

- The mounting screws have been tightened lightly to a uniform torque. Similar to the adjustment of the preload adjusting screws, temporally tighten the mounting screws at the adjusting side to a slightly lower tightening torque than the prescribed value. Start from the center screw of the way length and proceed alternately to the left and right.
- When tightening the mounting screws close to the end of the way, gradually stroke the table and ensure that the roller cage is positioned at the mounting screw.
- Finally, tighten all mounting screws at the adjusting side uniformly to the prescribed torque similar to the adjustment of the preload adjusting screws.

❽ Final checking (Fig.19) CRWG

- Stroke the table gradually till its full stroke length, ensuring that the stroke is smooth and quiet.
- Check the operating accuracy by measuring the upper and side faces of table with a dial gauge.

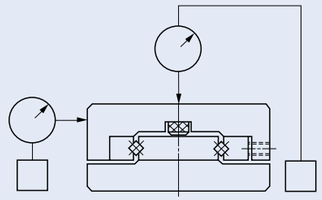
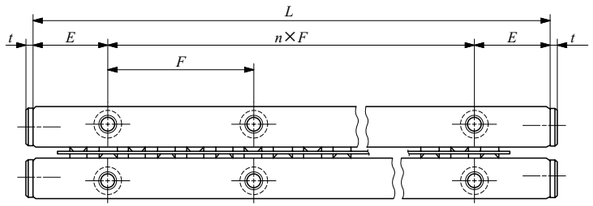


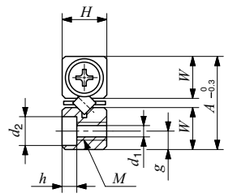
Fig. 19 Final checking of operating accuracy.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Anti-Creep Cage Crossed Roller Way CRWG

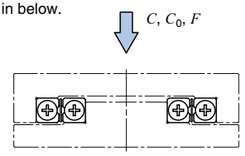
CRWG

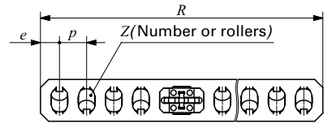




Model number	Mass (Ref.) Way(1) g	Mass (Ref.) Roller cage (2) g	Boundary dimensions A	H	L (n × F)	E	Dimension of roller cage D_w	R	Z	p	e
CRWG 2- 30	6.53	0.38	12	6	30 (1 × 15)	7.5	2	25.6	4	4	2.8
CRWG 2- 45	9.53	0.72			45 (2 × 15)			41.6	8		
CRWG 2- 60	12.5	0.88			60 (3 × 15)			49.6	10		
CRWG 2- 75	15.5	1.22			75 (4 × 15)			65.6	14		
CRWG 2- 90	18.5	1.39			90 (5 × 15)			73.6	16		
CRWG 2-105	21.5	1.72			105 (6 × 15)			89.6	20		
CRWG 2-120	24.5	1.89			120 (7 × 15)			97.6	22		
CRWG 2-135	27.5	2.22			135 (8 × 15)			113.6	26		
CRWG 2-150	30.5	2.39			150 (9 × 15)			121.6	28		
CRWG 3- 50	22.8	1.69	18	8	50 (1 × 25)	12.5	3	42	6	5	3.5
CRWG 3- 75	33.3	2.71			75 (2 × 25)			62	10		
CRWG 3-100	43.8	3.72			100 (3 × 25)			82	14		
CRWG 3-125	54.4	4.74			125 (4 × 25)			102	18		
CRWG 3-150	64.9	5.75			150 (5 × 25)			122	22		
CRWG 3-175	75.4	6.77			175 (6 × 25)			142	26		
CRWG 3-200	85.9	7.78			200 (7 × 25)			162	30		
CRWG 3-225	96.4	8.80			225 (8 × 25)			182	34		
CRWG 3-250	107	9.81			250 (9 × 25)			202	38		
CRWG 4- 80	59.6	9.70	22	11	80 (1 × 40)	20	4	73	8	7	5
CRWG 4-120	88.0	12.0			120 (2 × 40)			101	12		
CRWG 4-160	116	14.3			160 (3 × 40)			129	16		
CRWG 4-200	145	16.7			200 (4 × 40)			157	20		
CRWG 4-240	173	20.1			240 (5 × 40)			199	26		
CRWG 4-280	201	22.5			280 (6 × 40)			227	30		
CRWG 4-320	230	24.8			320 (7 × 40)			255	34		
CRWG 6-100	147	12.0	31	15	100 (1 × 50)	25	6	75	6	9	6
CRWG 6-150	216	22.6			150 (2 × 50)			129	12		
CRWG 6-200	285	29.7			200 (3 × 50)			165	16		
CRWG 6-250	353	36.8			250 (4 × 50)			201	20		
CRWG 6-300	422	43.9			300 (5 × 50)			237	24		
CRWG 6-350	491	51.0			350 (6 × 50)			273	28		

