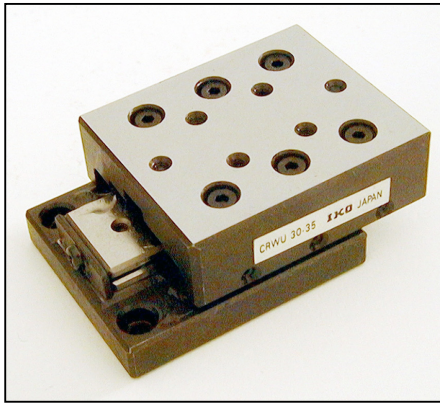


**CRWU**

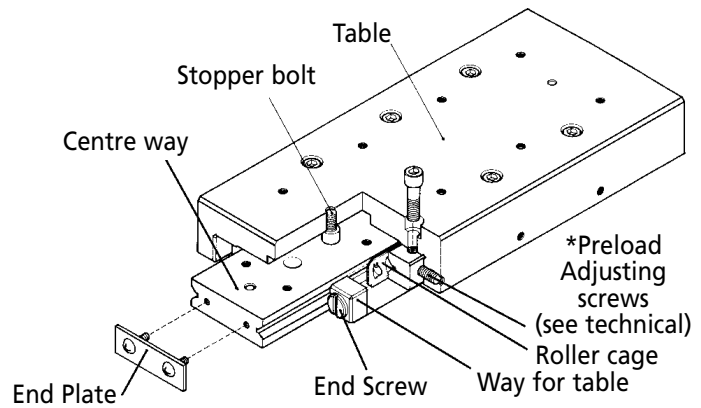
# LINEAR MOTION

## Crossed Roller Way Unit

High Accuracy, High Rigidity, Smooth Operation



\*Preload adjustable



Part Number	Weight kg	Nominal Dimensions mm										Price Each
		W	H	L	Max Stroke Length	W1	NxP	M	w1	nxp		
CRWU30-25	0.09	30±0.1	17±0.1	25	12	10	-	M2	18.4	1x10	£233.80	
CRWU30-35	0.13	30±0.1	17±0.1	35	18	10	1x10	M2	18.4	2x10	£257.22	
CRWU30-45	0.17	30±0.1	17±0.1	45	25	10	2x10	M2	18.4	3x10	£280.59	
CRWU30-55	0.20	30±0.1	17±0.1	55	32	10	3x10	M2	18.4	4x10	£303.95	
CRWU30-65	0.24	30±0.1	17±0.1	65	40	10	4x10	M2	18.4	5x10	£327.33	
CRWU30-75	0.28	30±0.1	17±0.1	75	45	10	5x10	M2	18.4	6x10	£350.74	
CRWU30-85	0.32	30±0.1	17±0.1	85	50	10	6x10	M2	18.4	7x10	£409.15	
CRWU40-35	0.21	40±0.1	21±0.1	35	18	15	-	M3	25.0	1x15	£268.87	
CRWU40-50	0.30	40±0.1	21±0.1	50	30	15	1x15	M3	25.5	2x15	£280.59	
CRWU40-65	0.37	40±0.1	21±0.1	65	40	15	2x15	M3	25.5	3x15	£339.05	
CRWU40-80	0.48	40±0.1	21±0.1	80	50	15	3x15	M3	25.5	4x15	£374.11	
CRWU40-95	0.54	40±0.1	21±0.1	95	60	15	4x15	M3	25.5	5x15	£432.58	
CRWU40-110	0.65	40±0.1	21±0.1	110	70	15	5x15	M3	25.5	6x15	£455.94	
CRWU40-125	0.72	40±0.1	21±0.1	125	80	15	6x15	M3	25.5	7x15	£526.11	
CRWU60-55	0.68	60±0.1	28±0.1	55	30	25	-	M4	39.0	1x15	£257.22	
CRWU60-80	1.00	60±0.1	28±0.1	80	45	25	1x25	M4	39.0	2x25	£280.59	
CRWU60-105	1.30	60±0.1	28±0.1	105	60	25	2x25	M4	39.0	3x25	£339.05	
CRWU60-130	1.60	60±0.1	28±0.1	130	75	25	3x25	M4	39.0	4x25	£420.92	
CRWU60-155	1.90	60±0.1	28±0.1	155	90	25	4x25	M4	39.0	5x25	£491.04	
CRWU60-180	2.20	60±0.1	28±0.1	180	105	25	5x25	M4	39.0	6x25	£572.89	
CRWU60-205	2.50	60±0.1	28±0.1	205	130	25	6x25	M4	39.0	7x25	£654.71	
CRWU80-85	1.80	80±0.1	35±0.1	85	50	40	-	M5	53.0	1x40	£397.49	
CRWU80-125	2.60	80±0.1	35±0.1	125	75	40	1x40	M5	53.0	2x40	£467.39	
CRWU80-165	3.40	80±0.1	35±0.1	165	105	40	2x40	M5	53.0	3x40	£561.18	
CRWU80-205	4.20	80±0.1	35±0.1	205	135	40	3x40	M5	53.0	4x40	£666.36	
CRWU80-245	5.10	80±0.1	35±0.1	245	155	40	4x40	M5	53.0	5x40	£771.66	
CRWU80-285	5.90	80±0.1	35±0.1	285	185	40	5x40	M5	53.0	6x40	£888.51	
CRWU80-325	6.70	80±0.1	35±0.1	325	215	40	6x40	M5	53.0	7x40	£1028.82	
CRWU100-110	3.60	100±0.15	45±0.1	110	60	50	-	M6	64.0	1x50	£455.94	
CRWU100-160	5.20	100±0.15	45±0.1	160	95	50	1x50	M6	64.0	2x50	£572.89	
CRWU100-210	6.90	100±0.15	45±0.1	210	130	50	2x50	M6	64.0	3x50	£689.82	
CRWU100-260	8.50	100±0.15	45±0.1	260	165	50	3x50	M6	64.0	4x50	£818.41	
CRWU100-310	10.20	100±0.15	45±0.1	310	200	50	4x50	M6	64.0	5x50	£935.35	
CRWU100-360	11.80	100±0.15	45±0.1	360	235	50	5x50	M6	64.0	6x50	£1099.03	
CRWU100-410	13.50	100±0.15	45±0.1	410	265	50	6x50	M6	64.0	7x50	£1262.71	
CRWU145-210	13.20	140±0.2	60±0.1	210	130	85	-	M8	98.0	1x100	£795.03	
CRWU145-310	19.60	140±0.2	60±0.1	310	180	85	1x100	M8	98.0	2x100	£1075.60	
CRWU145-410	25.90	140±0.2	60±0.1	410	350	85	2x100	M8	98.0	3x100	£1356.25	
CRWU145-510	32.20	140±0.2	60±0.1	510	450	85	3x100	M8	98.0	4x100	£1683.62	
CRWU145-610	38.60	140±0.2	60±0.1	610	550	85	4x100	M8	98.0	5x100	£2011.02	
CRWU145-710	45.00	140±0.2	60±0.1	710	650	85	5x100	M8	98.0	6x100	£2315.00	
CRWU145-810	51.30	140±0.2	60±0.1	810	750	85	6x100	M8	98.0	7x100	£2689.12	

