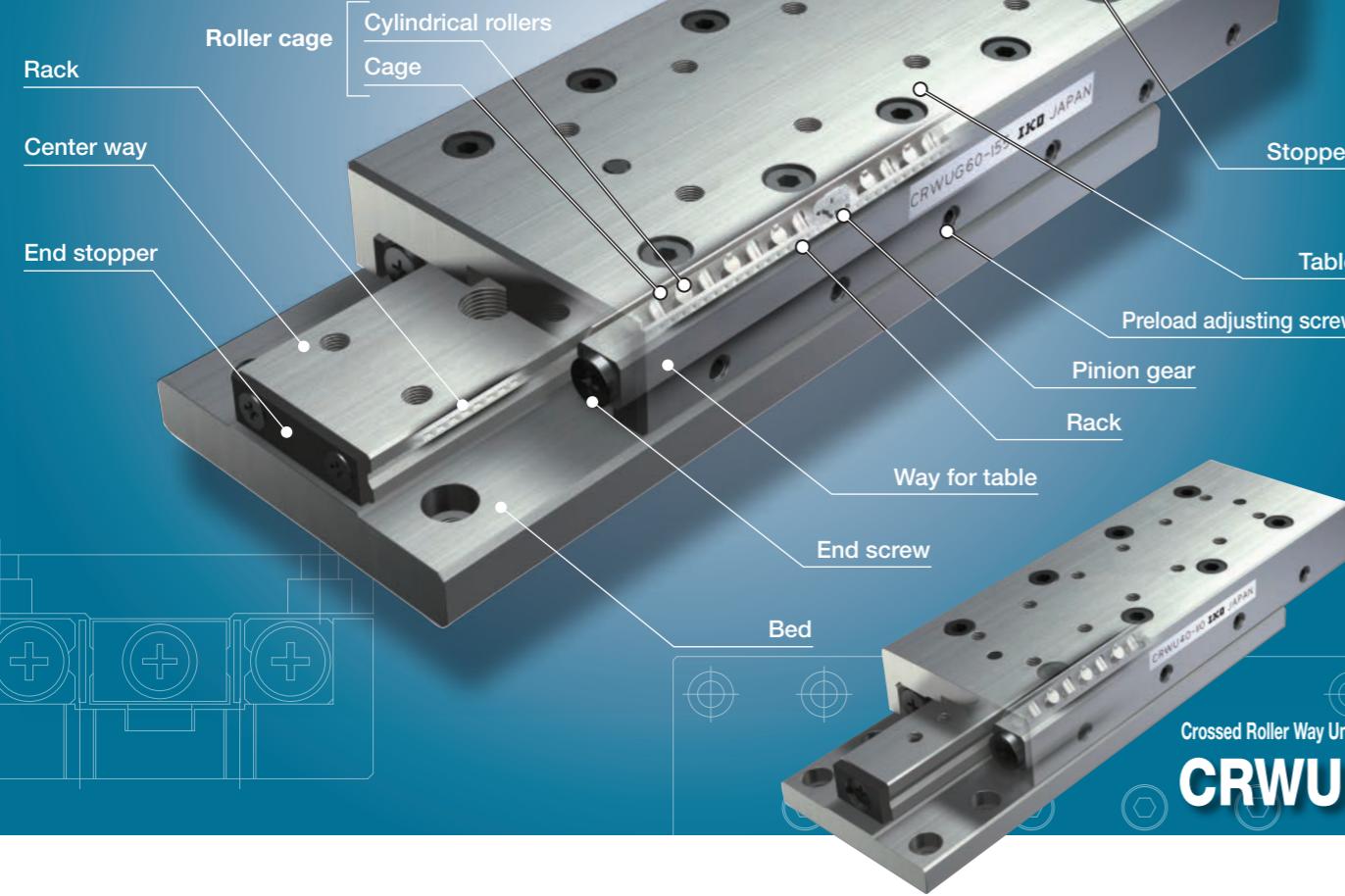


## Anti-Creep Cage Crossed Roller Way Unit

# CRWUG



## Points

### 1 High rigidity and high accuracy

Since CRWG or CRW with excellent load balance is incorporated with grounded high rigidity table and bed, elastic deformation is small for load in every direction, leading to highly accurate and stable linear motion.

### 2 Wide variation

Three types of CRWU with different sectional shapes are available with many size variations. You can select an optimal linear bushing for the specifications of your machine and device.