Note(1): The value shows the mass of one piece of way.
(2): The value shows the mass of one roller cage.
(3): Direction of basic dynamic load rating (C), basic static load rating (C_0) and allowable load (F) is shown in below.





Mounting dimensions W	g	M	d_1	d_2	h	t	Maximum stroke length mm	Basic dynamic load rating(3) C N	Basic static load rating(3) C_0 N	Allowable load(3) F N	Model number
5.5	2.5	M3	2.55	4.4	2	1.5	9	913	1 180	392	**CRWG 2- 30**
							7	1 570	2 350	783	**CRWG 2- 45**
							21	1 860	2 940	979	**CRWG 2- 60**
							19	2 420	4 110	1 370	**CRWG 2- 75**
							33	2 680	4 700	1 570	**CRWG 2- 90**
							31	3 190	5 880	1 960	**CRWG 2-105**
							45	3 440	6 460	2 150	**CRWG 2-120**
							43	3 910	7 640	2 550	**CRWG 2-135**
							57	4 150	8 230	2 740	**CRWG 2-150**
8.3	3.5	M4	3.3	6	3.1	2	13	2 740	3 660	1 220	**CRWG 3- 50**
							23	4 080	6 090	2 030	**CRWG 3- 75**
							33	5 300	8 530	2 840	**CRWG 3-100**
							43	6 440	11 000	3 660	**CRWG 3-125**
							53	7 530	13 400	4 470	**CRWG 3-150**
							63	8 570	15 800	5 280	**CRWG 3-175**
							73	9 580	18 300	6 090	**CRWG 3-200**
							83	10 600	20 700	6 910	**CRWG 3-225**
							93	11 500	23 200	7 720	**CRWG 3-250**
10	4.5	M5	4.3	7.5	4.1	2	14	6 690	9 400	3 130	**CRWG 4- 80**
							38	9 180	14 100	4 700	**CRWG 4-120**
							62	11 500	18 800	6 270	**CRWG 4-160**
							86	13 700	23 500	7 830	**CRWG 4-200**
							82	16 700	30 600	10 200	**CRWG 4-240**
							106	18 700	35 300	11 800	**CRWG 4-280**
							129	20 600	40 000	13 300	**CRWG 4-320**
14	6	M6	5.3	9.5	5.2	3	48	11 200	13 800	4 610	**CRWG 6-100**
							40	19 300	27 700	9 230	**CRWG 6-150**
							68	24 100	36 900	12 300	**CRWG 6-200**
							96	28 700	46 100	15 400	**CRWG 6-250**
							124	33 000	55 400	18 500	**CRWG 6-300**
							151	37 200	64 600	21 500	**CRWG 6-350**