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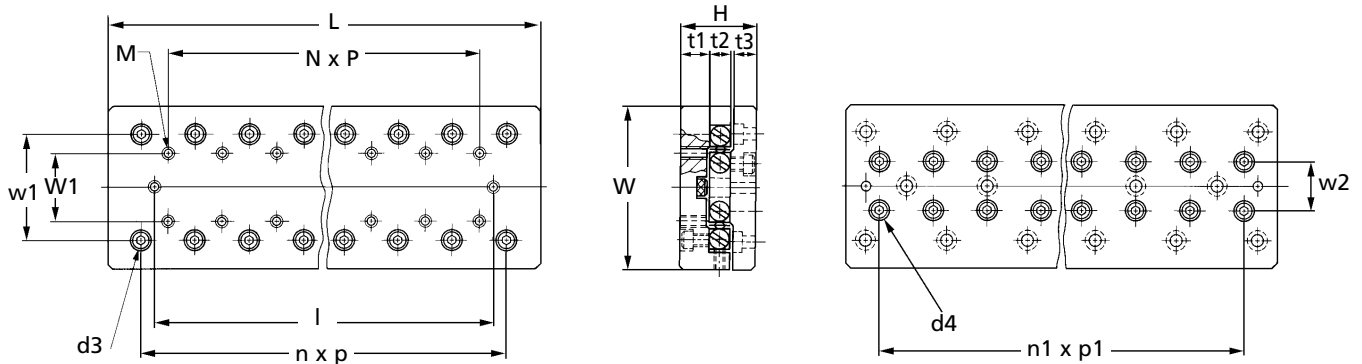
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

