High Rigidity Precision Linear Slide Unit

BWU



Points

1 Simple limited linear motion guide structure

Small and simple limited stroke type structure incorporated with balls and retainer between integrated table and bed. With two-row four-point contact structure, stable accuracy and rigidity can be achieved even in applications where fluctuating load and complex load are applied.

2 High accuracy

Simultaneous grinding process of two-row track grooves is applied to table and bed, which provides small processing errors and realizes linear motion of high accuracy.

3 Smooth operations

As each component is finished with accuracy without recirculation resistance of the balls, light and smooth operations are obtained.

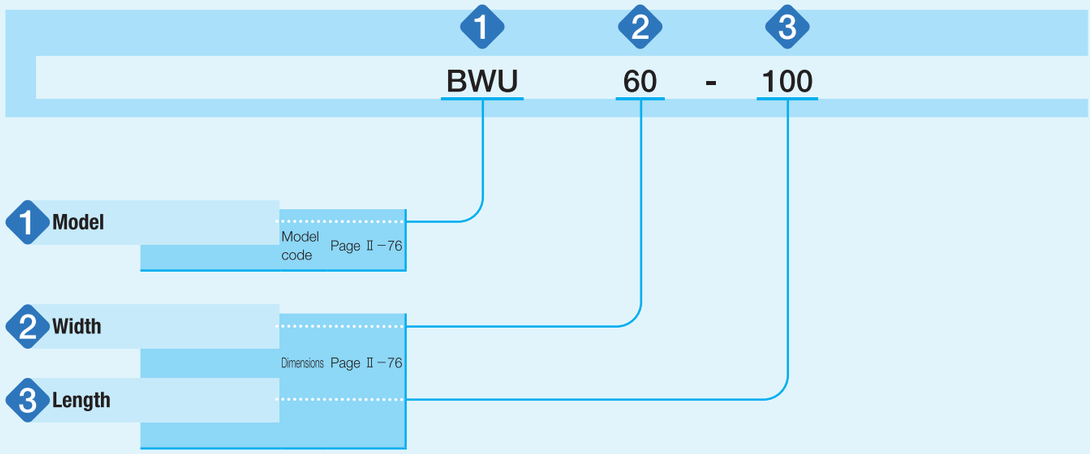
4 Stainless steel selections for excellent corrosion resistance

Stainless steel highly resistant to corrosion is used for all steel components, so that they are suitable for applications where rust prevention oil is not preferred, such as in a cleanroom environment.

Identification Number and Specification

Example of an identification number

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



Identification Number and Specification

1 Model

High Rigidity Precision Linear Slide Unit (BWU series) : BWU

For applicable models, width and length, see Table 1.

2 Width

6, 8, 10, 12, 17, 25, 30, 40, 60

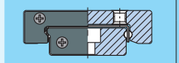
Indicate the table width in mm.
For applicable models, width and length, see Table 1.

3 Length

Indicate the table length in mm.
For applicable models, width and length, see Table 1.

Table 1 Width and length of BWU series

unit: mm

Shape	Model	Width	Length											
			10	15	20	25	30	40	45	60	75	80	90	100	120
	BWU	6	○	–	○	–	○	–	–	–	–	–	–	–	–
		8	○	–	○	–	○	–	–	–	–	–	–	–	–
		10	–	○	–	○	–	○	–	–	–	–	–	–	–
		12	–	–	○	–	○	–	○	–	–	–	–	–	–
		17	–	–	○	–	○	–	○	–	–	–	–	–	–
		25	–	–	–	–	○	–	○	○	○	–	–	–	–
		30	–	–	–	–	○	–	○	○	○	–	○	–	–
		40	–	–	–	–	–	○	–	○	–	○	–	○	–
		60	–	–	–	–	–	–	–	○	–	○	–	○	○

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

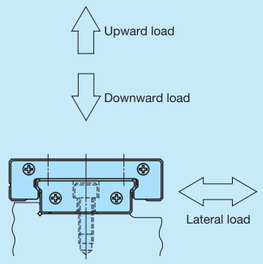
Allowable Load

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.