### 3 Solves cage creep issue

As CRWG with cage creep proof function is incorporated with CRWUG, there is no risk of cage creep and it works reliable in high-speed and high-tact operation, or in vertical axis.

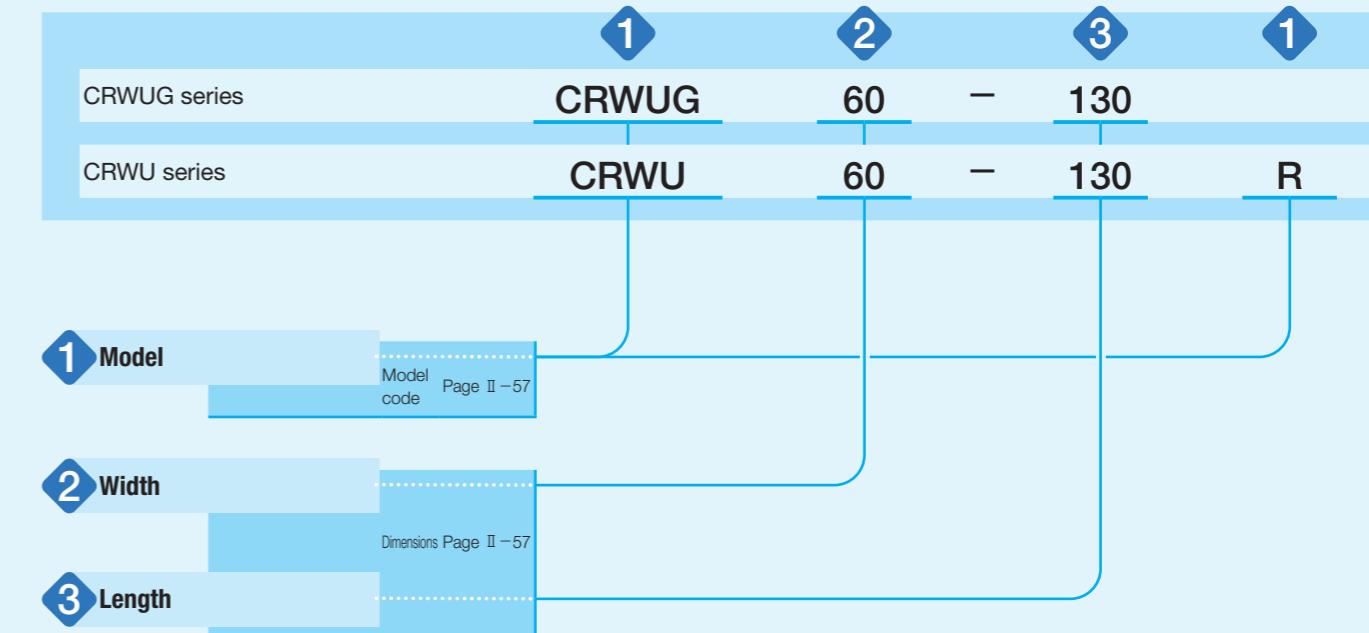
### 4 Easy mounting

Mounting surface is precisely grounded. In addition, female screws and boring are used for table and bed, respectively to ensure appropriate preload state. Therefore, highly reliable linear motion can be achieved just by fitting them to the machine and device.

## Identification Number and Specification

### Example of an identification number

The specification of CRWUG and CRWU series is indicated by the identification number. Indicate the identification number, consisting of a model code, dimensions for each specification to apply.



CRW(G)(...H)  
CRWU(G)

# Identification Number and Specification

## 1 Model

Anti-Creep Cage Crossed Roller Way Unit (CRWUG) : CRWUG series)

Crossed Roller Way Unit (CRWU series) : CRWU  
: CRWU··R  
: CRWU··RS

For applicable models and width, see Fig. 1.

## 2 Width

20, 30, 40, 60, 80, 100, 145

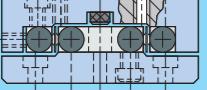
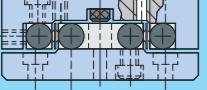
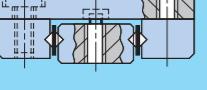
Indicate the table width in mm.

For applicable models and width, see Fig. 1.

## 3 Length

Indicate the table length in mm.