# LINEAR MOTION

CRWU

## Crossed Roller Way Unit

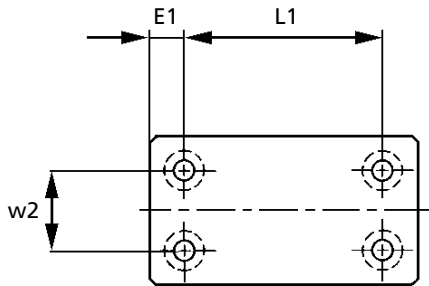
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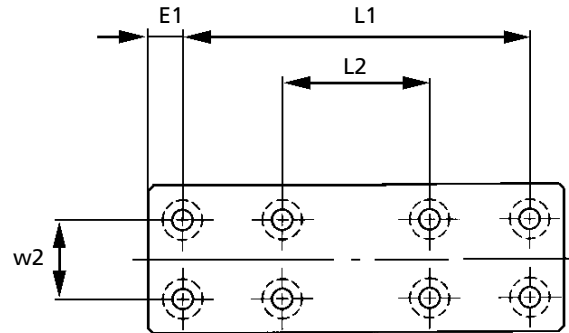
Part Number	Dimensions mm								Basic dynamic load rating C kgf	Basic static load rating Co kgf	Allowable load F kgf	Static rated moment To kgf·m
	d3	l	t1	t2	w2	n1xp1	d4	t3				
CRWU30-25	4.1	20	7.0	4	-	1x10	4.1	5.5	37	48	16	0.32
CRWU30-35	4.1	26	7.0	4	-	2x10	4.1	5.5	51	72	24	0.49
CRWU30-45	4.1	33	7.0	4	-	3x10	4.1	5.5	63	96	32	0.65
CRWU30-55	4.1	40	7.0	4	-	4x10	4.1	5.5	75	120	40	0.81
CRWU30-65	4.1	48	7.0	4	-	5x10	4.1	5.5	85	140	48	0.98
CRWU30-75	4.1	53	7.0	4	-	6x10	4.1	5.5	96	170	56	1.10
CRWU30-85	4.1	58	7.0	4	-	7x10	4.1	5.5	110	190	64	1.30
CRWU40-35	6.0	29	8.0	6	-	1x15	6.0	6.5	89	120	40	1.10
CRWU40-50	6.5	41	7.0	8	-	2x15	6.0	5.5	260	370	120	2.70
CRWU40-65	6.5	51	7.0	8	-	2x15	6.0	5.5	260	370	120	2.70
CRWU40-80	6.5	61	7.0	8	-	4x15	6.0	5.5	330	490	160	3.60
CRWU40-95	6.5	71	7.0	8	-	4x15	6.0	5.5	330	490	160	3.60
CRWU40-110	6.5	81	7.0	8	-	5x15	6.0	5.5	450	740	250	5.40
CRWU40-125	6.5	91	7.0	8	-	5x15	6.0	5.5	450	740	250	5.40
CRWU60-55	7.5	44	10.5	8	17	1x25	7.5	9.0	260	370	120	5.20
CRWU60-80	7.5	59	10.5	8	17	2x25	7.5	9.0	390	620	210	8.70
CRWU60-105	7.5	74	10.5	8	17	3x25	7.5	9.0	500	870	290	12.00
CRWU60-130	7.5	89	10.5	8	17	4x25	7.5	9.0	550	990	330	14.00
CRWU60-155	7.5	104	10.5	8	17	5x25	7.5	9.0	650	1240	410	17.00
CRWU60-180	7.5	119	10.5	8	17	6x25	7.5	9.0	750	1480	490	21.00
CRWU60-205	7.5	144	10.5	8	17	7x25	7.5	9.0	800	1610	540	23.00
CRWU80-85	9.5	64	13.0	11	27	1x40	9.5	10.5	630	960	320	19.00
CRWU80-125	9.5	89	13.0	11	27	2x40	9.5	10.5	850	1440	480	29.00
CRWU80-165	9.5	119	13.0	11	27	3x40	9.5	10.5	960	1680	560	33.00
CRWU80-205	9.5	149	13.0	11	27	4x40	9.5	10.5	1160	2160	720	43.00
CRWU80-245	9.5	169	13.0	11	27	5x40	9.5	10.5	1350	2640	880	52.00
CRWU80-285	9.5	199	13.0	11	27	6x40	9.5	10.5	1530	3120	1040	62.00
CRWU80-325	9.5	229	13.0	11	27	7x40	9.5	10.5	1700	3600	1200	72.00
CRWU100-110	11.0	78	16.0	15	26	1x50	11.0	13.0	1330	1870	620	42.00
CRWU100-160	11.0	113	16.0	15	26	2x50	11.0	13.0	1570	2340	780	53.00
CRWU100-210	11.0	148	16.0	15	26	3x50	11.0	13.0	2020	3280	1090	74.00
CRWU100-260	11.0	183	16.0	15	26	4x50	11.0	13.0	2430	4210	1400	95.00
CRWU100-310	11.0	218	16.0	15	26	5x50	11.0	13.0	2830	5150	1720	120.00
CRWU100-360	11.0	253	16.0	15	26	6x50	11.0	13.0	3210	6090	2030	140.00
CRWU100-410	11.0	283	16.0	15	26	7x50	11.0	13.0	3390	6560	2190	150.00
CRWU145-210	14.0	156	21.0	22	46	1x100	14.0	16.0	3700	5360	1790	190.00
CRWU145-310	14.0	206	21.0	22	46	2x100	14.0	16.0	5630	9370	3120	340.00
CRWU145-410	14.0	376	21.0	22	46	3x100	14.0	16.0	6230	10700	3570	390.00
CRWU145-510	14.0	476	21.0	22	46	4x100	14.0	16.0	6800	12100	4030	430.00
CRWU145-610	14.0	576	21.0	22	46	5x100	14.0	16.0	7910	14700	4900	530.00
CRWU145-710	14.0	676	21.0	22	46	6x100	14.0	16.0	8960	17400	5800	630.00
CRWU145-810	14.0	776	21.0	22	46	7x100	14.0	16.0	9980	20100	6700	720.00