Example of identification number

CRWG 3 – 150 SP ／B

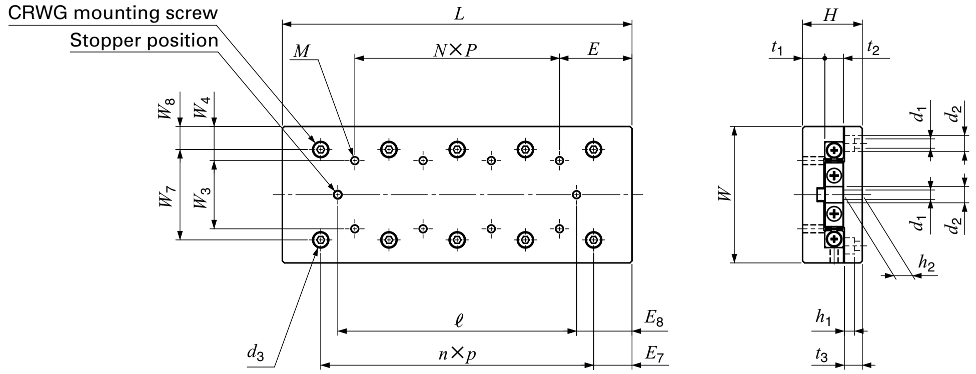
Model code	Size	Length of way	Accuracy class	Special specification
CRWG	2, 3, 4, 6		Standard : No symbol Super precision : SP	Special mounting screw

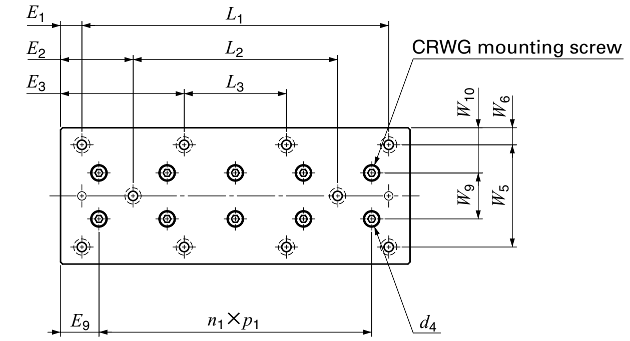
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

 IKO

Anti-Creep Cage Crossed Roller Way Unit CRWUG

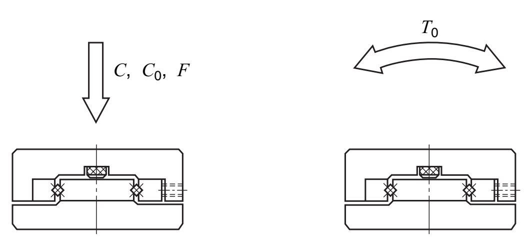
CRWUG





Model number	Mass (Ref.)	Boundary dimensions mm									Nominal dimensions mm Table							Bed						
	kg	W	Tolerance	H	Tolerance	L	t_1	t_2	t_3	Maximum stroke length	W_3	W_4	$N\times P$	E	M	W_5	W_6	L_1	E_1	L_2	E_2	L_3	E_3	d_1
CRWUG 40- 35	0.21	40	±0.1	21	±0.1	35	8	6	6.5	18	15	12.5	–	17.5	M3	30	5	25	5.0	–	–	–	–	3.5
CRWUG 40- 50	0.30					50	7	8	5.5	30			1×15					40		–	–	–	–	
CRWUG 40- 65	0.36					65				40			2×15					55		–	–	–	–	
CRWUG 40- 80	0.47					80				50			3×15					70		–	–	40	20	
CRWUG 40- 95	0.53					95				60			4×15					85		–	–	55	20	
CRWUG 40- 110	0.63					110				70			5×15					100		–	–	70	20	
CRWUG 40- 125	0.70					125				80			6×15					115		–	–	85	20	
CRWUG 60- 55	0.67	60	±0.1	28	±0.1	55	10.5	8	9	30	25	17.5	–	27.5	M4	40	10	35	10.0	–	–	–	–	4.5
CRWUG 60- 80	0.99					80				45			1×25					60		–	–	–	–	
CRWUG 60- 105	1.28					105				60			2×25					85		–	–	–	–	
CRWUG 60- 130	1.57					130				75			3×25					110		–	–	–	–	
CRWUG 60- 155	1.86					155				90			4×25					135		85	35	–	–	
CRWUG 80- 85	1.78	80	±0.1	35	±0.1	85	13	11	10.5	50	40	20	–	42.5	M5	60	10	40	22.5	–	–	–	–	5.5
CRWUG 80- 125	2.56					125				75			1×40					80		–	–	–	–	
CRWUG 80- 165	3.34					165				105			2×40					120		–	–	–	–	
CRWUG 80- 205	4.12					205				135			3×40					160		–	–	80	62.5	

Note(1): Directions of basic dynamic load rating (C), basic static load rating (C_0), allowable load (F) and static moment rating (T_0) are shown in below.