**Table 1 Models and width of CRWUG series and CRWU series**

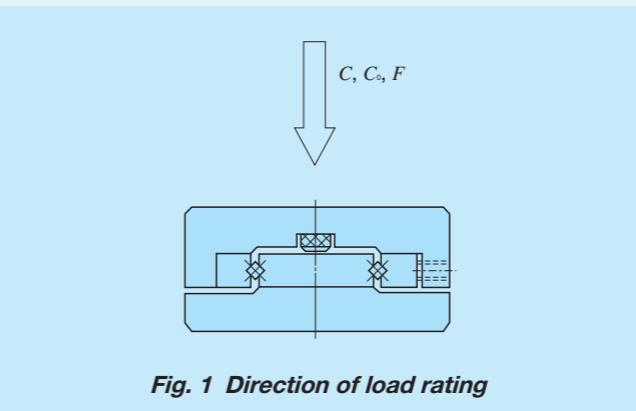
Series	Shape	Model	Characteristics	Width						
				20	30	40	60	80	100	145
CRWUG		CRWUG	A unit with cage creep proof function that realizes complete compatibility with CRWU in mounting dimensions. As external dimensions are the same, this can replace machine or device using CRWU without changing mounting dimensions, as well as new applications.	—	—	○	○	○	—	—
CRWU		CRWU	An ordinary type unit to be fixed to machine or device with bolts as it is, thanks to table and bed mounted to high accuracy.	—	○	○	○	○	○	○
CRWU		CRWU··R	Low height unit without CRWU bed. Linear motion with stable accuracy and high rigidity can be achieved for load in every direction.	—	○	○	○	○	○	○
		CRWU··RS	A compact and light unit of very simple structure. This may be used as a high-accuracy unit with small motion inertia by moving the center way.	○	○	○	—	—	—	—

# Load Rating and Allowable Load

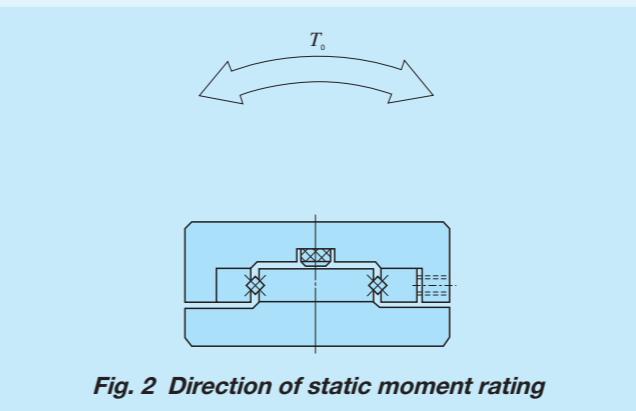
Indicate values for down direction for load rating of CRWUG and CRWU series.

In addition, the upward and lateral load rating is the same as downward load rating.

For more information on the definition of load rating and calculated load, see page III-3.



**Fig. 1 Direction of load rating**



**Fig. 2 Direction of static moment rating**

## Allowable load

Allowable load refers to load of smooth rolling motion on contact surface to which maximum contact stress is applied and the sum of whose elastic deformation of rolling elements and raceway is small.

Therefore, use applied load within the allowable load range if very smooth rolling motion and high accuracy are required.

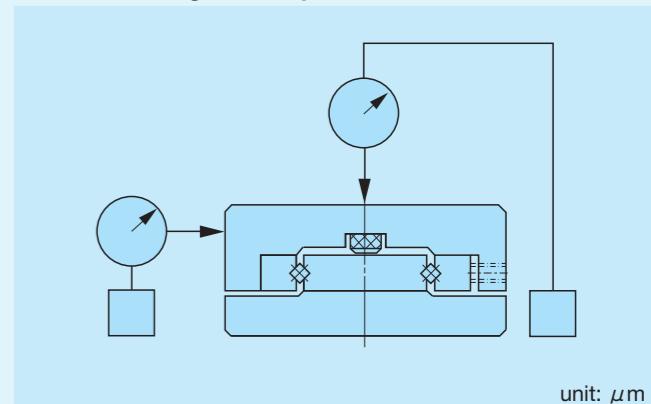
# Accuracy

Accuracy of CRWUG series and CRWU series is indicated in Table 2. Parallelism at the center of the table represents parallelism of height when the table is stroked.

Parallelism at the side of the table represents parallelism of the side (preload adjusting screw side) when the table is stroked.