Load Direction and Load Rating

The BWU series must be used with its load rating corrected in accordance to the load direction. The basic dynamic load rating and basic static load rating shown in the dimension table should be corrected to values in Table 2.

Table 2 Load ratings corrected for load direction

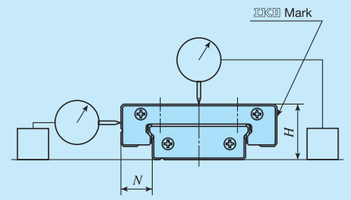


Load rating and load direction / Width	Basic dynamic load rating			Basic static load rating		
	Load direction			Load direction		
	Downward	Upward	Lateral	Downward	Upward	Lateral
6~60	C	C	1.19C	C_0	C_0	1.19C_0

Accuracy

Accuracy of the BWU series is indicated in Table 3 and Table 4.

Table 3 Accuracy



unit: mm

Item	Tolerance and allowance
Dim. H tolerance	±0.040
Dim. N tolerance	±0.050
Parallelism at the table center	See Table 4
Parallelism on the table side	See Table 4

Table 4 Running accuracy unit: μm

Nominal length L mm		Parallelism at the table center (1)	Parallelism on the table side (2)
Over	Incl.		
–	50	4	6
50	80	5	8
80	120	6	9

Notes (1) Parallelism at the center of the table represents parallelism of height when the table is stroked.
(2) Parallelism at the side of the table represents parallelism of the side (the opposite side of mark) when the table is stroked.

Preload

Preload for the BWU series is adjusted to proper preload state.

Lubrication

Grease is not pre-packed in the BWU series, so please perform adequate lubrication as needed.
Upon delivery, anti-rust oil is applied. Therefore, perform cleaning with clean solution before mounting and apply high-quality lubrication oil or grease before use. For grease lubrication, use of high-quality lithium-soap base grease is recommended.
Since no grease nipple or oil hole is provided, apply grease directly to the raceway part of the bed when supplying the grease.

Dust Protection

No dust protection seal is provided for BWU series. For applications in other than clean environment, cover the entire unit with a protective case, etc. to prevent harmful foreign substances such as dust and particles from outside from entering.

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

Precaution for Use

❶ Handling

When high running accuracy is required, set the load point at the center of the table (or bed) and use with sufficient stroke length.

For the BWU series, the retainer 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 retainer position.

Since there is no built-in mechanical stopper to regulate linear motion in the event of collision, install a stopper mechanism in proximity if risk of overstroke exists.

The fixing thread depth of mounting screws for table must not exceed the maximum fixing thread depth indicated in the table of dimensions. Since the mounting screw hole for the table is penetrated, the bed or retainer will be pushed by the screw if the fixing thread depth is too deep, and the running accuracy and life may be adversely affected.

❷ Operating temperature

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

❸ Maximum velocity

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

Precaution for Mounting

❶ Reference mounting surface

Reference mounting surface of the BWU series is the opposite side of the IKO mark. (See Fig. 1)

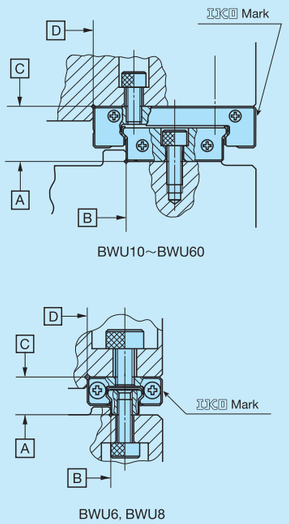


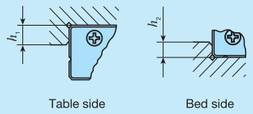
Fig. 1 Reference mounting surface and mounting examples

❷ Typical mounting structure

As indicated in Fig.1, reference mounting surfaces B and D, and mounting surfaces A and C are precisely ground. Therefore, by machining the reference mounting surface of the mating member and the mounting surface, such as machine or device, to high accuracy and mounting them properly, stable linear motion with high accuracy is realized.