			Stopper and CRWG mounting dimension mm Table						Bed						Basic dynamic load rating(1)	Basic static load rating(1)	Allowable load(1)	Static moment rating(1)	Model number
d_2	h_1	h_2	W_7	W_8	$n\times p$	E_7	d_3	ℓ	E_8	W_9	W_{10}	$n_1\times p_1$	E_9	d_4	C N	C_0 N	F N	T_0 N·m	
6	3.5	7	25	7.5	1×15	10	6	29	3	–	20	1×15	10	6	913	1 180	392	10.6	**CRWUG 40- 35**
	3.2	6	25.5	7.25	1×25	12.5	6.5	41	4.5			2×15	10		2 000	2 440	813	17.7	**CRWUG 40- 50**
					1×25	20		51	7			2×15	17.5		2 000	2 440	813	17.7	**CRWUG 40- 65**
					2×25	15		61	9.5			4×15	10		3 430	4 880	1 630	35.3	**CRWUG 40- 80**
					2×25	22.5		71	12			4×15	17.5		2 740	3 660	1 220	26.5	**CRWUG 40- 95**
					3×25	17.5		81	14.5			5×15	17.5		4 080	6 090	2 030	44.2	**CRWUG 40- 110**
					3×25	25		91	17			5×15	25		4 080	6 090	2 030	44.2	**CRWUG 40- 125**
7.5	4.5	9.5	40	10	1×25	15	7.5	44	5.5	17	21.5	1×25	15	7.5	2 000	2 440	813	35.3	**CRWUG 60- 55**
					2×25			59	10.5			2×25			3 430	4 880	1 630	70.7	**CRWUG 60- 80**
					3×25			74	15.5			3×25			4 700	7 310	2 440	106	**CRWUG 60- 105**
					4×25			89	20.5			4×25			5 300	8 530	2 840	124	**CRWUG 60- 130**
					5×25			104	25.5			5×25			6 440	11 000	3 660	159	**CRWUG 60- 155**
9.5	6	11	54	13	1×40	22.5	9.5	64	10.5	27	26.5	1×40	22.5	9.5	5 350	7 050	2 350	145	**CRWUG 80- 85**
					2×40			89	18			2×40			7 960	11 800	3 920	241	**CRWUG 80- 125**
					3×40			119	23			3×40			9 180	14 100	4 700	289	**CRWUG 80- 165**
					4×40			149	28			4×40			11 500	18 800	6 270	385	**CRWUG 80- 205**