## Crossed Roller Way Unit

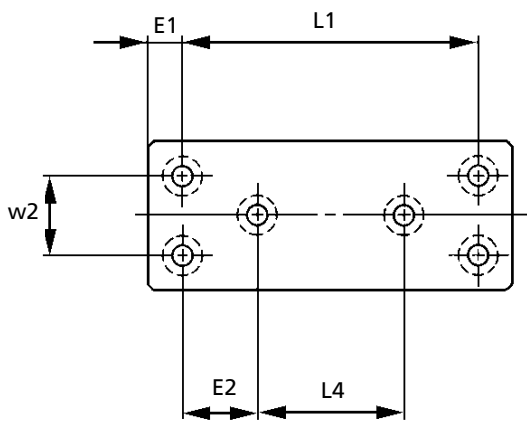
Dimensions and Positions of Bed Mounting Holes



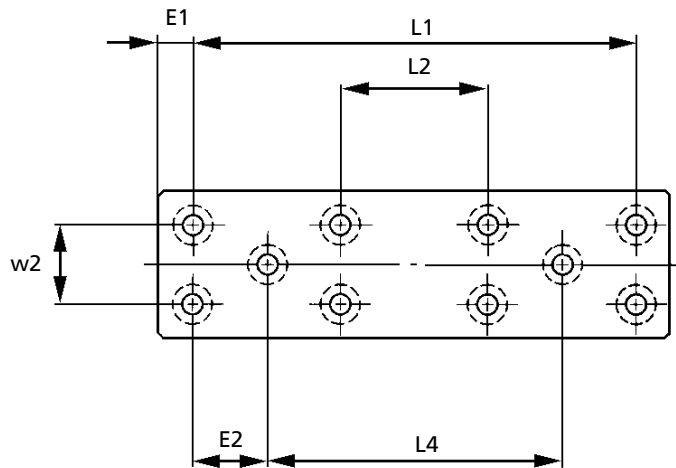
**Arrangement A**



**Arrangement B**



**Arrangement C**



**Arrangement D**

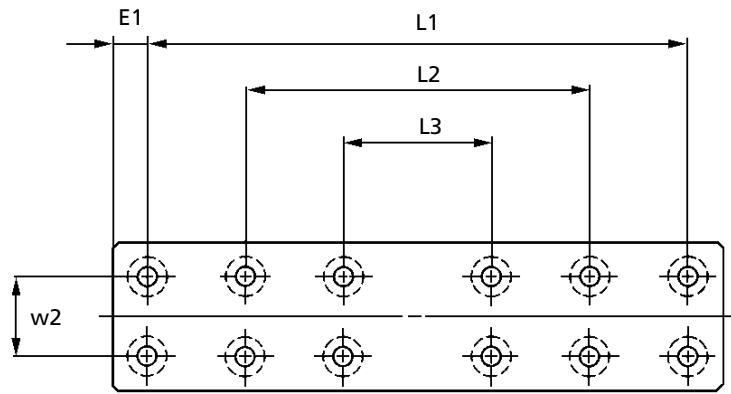
PART NUMBER	Arrange Symbol	Position of Mounting Holes mm								Dimensions of Mounting Holes mm			
		W2	E1	L1	L2	L3	E2	L4	L5	d1	d2	h1	h2
CRWU30-25	A	22	3.5	18	-	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-35	A	22	3.5	28	-	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-45	A	22	3.5	38	-	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-55	B	22	3.5	48	28	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-65	B	22	3.5	58	38	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-75	B	22	3.5	68	48	-	-	-	-	2.55	4.1	2.5	6.0
CRWU30-85	B	22	3.5	78	58	-	-	-	-	2.55	4.1	2.5	6.0
CRWU40-35	A	30	5.0	25	-	-	-	-	-	3.50	6.0	3.5	7.0
CRWU40-50	A	30	5.0	40	-	-	-	-	-	3.50	6.0	3.2	6.0
CRWU40-65	A	30	5.0	55	-	-	-	-	-	3.50	6.0	3.2	6.0
CRWU40-80	B	30	5.0	70	40	-	-	-	-	3.50	6.0	3.2	6.0
CRWU40-95	B	30	5.0	85	55	-	-	-	-	3.50	6.0	3.2	6.0
CRWU40-110	B	30	5.0	100	70	-	-	-	-	3.50	6.0	3.2	6.0
CRWU40-125	B	30	5.0	115	85	-	-	-	-	3.50	6.0	3.2	6.0
CRWU60-55	A	40	10.0	35	-	-	-	-	-	4.50	7.5	4.5	9.5
CRWU60-80	A	40	10.0	60	-	-	-	-	-	4.50	7.5	4.5	9.5
CRWU60-105	A	40	10.0	85	-	-	-	-	-	4.50	7.5	4.5	9.5
CRWU60-130	A	40	10.0	110	-	-	-	-	-	4.50	7.5	4.5	9.5
CRWU60-155	C	40	10.0	135	-	-	25	85	-	4.50	7.5	4.5	9.5
CRWU60-180	C	40	10.0	160	-	-	25	110	-	4.50	7.5	4.5	9.5
CRWU60-205	D	40	10.0	185	85	-	25	135	-	4.50	7.5	4.5	9.5