For the opposite corner of the mating reference mounting, it is recommended to have relieved fillet as indicated in the illustration in Table 5. The value indicated in Table 5 is recommended for the shoulder height on the mating side.

Table 5 Shoulder height



unit: mm

Width	Shoulder height of the table side h_1	Shoulder height of the bed side h_2
6	1	0.5
8	1.2	0.8
10	1.2	0.8
12	1.5	0.8
17	2.5	1.2
25	2.5	1.5
30	3	2
40	3	2.5
60	4	2.5

❸ When lateral load is the primary load

As indicated in Fig. 2, firmly fix the sides of the table and bed with pressure plates.

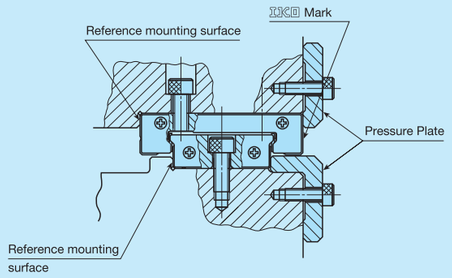


Fig. 2 Mounting example when lateral load is the primary load

❹ Tightening torque for fixing screw

Typical tightening torque for mounting of the BWU series to the steel mating member material is indicated in Table 6. If the mating member material is cast iron or aluminum alloy, reduce the tightening torque depending on the strength characteristics of the mating member material.

Table 6 Tightening torque for fixing screw

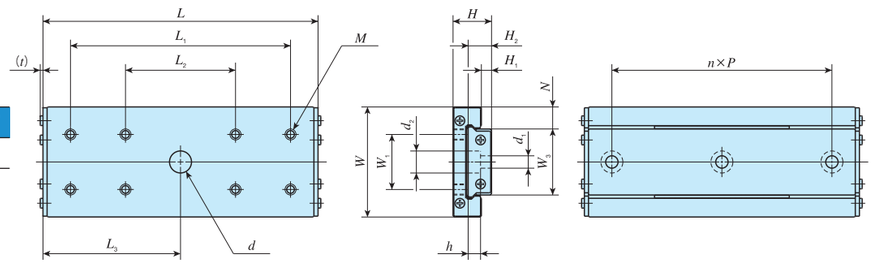
Bolt size	Tightening torque N · m
M1 ×0.25	0.04
M1.4×0.3	0.10
M1.6×0.35	0.15
M2 ×0.4	0.31
M3 ×0.5	1.1
M4 ×0.7	2.5

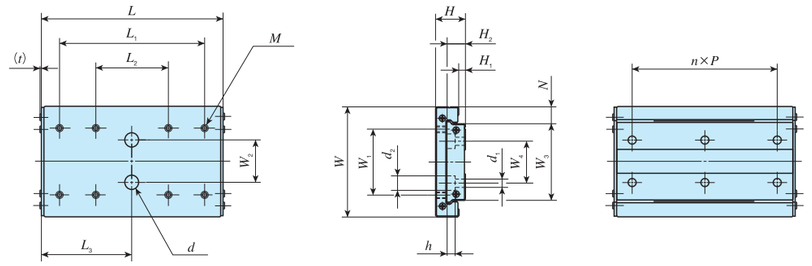
Remark: The tightening torque is calculated based on property division A2-70 of stainless steel hexagon socket head bolt.

