

JIS

JAPANESE INDUSTRIAL STANDARD

Universal Ball Joints

JIS B 1454—1988

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by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Universal Ball Joints

B 1454-1988

1. Scope

This Japanese Industrial Standard specifies the universal ball joints, hereinafter referred to as the "joints", which are used in general machinery and capable of being bent up to 45°.

Remark: In this Standard, the unit and numerical values in { } are based on traditional units and appended for information only.

2. Classification

Joints shall be classified as given in Table 1 according to construction and material.

Table 1. Classification

Classification	Symbol of type	Remarks
Type A Type AA	A AA	See Fig. in Attached Table 1
Type B Type BB	B BB	See Fig. in Attached Table 2
Type C Type CC	C CC	See Fig. in Attached Table 3

3. Grade

A, B and C joints shall be subdivided into two grades each, i.e. regular and high grades, according to the amount of axial runout of the joint.

Applicable Standards:

JIS B 0401-System of Limits and Fits

JIS B 7420-Limit Gauges

JIS B 7503-Dial Gauges Reading in 0.01 mm

JIS B 7507-Vernier Callipers

JIS G 3454-Carbon Steel Pipes for Pressure Service

JIS G 4051-Carbon Steels for Machine Structural Use

JIS G 4401-Carbon Tool Steels



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2
B 1454-1988

4. Nomenclature of Principal Parts

The nomenclature of principal parts of joints shall conform to Figs. in Attached Tables 1, 2 and 3.

5. Quality

5.1 The appearance of the joint shall show no defects such as detrimental flaws, cracks and rust.

5.2 The surface of sliding parts shall be satisfactorily finished.

5.3 The tolerances on the runout of both axes of Types A, B and C shall comply with Table 2.

5.4 The tolerances on the twist between both bodies of the joint shall comply with Table 2.

Table 2. Twist•Runout of Axes

Nominal diameter d (mm)	Axial runout (max.) Types A, B and C (mm)		Twist		
			Test torque (N•m{kgf•m})	Amount of twist (max.) ⁽¹⁾ (min)	
	Regular grade	High grade		Types A, B and C	Types AA, BB and CC
6	0.10	0.05	5{ 0.5 }	200	500
8	0.10	0.05	10{ 1 }	200	500
10	0.14	0.07	20{ 2 }	180	450
12	0.14	0.07	40{ 4.1 }	180	450
14	0.14	0.07	80{ 8.2 }	180	450
16	0.14	0.07	80{ 8.2 }	180	450
20	0.20	0.10	160{16.3 }	180	450
25	0.20	0.10	160{16.3 }	80	200
30	0.25	0.12	320{32.6 }	80	200
32	0.25	0.12	320{32.6 }	80	200
35	0.25	0.12	320{32.6 }	80	200
40	0.25	0.12	630{64.2 }	80	200
50	0.25	0.12	1250{127 }	80	200

Note ⁽¹⁾ Angle of twist of both amplitudes measured by applying test torques alternatively to the right and left sides.

5.5 Joints shall be well balanced to an extent causing no vibration.

6. Shape, Dimensions and Construction

6.1 The shapes and dimensions of joints shall conform to Attached Tables 1 and 2.

6.2 Joints shall be so constructed that the axes of both bodies in Types A, B and C and those of the body and centre body in Types AA, BB and CC may be bent up to an angle of 45°.