# LINEAR MOTION

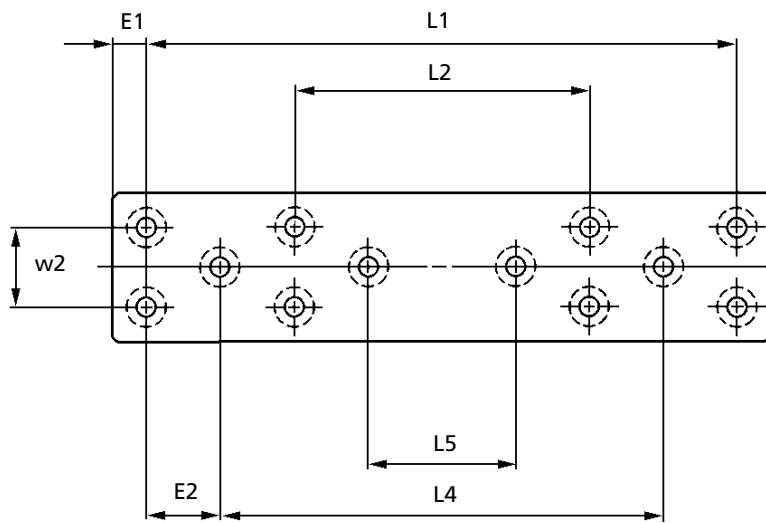
CRWU

## Crossed Roller Way Unit

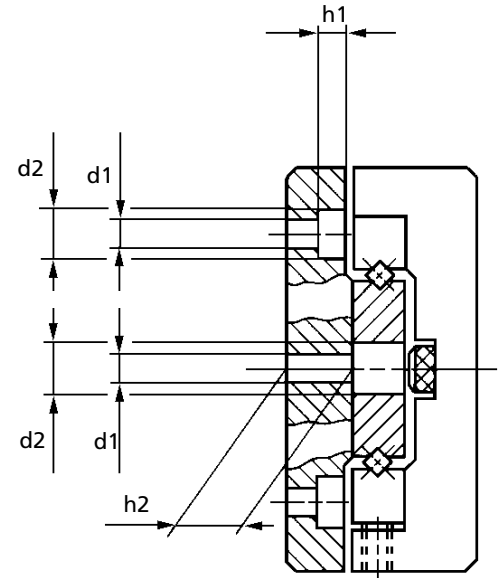
Dimensions and Positions of Bed Mounting Holes