In addition, though allowance of unit height  $H$  is designed as  $\pm 0.1$  mm, units with height variation of less than 0.01 mm among multiple units are also available. When special accuracy is needed, contact IKO.

**Table 2 Running accuracy**



Unit length $L$ mm	Parallelism at the table center	Parallelism on the table side
Over	Incl.	
—	50	2
50	100	2
100	160	3
160	310	3
310	510	4
510	710	4
710	—	5
		10

Grease is not pre-packed in the CRWUG series and CRWU series, so please perform adequate lubrication as needed. Both of oil lubrication and grease lubrication are available in the CRWUG series and CRWU series. Generally, oil lubrication should be selected for high speed or low frictional resistance, and grease lubrication for low speed. For grease lubrication, use of high-quality lithium-soap base grease is recommended.

## Dust Protection

Since the CRWUG series and CRWU series are finished with high accuracy, harmful foreign substances such as dust and particles entering into the bearing will cause low life or impaired accuracy. For applications in other than clean environment, cover the entire unit with a protective case, etc. to prevent harmful foreign substances such as dust, particles and water from outside from entering.

### ① Handling

As the CRWUG series and CRWU series are designed highly precisely, take extra care for handling.

Cage of the CRWUG series has a pinion gear incorporated. When the cage is dropped or handled roughly, the pinion gear may come off. In addition, do not cut off the cage as doing so may cause pinion gear coming off and breakage of gear joint section.

Way of the CRWUG series has a rack incorporated. In operation, take note that the rack may come off when the end screw is removed.

For the CRWU series, the cage may be deviated from the right position due to offset load or irregular and high-velocity motion, etc. Fully stroke it once in certain operating time or certain number of reciprocating motion to correct the cage position.

### ② Preload re-adjustment

Preload amount of the CRWUG series and CRWU series is adjusted to zero or slight preload state, so they may be used as they are.

Preload amount of the CRWUG series, CRWU, and CRWU···R may be re-adjusted by following the procedure below.

Preload adjustment is started from the preload adjusting screw at the center of way length and then both ends in turn, with fixing screws of the preload adjusting side way temporarily fixed.

While measuring the clearance on the table sides, tighten the preload adjusting screws subsequently until deflection of the dial gauge stops. Measure the tightening torque for preload adjusting screws at this point.

When adjusting preload adjusting screw near either end, stroke the table softly and check that the cylindrical roller is on the preload adjusting screw section.

After the above procedure, the clearance becomes zero or in slight preload state, but preload is still not adjusted evenly. With the same procedure again, re-adjust all the preload adjusting screws evenly to the torque previously measured.

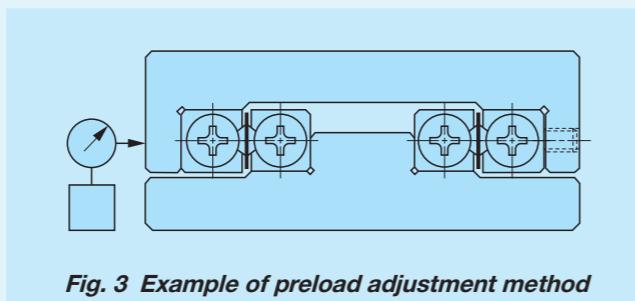


Fig. 3 Example of preload adjustment method

### ③ Operating temperature

As synthetic resin components are used for the CRWUG series, the maximum operating temperature is 120°C, while it should be lower than 100°C for continuous use. When it exceeds 100°C, contact IKO.

As synthetic resin components are not used for the CRWU series, it may be used at high temperature. However, when it exceeds 100°C, contact IKO.

### ④ Maximum velocity

Operating velocity should not exceed 30 m/min during operation.

### ⑤ Tightening torque for fixing screw

Table 3 shows typical tightening torque for mounting CRWUG Series and CRWU Series. When vibration and shock are large or moment load is applied, it is recommended to fix by using the torque 1.3 times larger than that indicated in the table. In addition, when high running accuracy is required with no vibration and shock, it may be fixed by using torque smaller than that indicated in the table, however, it is recommended to use adhesive agent to fasten the screw, or to use stop bolts.

Table 3 Tightening torque for fixing screw

Bolt size	Tightening torque N · m
M 2 ×0.4	0.40
M 2.5×0.45	0.80
M 3 ×0.5	1.4
M 4 ×0.7	3.2
M 5 ×0.8	6.4
M 6 ×1	10.9
M 8 ×1.25	26.1

### ⑥ Dowel pin hole of CRWU···R

A dowel pin hole is machined on the center way of the CRWU···R. When a dowel pin is used, machine a hole on the mounting surface of the machine after mounting of the center way.