Example of identification number

CRWUG 60 – 130

- Series: CRWUG
- Width of table: 40, 60, 80
- Length of table

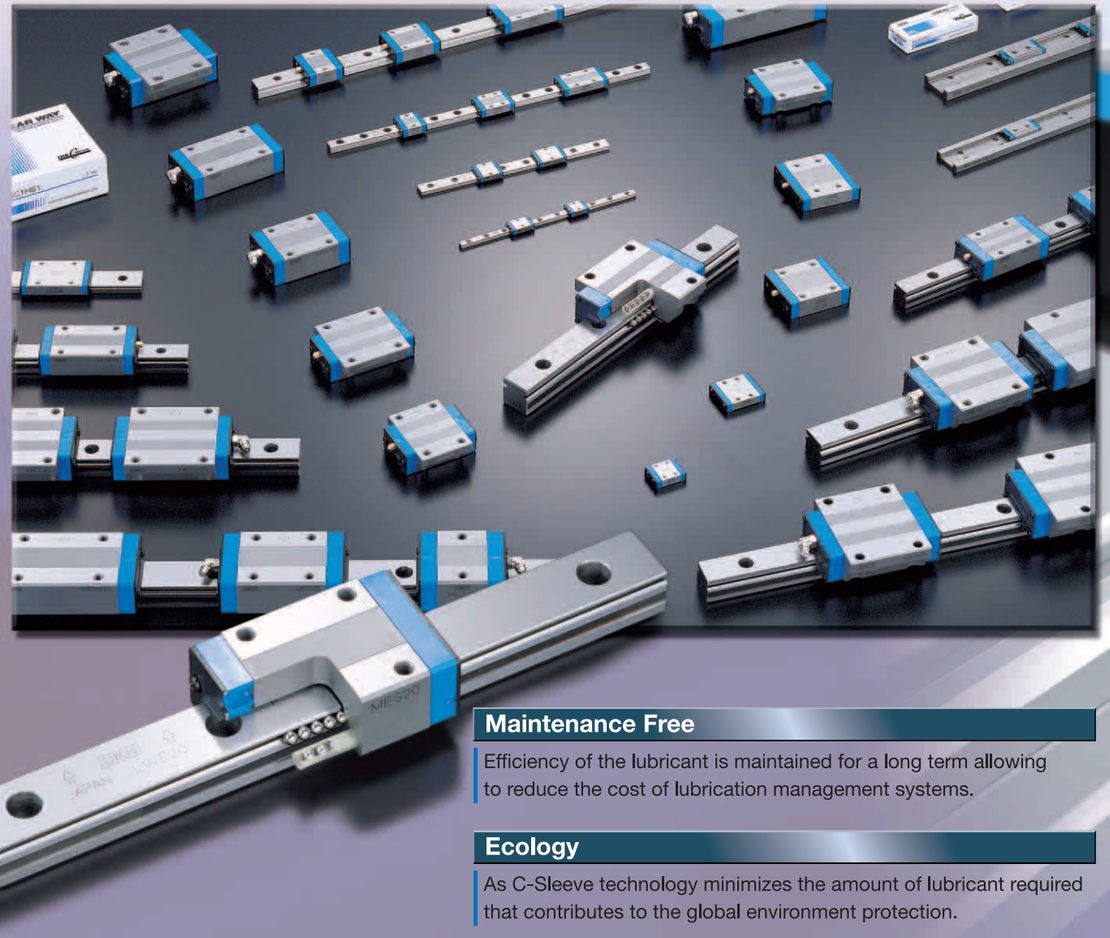
1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

Engineers' dream now becomes a reality

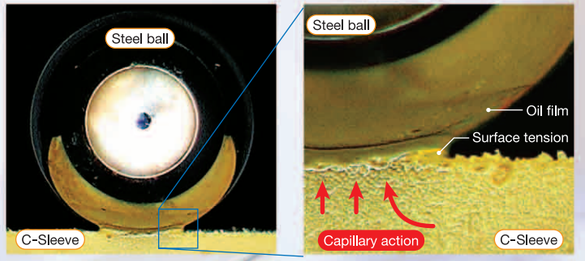
Maintenance free for 20,000km or 5 years

IKO Maintenance Free & Interchangeable

C-Sleeve Linear Way ML ME MH MUL



The Capillary system that IKO have developed is a new method of lubrication. The sleeve is formed by sintering fine resin powder to act as reservoir and the open pores are impregnated with a large amount of lubrication oil.
The capillary action deposits the correct amount of lubrication on the rolling elements to protect the raceways for long periods.



Interchangeable series is available.

C-sleeve slide units can be supplied separately, and can be matched, replaced and added freely to the interchangeable track rail. This feature is be useful in machine design, facilitating standardization of product specification and quick changes of specification.

Maintenance Free

Efficiency of the lubricant is maintained for a long term allowing to reduce the cost of lubrication management systems.

Ecology

As C-Sleeve technology minimizes the amount of lubricant required that contributes to the global environment protection.

Compact

Unlike attached-on external lubrication parts, there is no increase in carriage length.
No loss of available stroke length when replacing standard units.

Smooth

Light and smooth running is achieved by the improvement of internal design. C-Sleeve is designed not to have direct contact with the track rail allowing very smooth operation.

IKO C-Sleeve

Miniature type ML series

Compact ME series

High load capacity MH series

U-shaped track rail MUL series

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