Arrangement E



Arrangement F



PART NUMBER	Arrange Symbol	Position of Mounting Holes mm								Dimensions of Mounting Holes mm			
		W2	E1	L1	L2	L3	E2	L4	L5	d1	d2	h1	h2
CRWU80-85	A	60	22.5	40	-	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-125	A	60	22.5	80	-	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-165	A	60	22.5	120	-	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-205	B	60	22.5	160	80	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-245	B	60	22.5	200	120	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-285	B	60	22.5	240	160	-	-	-	-	5.5	9.5	6.0	11.0
CRWU80-325	E	60	22.5	280	200	120	-	-	-	5.5	9.5	6.0	11.0
CRWU100-110	A	60	10.0	90	-	-	-	-	-	7.0	11.0	6.5	14.0
CRWU100-160	A	60	10.0	140	-	-	-	-	-	7.0	11.0	6.5	14.0
CRWU100-210	C	60	10.0	190	-	-	50	90	-	7.0	11.0	6.5	14.0
CRWU100-260	C	60	10.0	240	-	-	50	140	-	7.0	11.0	6.5	14.0
CRWU100-310	C	60	10.0	290	-	-	50	190	-	7.0	11.0	6.5	14.0
CRWU100-360	D	60	10.0	340	140	-	50	240	-	7.0	11.0	6.5	14.0
CRWU100-410	D	60	10.0	390	190	-	50	290	-	7.0	11.0	6.5	14.0
CRWU145-210	A	90	55.0	100	-	-	-	-	-	9.0	14.0	8.5	17.5
CRWU145-310	A	90	55.0	200	-	-	-	-	-	9.0	14.0	8.5	17.5
CRWU145-410	C	90	55.0	300	-	-	100	100	-	9.0	14.0	8.5	17.5
CRWU145-510	C	90	55.0	400	-	-	100	200	-	9.0	14.0	8.5	17.5
CRWU145-610	D	90	55.0	500	100	-	100	300	-	9.0	14.0	8.5	17.5
CRWU145-710	D	90	55.0	600	200	-	100	400	-	9.0	14.0	8.5	17.5
CRWU145-810	F	90	55.0	700	300	-	100	500	100	9.0	14.0	8.5	17.5

# LINEAR MOTION

## Crossed Roller Way Unit

### Mounting of CRW type

A general method of mounting CRW type is shown in Fig. 1. The general procedure is as follows.

#### 1. Preparation for mounting

- The CRW type 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 up.
- Separate the end screws or end stoppers and wash the ways with a cleaning agent. After cleaning, apply rust preventative oil or lubricating oil.

#### 2. Cleaning of mounting surfaces of table and bed

- Remove burrs and blemishes from mounting surfaces of table and bed by an oil-stone. During the process, also pay attention to the corner grooves of the mounting surfaces.
- Wipe off dust with clean cloth, and apply rust preventative oil or lubricating oil.

#### 3. Mounting of ways at bed side (Fig.3)

- After fitting the mounting surfaces of the ways onto the corresponding mounting surfaces of the bed, temporarily tighten the mounting screws with uniform tightening torque.
- After closely fitting the way to B surfaces (see Fig.2), tighten the mounting screws to the prescribed tightening torque.
- If high accuracy is required, tighten the mounting screws to the prescribed tightening torque while checking the parallelism of the two ways along the overall way length.

#### 4. Mounting of ways at table side (Fig.4)

- After fitting the mounting surfaces of ways to the mating mounting surfaces of table, temporarily tighten the mounting screws at the fixed side with uniform tightening torque.
- After closely fitting the ways at the fixed side to C surfaces (see Fig.2), tighten the mounting screws at the fixed side to the prescribed tightening torque.
- Loosen the preload adjusting screws and temporarily tighten the mounting screws of the way at adjusting side with uniform tightening torque.

#### 5. Assembling of table and bed (Fig.5)

- Adjust the position of table and bed in height and width directions in order to insert roller cages between ways at table side and bed side.
- Insert the roller cages gradually and gently until the cages position at the centre of way length. In this process, DO NOT deform the cages.
- Assemble end screws or end stoppers.
- Push the table to the preload adjusting side, and temporarily tighten the preload adjusting screws until the clearance at raceways is near zero.
- Stroke the table it's full length to position the roller cage near the centre of the stroke.

#### 6. Preload adjustment

- Preload adjustment is done only when mounting screws for the way at the adjusting side are temporarily tightened.
- Preload adjustment is started from the adjusting screw at the centre of the way length, proceeding alternately to the left and right.