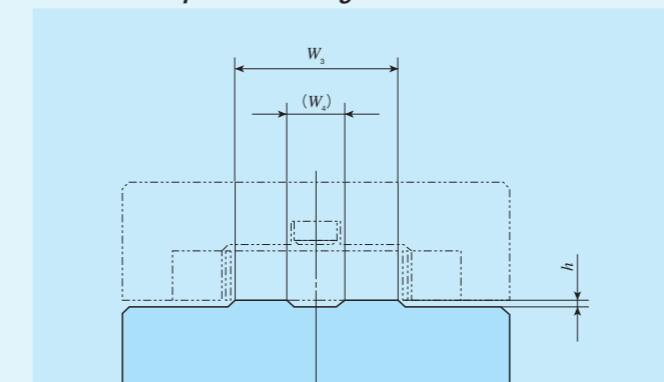
Refer to the dimension table for diameter and its tolerances of dowel pin hole of the center way.

### ⑦ Mounting part dimensions of CRWU···R

Not to allow the table to interfere with the mounting surface, it is necessary to set mounting surface height referring to the dimensions  $H_1$  and  $H$  in the dimension table.

Example bed mounting dimensions are indicated in Table 4.

Table 4 Example of mounting dimensions of CRWU···R bed



Identification number	$h$ (minimum)	$W_3$	$W_4$
CRWU 30 ··R	0.5	13	—
CRWU 40-35R	0.5	18	—
CRWU 40 ··R	0.5	13	—
CRWU 60 ··R	0.5	26.5	—
CRWU 80 ··R	0.5	38	16
CRWU100 ··R	0.5	42	14
CRWU145 ··R	1.0	68.5	28.5

# IKO Anti-Creep Cage Crossed Roller Way Unit

CRW(G)(...H)  
CRWU(G)

Shape	CRWUG		
Size	40	60	80

The detailed drawing shows the unit's overall width  $W$ , height  $H$ , and depth  $L$ . It highlights the top surface  $E$ , bottom surface  $M$ , and side surfaces  $W_1$  and  $W_2$ . Internal dimensions include  $t_1$ ,  $t_2$ ,  $t_3$ ,  $N \times P$  (number of rows by pitch), and  $H$  (cage thickness). The stopper position is indicated at the bottom. Mounting screws are shown on the top and side surfaces.

Identification number	Mass (Ref.) kg	Nominal dimensions and tolerances mm							Table mounting dimensions mm					Bed mounting dimensions mm							Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Allowable load F N	Static moment rating T <sub>0</sub> N · m																					
		W	Dim. W tolerance	H	Dim. H tolerance	L	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	Maximum stroke length	W <sub>3</sub>	W <sub>4</sub>	N×P	E	M	W <sub>5</sub>	W <sub>6</sub>	L <sub>1</sub>	E <sub>1</sub>	L <sub>2</sub>					E <sub>2</sub>	L <sub>3</sub>	E <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>														
CRWUG 40- 35	0.21	40	±0.1	21	±0.1	35	8	6	6.5	18	15	12.5	7	M3	30	5	25	5.0	-	-	3.5	7	913	1 180	392	10.6																			
CRWUG 40- 50	0.30					50				30																40												2 000	2 440	813	17.7				
CRWUG 40- 65	0.36					65				40																55													2 000	2 440	813	17.7			
CRWUG 40- 80	0.47					80				50																70													3 430	4 880	1 630	35.3			
CRWUG 40- 95	0.53					95				60																85													2 740	3 660	1 220	26.5			
CRWUG 40-110	0.63					110				70																100													4 080	6 090	2 030	44.2			
CRWUG 40-125	0.70					125				80																115													4 080	6 090	2 030	44.2			
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	-	-	3.5	6	2 000	2 440	813	35.3				
CRWUG 60- 80	0.99	80								45					60																											3 430	4 880	1 630	70.7
CRWUG 60-105	1.28	105								60					85																											4 700	7 310	2 440	106
CRWUG 60-130	1.57	130								75					110																											5 300	8 530	2 840	124
CRWUG 60-155	1.86	155								90					135																											6 440	11 000	3 660	159
CRWUG 80- 85	1.78	80	±0.1	35	±0.1					85	13	11	10.5	50	40	20		42.5	M5	60	10	65			10.0							-						-	5.5	11	5 350	7 050	2 350	145	
CRWUG 80-125	2.56					125				75														80																		7 960	11 800	3 920	241
CRWUG 80-165	3.34					165				105														120																		9 180	14 100	4 700	289
CRWUG 80-205	4.12					205				135														160																		11 500	18 800	6 270	385

