4.2. Accuracy of the Mounting Section

The accuracy of the Ball Screw mounting section complies with JIS standard (JIS B 1192).

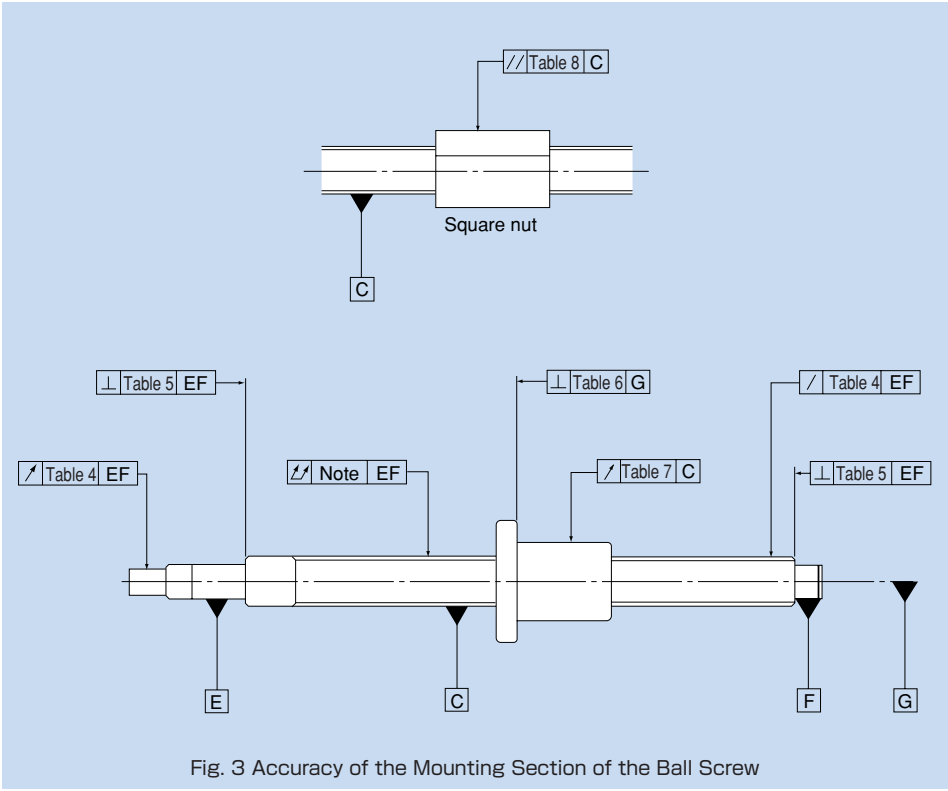


Fig. 3 Accuracy of the Mounting Section of the Ball Screw

Note: For the overall run-out of the screw shaft axis in the radial direction, refer to JIS B 1192.

4.2.1. Accuracy Standards for the Mounting Section

Tables 4 to 8 show accuracy standards for the mounting sections of the precision Ball Screw.

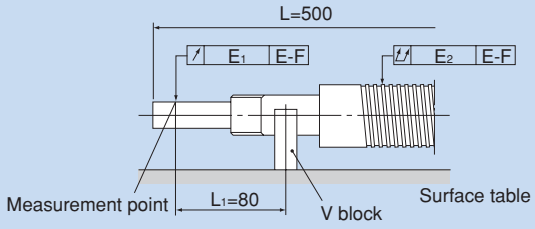
Table 4 Radial Run-out of the Circumference of the Thread Root in Relation to the Support Portion Axis of the Screw Shaft

Unit: μm

Screw shaft outer diameter (mm)		Run-out (Maximum)					
Above	Or less	C0	C1	C2	C3	C5	C7
—	8	3	5	7	8	10	14
8	12	4	5	7	8	11	14
12	20	4	6	8	9	12	14
20	32	5	7	9	10	13	20
32	50	6	8	10	12	15	20
50	80	7	9	11	13	17	20
80	100	—	10	12	15	20	30

Note: The measurements on these items include the effect of the run-out of the screw shaft diameter. Therefore, it is necessary to obtain the correction value from the overall run-out of the screw shaft axis, using the ratio of the distance between the fulcrum and measurement point to the overall screw shaft length, and add the obtained value to the table above.