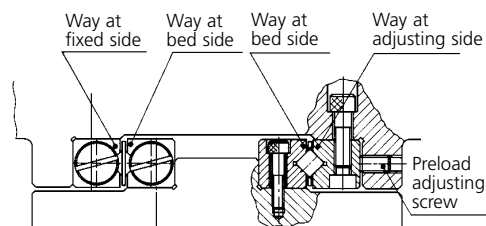


Fig. 1 Mounting example of CRW type

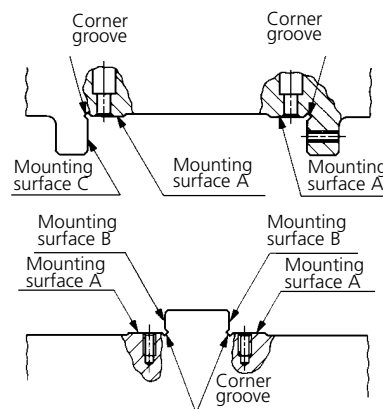


Fig. 2 Mounting surfaces for CRW type

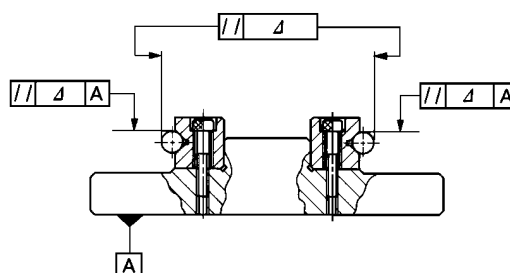


Fig. 3 Mounting accuracy of ways

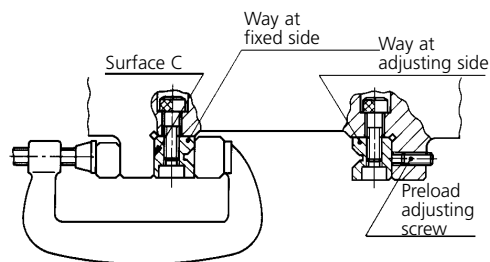


Fig. 4 Mounting of ways at table side

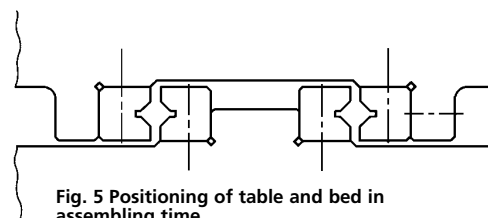


Fig. 5 Positioning of table and bed in assembling time

# LINEAR MOTION

## Crossed Roller Way Unit

### 6. Preload adjustment (Cont.)

- While checking the clearance (deflection) at the side face of table gradually tighten each adjusting screw until a dial gauge indicates zero-clearance. During this process, note the tightening torque of the adjusting screws.
- When adjusting the screw close to the end of the way, gradually stroke the table and ensure that the roller cage is positioned at the adjusting screw.
- Using the above process, the internal clearance becomes zero or minimal preload, but the preload amount is not uniform. Therefore, using the same process but with identical tightening torques, readjust all adjusting screws to a uniform amount.

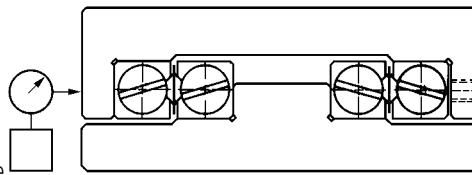


Fig. 6 Example of preload adjustment

### 7. Final fixing of way at adjusting side

- These mounting screws should also be tightened to a uniform torque. Similar to the adjustment of the preload adjusting screws, tighten the mounting screws at the adjusting side to a slightly lower tightening torque than the prescribed value. Start from the centre screw of the way length, proceed alternately to the left and right.
- When tightening the mounting screw 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 to the prescribed torque.

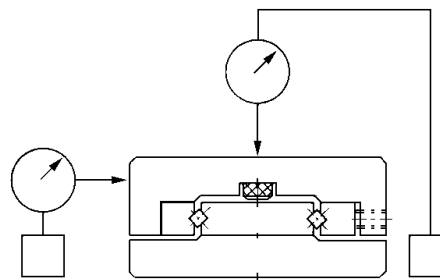


Fig. 7 Final check of operating accuracy

### 8. Final check (Fig.7)

- Stroke the table gradually it's 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.

In the Crossed Roller Way Unit series, the following three types are available.

#### Crossed Roller Way Unit CRWU

This type is a general purpose linear motion rolling guide unit. The table and bed are assembled with high accuracy, and can be quickly mounted onto machinery or equipment.

This type achieves highly accurate linear movement with easy installation.

#### Crossed Roller Way Unit CRWU---R

This type is a linear motion rolling guide unit featuring a low sectional height that is accomplished by simply removing the bed from the CRWU type. Stable accuracy and high rigidity in linear motion can be achieved against loads in any direction.

If a special table (or bed) is prepared and assembled with the centre way of the CRWU---R type, a linear motion assembly with excellent operating performance can be easily obtained.

#### Crossed Roller Way Unit CRWU---RS

This type is a compact linear motion rolling guide unit featuring a lightweight, simplified structure. The CRWU---RS is ideal for applications in which the centre way is stroked and high accuracy with low inertia is required.

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# LINEAR MOTION

## Crossed Roller Way Unit

### Accuracy

The accuracy of the Crossed Roller Way Unit series is as shown in table 1. Parallelism at table centre shows maximum deviation of table height when the table is stroked. Parallelism at table side shows maximum deviation at table side (opposite to adjusting side) when the table is stroked. The height tolerance of units are manufactured with a standard tolerance of  $\pm 0.1\text{mm}$ . If several units are used on the same mounting surface and the height of those units require a limited height variation, a height tolerance of less than  $0.01\text{mm}$  along 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 1 is desired, consult our technical department.