# **IKO** Crossed Roller Way Unit

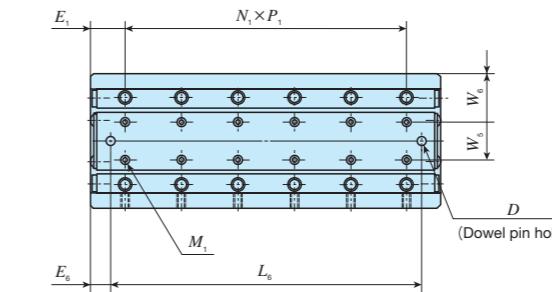
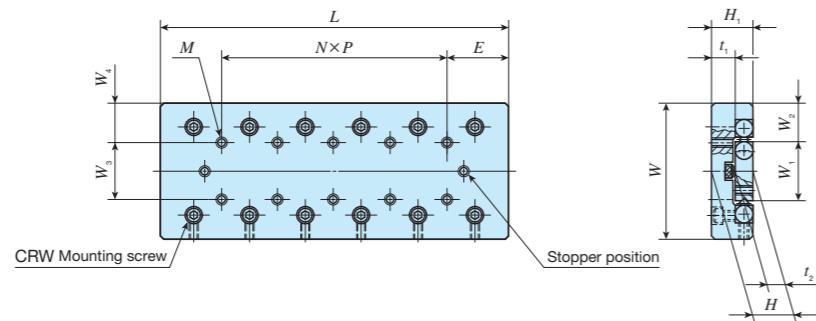
1N=0.102kgf=0.2248lbs.  
1mm=0.03937inch

# **IKO** Crossed Roller Way Unit

Remark: The identification numbers with \* are our semi-standard items.

# IKO Crossed Roller Way Unit

Shape	CRWU...R
Size	30 40 60 80 100 145

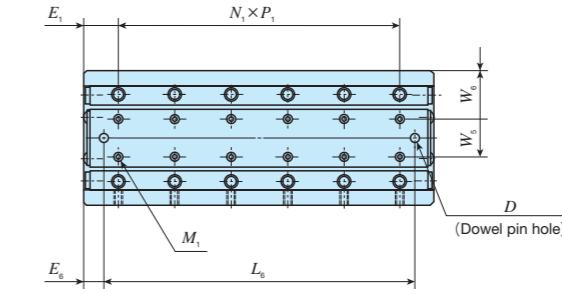
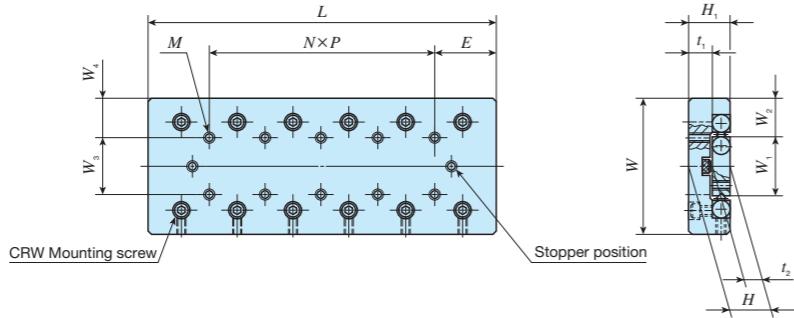


CRW(G)(...H)  
CRWU(G)