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

IKO High Rigidity Precision Linear Slide Unit

Shape	BWU
Size	6 · 8 · 10 · 12 · 17 · 25 · 30 · 40 · 60





BWU60-100, BWU60-120

Identification number	Mass (Ref.)	Nominal dimensions mm						Table mounting dimensions mm									Bed mounting dimensions mm								Basic dynamic load rating	Basic static load rating	Allowable load	Static moment rating
	g	W	H	H_1	N	L	Maximum stroke length	W_1	L_1	L_2	M	Maximum fixing thread depth	W_2	L_3	d	t	W_3	H_2	W_4	n	P	d_1	d_2	h	C N	C_0 N	F N	T_0 N·m
BWU 6- 10	1.0	6	3.2	0.7	2	10	3	–	4	–	M1.4	0.8	–	–	–	0.46	2	1.9	–	1	4	M1.0 Through	–	–	154	181	60.2	0.21
BWU 6- 20	2.2					20	11		10												8				252	361	120	0.42
BWU 6- 30	3.3					30	16		18	10										2					355	587	196	0.68
BWU 8- 10	1.7	8	4	1	2.5	10	4	–	5.5	–	M2	0.8	–	–	–	0.45	3	2.6	–	1	5	M1.6 Through	–	–	203	212	70.6	0.36
BWU 8- 20	3.5					20	16		10												10				292	353	118	0.60
BWU 8- 30	5.2					30	20		21	10										2					442	635	212	1.1
BWU 10- 15(1)	3.2	10	4	1	3	15	8	–	6.5	–	M2	0.8	–	7.5	3	0.45	4	2.6	–	1	5	1.8	2.8	0.75	249	282	94.1	0.62
BWU 10- 25(1)	5.7					25	16		13					–	–						10				370	494	165	1.1
BWU 10- 40(1)	9.0					40	22		26	13				20	3					3					572	917	306	2.0
BWU 12- 20(2)	6.2	12	4.5	1	3	20	16	–	8	–	M2	1.1	–	–	–	0.45	6	2.8	–	1	7.5	2.4	4	1.5	292	353	118	1.1
BWU 12- 30(2)	9.5					30	20		15												15				442	635	212	2.0
BWU 12- 45(2)	14.1					45	30		31	15				22.5	4.5					2					603	988	329	3.2
BWU 17- 20	15.0	17	8	1.5	5	20	14	12	10	–	M2	3	–	10	4.5	0.8	7	5	–	1	7.5	2.4	4.2	2.3	588	635	212	2.5
BWU 17- 30	23.7					30	19		20					–	–						15				874	1 110	370	4.4
BWU 17- 45	35.4					45	29		30					22.5	4.5					2					1 200	1 750	582	6.9
BWU 25- 30	40.6	25	9	1.8	5.5	30	23	10	15	–	M3	2.5	–	–	–	0.9	14	5.2	–	1	15	3.5	6	3.2	783	953	318	7.1
BWU 25- 45	62.5					45	28		25												30				1 200	1 750	582	13.0
BWU 25- 60	84.3					60	38																		1 490	2 380	794	17.7
BWU 25- 75	104					75	48		55	25				37.5	6.5					2					1 760	3 020	1 010	22.5
BWU 30- 30	64.4	30	12	3.4	6	30	23	14	15	–	M3	3	–	–	–	1.0	18	7.5	–	1	15	3.5	6.5	4.5	1 270	1 410	470	13.4
BWU 30- 45	99.1					45	29		25												30				1 920	2 540	847	24.1
BWU 30- 60	133					60	35																		2 490	3 670	1 220	34.9
BWU 30- 75	165					75	47		55	25				37.5	6.5					2					2 880	4 520	1 510	42.9
BWU 30- 90	199					90	59							45											3 250	5 360	1 790	50.9
BWU 40- 40	136	40	14	3.5	8	40	31	20	20	–	M4	4	–	–	–	1.0	24	8.5	–	1	20	4.5	8	4.5	2 040	2 210	735	27.8
BWU 40- 60	209					60	39		40												40				3 100	3 970	1 320	50.0
BWU 40- 80	281					80	47																		4 010	5 730	1 910	72.2
BWU 40-100	346					100	63		80	40				50	8					2					4 640	7 060	2 350	88.9
BWU 60- 60	363	60	16	3.6	9	60	34	36	40	–	M4	4	–	–	–	1.1	42	10	23	1	40	4.5	8	4.5	4 740	5 690	1 900	124
BWU 60- 80	487					80	45																		5 930	7 820	2 610	171
BWU 60-100	597					100	56		80	40			23	50	8					2					7 020	9 960	3 320	217
BWU 60-120	723					120	68		100					60											8 050	12 100	4 030	264

Notes (1) Bed mounting bolts (cross-recessed pan head screw for precision equipment M1.6×5) are appended.
(2) Bed mounting bolts (cross-recessed pan head screw for precision equipment M2×4) are appended.

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