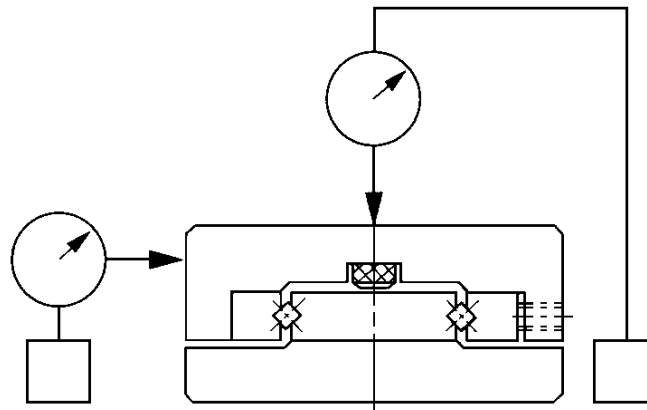


Table 1 Accuracy of Crossed Roller Way Unit Series

Unit Length Lmm over	incl.	Parallelism at table centre	Parallelism at table side
-	50	2	4
50	100	2	5
100	160	3	6
160	310	3	7
310	510	4	8
510	710	4	9
710	-	5	10

unit :  $\mu\text{m}$

### Caution in Using

#### 1 Selection of Crossed Roller Way Unit Series

Check whether the specifications of the selected Crossed Roller Way Unit are suitable for the application.

#### 2 Handling of Parts

Crossed Roller Way Units are finished very accurately, so careful handling is needed.

#### 3. Mounting - (1) Tightening torque of mounting screws

Tightening torque of mounting screws is as shown in table 2. If vibration or shock is large, or if a moment load is applied, it is recommended to further tighten the screws to 1.3 times the listed values.

# LINEAR MOTION

## Crossed Roller Way Unit

### (2) Mounting dimensions of CRWU---R type

In order to avoid reference of the mating table with the CRWU---R, carefully note H1 and H dimensions and design the height of the mating surface accordingly. Example of the mating mounting surface of the bed is shown in table 3.

Screw Size	Tightening Torque kgf•cm
M2 x 0.40	2.3
M2.5 x 0.45	4.7
M3 x 0.50	14.0
M4 x 0.70	32.0
M5 x 0.80	64.0
M6 x 1.00	110.0
M8 x 1.25	260.0

Table 2 Tightening torque of screws

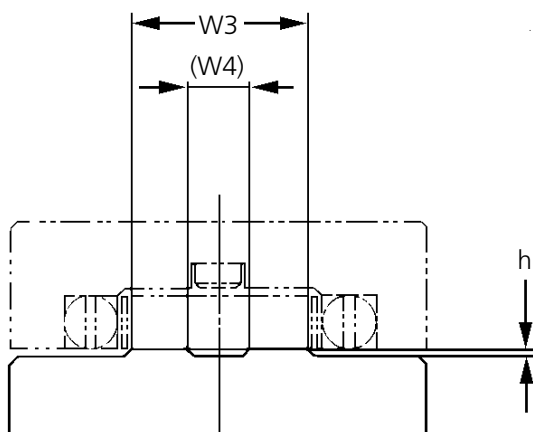


Table 3 Example of mating mounting surfaces for CRWU---R type

Model Number	h (minimum)	W3	W4
CRWU30---R	0.5	13.0	-
CRWU40-35R	0.5	18.0	-
CRWU40---R	0.5	3.0	-
CRWU60---R	0.5	26.5	-
CRWU80---R	0.5	38.0	16.0
CRWU100---R	0.5	42.0	14.0
CRWU145---R	1.0	68.5	28.5

unit : mm

### 4 Dowel pin hole

In the centre way of the CRWU---R type, dowel pin holes are prepared. When drilling a dowel pin hole in the bed affixed to the centre way, drill any required through-holes in the centre way of the CRWU---R and the bed at the same time. The hole diameters and their tolerances are shown in the dimension tables.

### 5 Readjustment of preload

Preloads of Crossed Roller Way Unit series are adjusted to zero clearance or minimum preload at the factory. Crossed Roller Way Units do not usually require any further adjustment. If preload readjustment of the CRWU or CRWU---R type is needed, adjust according to the preload methods of the CRW type shown previously.

### 6 Operating Speed

Crossed Roller Way Unit series can be used up to a speed of 30 metres per minute.  
For temperatures over 100°C we can supply special high temperature grease (200°C - supplied in syringe) **CG2-SY : £31.80**

LINEAR MOTION