Example: model No. DIK2005-6RRG0+500LC5



$E_1 = e + \Delta e$

where e : Standard value in table 4 (0.012)

Δe : Correction value

$$\Delta e = \frac{L_1}{L} \times E_2$$

where E_2 : Overall radial run-out of the screw shaft axis (0.06)

$$= \frac{80}{500} \times 0.06$$

$$= 0.01$$

$$E_1 = 0.012 + 0.01$$

$$= 0.022$$

Table 5 Perpendicularity of the Supporting Portion End of the Screw Shaft to the Supporting Portion Axis

Unit: μm

Screw shaft outer diameter (mm)		Perpendicularity (Maximum)					
Above	Or less	C0	C1	C2	C3	C5	C7
—	8	2	3	3	4	5	7
8	12	2	3	3	4	5	7
12	20	2	3	3	4	5	7
20	32	2	3	3	4	5	7
32	50	2	3	3	4	5	8
50	80	3	4	4	5	7	10
80	100	—	4	5	6	8	11

Table 6 Perpendicularity of the Flange Mounting Surface of the Screw Shaft to the Screw Shaft Axis

Unit: μm

Nut outer diameter (mm)		Perpendicularity (Maximum)					
Above	Or less	C0	C1	C2	C3	C5	C7
—	20	5	6	7	8	10	14
20	32	5	6	7	8	10	14
32	50	6	7	8	8	11	18
50	80	7	8	9	10	13	18
80	125	7	9	10	12	15	20
125	160	8	10	11	13	17	20
160	200	—	11	12	14	18	25

Table 7 Radial Run-out of the Nut Circumference in Relation to the Screw Shaft Axis

Unit: μm

Nut outer diameter (mm)		Run-out (Maximum)					
Above	Or less	C0	C1	C2	C3	C5	C7
—	20	5	6	7	9	12	20
20	32	6	7	8	10	12	20
32	50	7	8	10	12	15	30
50	80	8	10	12	15	19	30
80	125	9	12	16	20	27	40
125	160	10	13	17	22	30	40
160	200	—	16	20	25	34	50

Table 8 Parallelism of the Nut Circumference (Flat Mounting Surface) to the Screw Shaft Axis

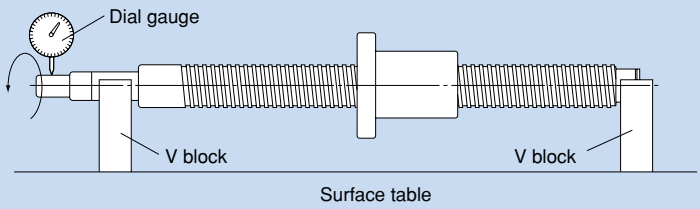
Unit: μm

Mounting reference length (mm)		Parallelism (Maximum)					
Above	Or less	C0	C1	C2	C3	C5	C7
—	50	5	6	7	8	10	17
50	100	7	8	9	10	13	17
100	200	—	10	11	13	17	30

4.2.2. Method for Measuring Accuracy of the Mounting Section

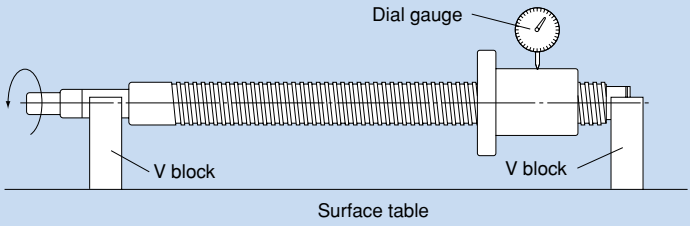
●Radial Run-out of the Circumference of the Part Mounting Section in Relation to the Supporting Portion Axis of the Screw Shaft (Table 4)

Support the supporting portion of the screw shaft with V blocks. Place a probe on the circumference of the part mounting section, and read the largest difference on the dial gauge as a measurement when turning the screw shaft by one revolution.