Identification number	Mass (Ref.) kg	Nominal dimensions and tolerances mm					Table mounting dimensions mm					Center way mounting dimensions and tolerances mm									Basic dynamic load rating C N	Basic static load rating C0 N	Allowable load F N	Static moment rating T0 N · m			
		W	Dim. W tolerance	H	Dim. H tolerance	L	Maximum stroke length	W3	W4	N×P	E	M	H1	t1	W5	W6	N1×P1	E1	M1	D	Dim. D tolerance	L6	E6	W1	W2	t2	
CRWU 30- 25R	0.06	30	±0.1	11	±0.1	25	12	10	10	12.5	M2	11	7	-	15	7.5	M2	2	+0.020 0	12.5	12.8	8.6	4	380	478	159	3.2
CRWU 30- 35R	0.08					35	18																	525	717	239	4.8
CRWU 30- 45R	0.11					45	25																	659	956	319	6.5
CRWU 30- 55R	0.13					55	32																	786	1 200	398	8.1
CRWU 30- 65R	0.16					65	40																	906	1 430	478	9.7
CRWU 30- 75R	0.18					75	45																	1 020	1 670	558	11.3
CRWU 30- 85R	0.21					85	50																	1 140	1 910	638	12.9
CRWU 40- 35R	0.13	40	±0.1	14	±0.1	35	18	15	12.5	17.5	M3	14	8	-	20	M3	3	+0.020 0	13.1	13.45	8	896	1 180	392	10.6		
CRWU 40- 50R	0.21					50	30															2 710	3 660	1 220	26.5		
CRWU 40- 65R	0.26					65	40															2 710	3 660	1 220	26.5		
CRWU 40- 80R	0.34					80	50															4 050	6 090	2 030	44.2		
CRWU 40- 95R	0.38					95	60															3 400	4 880	1 630	35.3		
CRWU 40-110R	0.46					110	70															4 680	7 310	2 440	53.0		
CRWU 40-125R	0.50					125	80															4 680	7 310	2 440	53.0		
CRWU 60- 55R	0.44	60	±0.1	18.5	±0.1	55	30	25	17.5	M4	18.5	10.5	-	17	21.5	M4	4	+0.020 0	10	16.7	8	2 710	3 660	1 220	51.2		
CRWU 60- 80R	0.66					80	45															4 050	6 090	2 030	85.3		
CRWU 60-105R	0.85					105	60															5 270	8 530	2 840	119		
CRWU 60-130R	1.1					130	75															5 860	9 750	3 250	137		
CRWU 60-155R	1.3					155	90															6 970	12 200	4 060	171		
CRWU 60-180R	1.5					180	105															8 040	14 600	4 880	205		
CRWU 60-205R	1.7					205	130															8 550	15 800	5 280	222		

# IKO Crossed Roller Way Unit

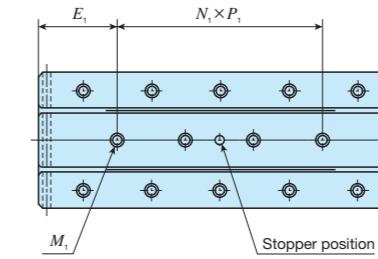
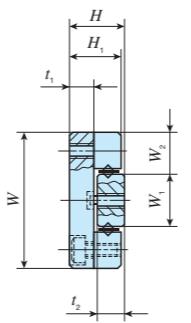
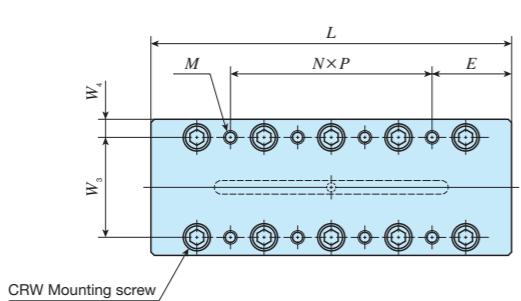
Shape	CRWU...R
Size	30 40 60 80 100 145