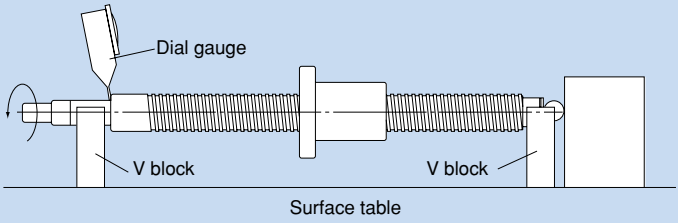
●Radial Run-out of the Circumference of the Thread Root in Relation to the Support Portion Axis of the Screw Shaft (Table 4)

Support the supporting portion of the screw shaft with V blocks. Place a probe on the circumference of the nut, and read the largest difference on the dial gauge as a measurement when turning the screw shaft by one revolution without turning the nut.



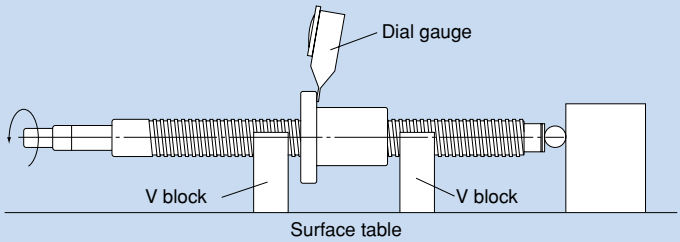
●Perpendicularity of the Supporting Portion End of the Screw Shaft to the Supporting Portion Axis (Table 5)

Support the supporting portion of the screw shaft with V blocks. Place a probe on the screw shaft's supporting portion end, and read the largest difference on the dial gauge as a measurement when turning the screw shaft by one revolution.



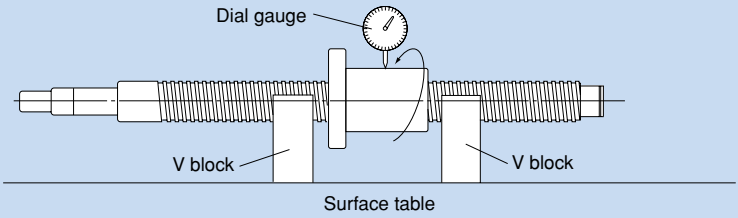
●Perpendicularity of the Flange Mounting Surface of the Screw Shaft to the Screw Shaft Axis (Table 6)

Support the nut of the screw shaft with V blocks. Place a probe on the flange end, and read the largest difference on the dial gauge as a measurement when simultaneously turning the screw shaft and the nut by one revolution.



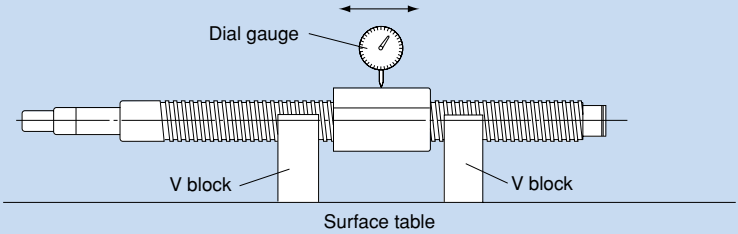
●Radial Run-out of the Nut Circumference in Relation to the Screw Shaft Axis (Table 7)

Support the thread of the screw shaft with V blocks near the nut. Place a probe on the circumference of the nut, and read the largest difference on the dial gauge as a measurement when turning the nut by one revolution without turning the screw shaft.



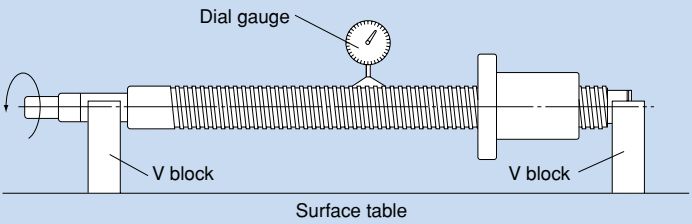
●Parallelism of the Nut Circumference (Flat Mounting Surface) to the Screw Shaft Axis (Table 8)

Support the thread of the screw shaft with V blocks near the nut. Place a probe on the circumference of the nut (flat mounting surface), and read the largest difference on the dial gauge as a measurement when moving the dial gauge in parallel with the screw shaft.



●Overall Radial Run-out of the Screw Shaft Axis

Support the supporting portion of the screw shaft with V blocks. Place a probe on the circumference of the screw shaft, and read the largest difference on the dial gauge at several points in the axial directions as a measurement when turning the screw shaft by one revolution.



Note: For the overall radial run-out of the screw shaft axis, refer to JIS B 1192.