Identification number	Mass (Ref.) kg	Nominal dimensions and tolerances mm					Table mounting dimensions mm						Center way mounting dimensions and tolerances mm									Basic dynamic load rating C N	Basic static load rating C0 N	Allowable load F N	Static moment rating T0 N · m					
		W	Dim. W tolerance	H	Dim. H tolerance	L	Maximum stroke length	W3	W4	N×P	E	M	H1	t1	W5	W6	N1×P1	E1	M1	D	Dim. D tolerance	L6	E6	W1	W2	t2				
CRWU 80- 85R	1.2	80	±0.1	24	±0.1	85	50	40	20	—	42.5	M5	24	13	27	26.5	1×40	22.5	M5	5	+0.020 0	55	15	38	21	11	6 640	9 400	3 130	188
CRWU 80-125R	1.8					125	75			1×40							95	9 130				14 100					4 700	282		
CRWU 80-165R	2.3					165	105			2×40							135	10 300				16 500					5 480	329		
CRWU 80-205R	2.9					205	135			3×40							4×40	12 500				21 200					7 050	423		
CRWU 80-245R	3.5					245	155			4×40							5×40	14 700				25 900					8 620	517		
CRWU 80-285R	4.0					285	185			5×40							6×40	16 700				30 600					10 200	611		
CRWU 80-325R	4.6					325	215			6×40							7×40	18 700				35 300					11 800	705		
CRWU 100-110R*	2.4	100	±0.15	31	±0.1	110	60	50	25	—	55	M6	31	16	26	37	1×50	30	M6	5	+0.020 0	70	20	42	29	15	13 900	18 500	6 150	415
CRWU 100-160R*	3.6					160	95			1×50							2×50	16 600				23 100					7 690	519		
CRWU 100-210R*	4.7					210	130			2×50							3×50	21 600				32 300					10 800	727		
CRWU 100-260R*	5.9					260	165			3×50							4×50	26 300				41 500					13 800	934		
CRWU 100-310R*	7.0					310	200			4×50							5×50	30 800				50 700					16 900	1 140		
CRWU 100-360R*	8.1					360	235			5×50							6×50	35 100				60 000					20 000	1 350		
CRWU 100-410R*	9.3					410	265			6×50							7×50	37 200				64 600					21 500	1 450		
CRWU 145-210R*	9.4	145	±0.2	42.5	±0.1	210	130	85	30	—	105	M8	43	21	46	49.5	1×100	55	M8	5	+0.020 0	150	30	68.4	38.3	21	39 400	52 800	17 600	1 900
CRWU 145-310R*	13.9					310	180			1×100							2×100	61 200				92 300					30 800	3 320		
CRWU 145-410R*	18.4					410	350			2×100							3×100	67 900				106 000					35 200	3 800		
CRWU 145-510R*	23.0					510	450			3×100							4×100	74 400				119 000					39 600	4 270		
CRWU 145-610R*	27.5					610	550			4×100							5×100	87 100				145 000					48 400	5 220		
CRWU 145-710R*	32.0					710	650			5×100							6×100	99 200				172 000					57 200	6 170		
CRWU 145-810R*	36.6																													

# IKO Crossed Roller Way Unit

Shape	CRWU...RS		
	20	30	40



CRW(G)(...H)  
CRWU(G)

Identification number	Mass (Ref.) kg	Nominal dimensions and tolerances mm					Table mounting dimensions mm					Center way mounting dimensions mm					Basic dynamic load rating C N	Basic static load rating C <sub>0</sub> N	Allowable load F N	Static moment rating T <sub>0</sub> N · m												
		W	Dim. W tolerance	H	Dim. H tolerance	L	Maximum stroke length	W <sub>3</sub>	W <sub>4</sub>	N×P	E	M	H <sub>1</sub>	t <sub>1</sub>	W <sub>1</sub>	W <sub>2</sub>	N <sub>1</sub> ×P <sub>1</sub>	E <sub>1</sub>	M <sub>1</sub>	t <sub>2</sub>												
CRWU 20- 25RS	0.03	20	$\pm 0.1$	8	$\pm 0.1$	25	12	14	3	1×18	3.5	M2.5	7.5	3.5	7	6.5	2× 7.5	5	M2.5	4	380	478	159	1.8								
CRWU 20- 35RS	0.05					35	18			1×28							525				717	239	2.8									
CRWU 20- 45RS	0.06					45	25			1×20	12.5										659	956	319	3.7								
CRWU 20- 55RS	0.07					55	32			1×30											786	1 200	398	4.6								
CRWU 30- 65RS	0.20	30	$\pm 0.1$	12	$\pm 0.1$	65	40	22	4	1×30	17.5	M3	11.5	5.5	12	9	3×15	10	M3	6	1 850	2 940	979	19.1								
CRWU 30- 80RS	0.24					80	50			1×45							2 130				3 530	1 180	22.9									
CRWU 30- 95RS	0.29					95	60			2×30							2 410				4 110	1 370	26.7									
CRWU 40-105RS	0.58	40	$\pm 0.1$	16	$\pm 0.1$	105	60	30	5	1×50	27.5	M4	15.5	7.5	16	12	3×25	15	M4	8	4 680	7 310	2 440	63.6								
CRWU 40-130RS	0.72					130	75			1×75							5 860				9 750	3 250	84.8									
CRWU 40-155RS	0.85					155	90			2×50							6 970				12 200	4 060	106									