

JIS

JAPANESE INDUSTRIAL STANDARD

Screwed drainage fittings

Ⓔ **JIS B 2303—1995**

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Screwed drainage fittings

B 2303-1995

1. **Scope** This Japanese Industrial Standard specifies screwed drainage fittings, hereafter referred to as "fittings", used for the drainage pipings by using carbon steel pipes of JIS G 3452.

Remarks 1. Standards cited in this Standard are as follows.

JIS B 0203	Taper pipe threads
JIS B 0253	Gauges for taper pipe threads
JIS G 3452	Carbon steel pipes for ordinary piping
JIS G 5501	Grey iron castings
JIS G 5702	Blackheart malleable iron castings
JIS H 0401	Methods of test for hot dip galvanized coatings

2. The units and numerical values given in { } in this Standard are based on the traditional units, and appended for informative reference.

2. Classification

2.1 Classification by materials The fittings shall be classified by the materials into two classes of those made of cast iron and of malleable cast iron.

2.2 Classification by shapes The fittings shall be classified by shapes into 21 types as the following:

90° elbow, 90° long turn elbow, 45° elbow, 22°1/2 elbow, Ventilation tee, 90° Y-branch, 90° Y-branch reducing, 90° double Y-branch, 90° double Y-branch reducing, 90° long turn Y-branch, 90° long turn Y-branch reducing, 90° long turn double Y-branch, 90° long turn double Y-branch reducing, 45° Y-branch, 45° Y-branch reducing, 45° double Y-branch, 45° double Y-branch reducing, socket, increaser, tacker, and U trap.

3. Designation of size The designation expressing the size of the fitting shall be given by designating the threads of the fitting on the basis of designation of thread in accordance with JIS B 0203. The symbol of PT, however, shall not be attached to this designation.

Besides, the nominal size of the reducing fittings shall be expressed in the sequence of designation as ① for the larger diameter and ② for the smaller diameter.

4. Leakage The fittings shall be free from such abnormalities as leakage and others, when the water pressure of 0.35 MPa{3.5 kgf/cm²} or the air pressure of 0.15 MPa{1.5 kgf/cm²} is applied on them.

5. Shape and dimensions The shape and dimensions of fittings shall conform to Attached Tables 1 to 10. The tolerances on length from center to face or face to face, however, shall conform to Table 1, and for the dimensions not provided with the tolerances, the preferable dimensions are indicated.



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Table 1.

Unit: mm

Basic dimension	30 or less	Over 30 to 50 incl.	Over 50 to 75 incl.	Over 75 to 100 incl.	Over 100 to 150 incl.	Over 150 to 200 incl.	Over 200 to 300 incl.	Over 300
Tolerance	±1.5	±2	±2.5	±3	±3.5	±4	±5	±6

Besides, for the fitting with axial line deflecting its direction of flow by 90°, the actual angle of flow to the main axial line shall be given by 91°10', tilting to the direction of flow at face, as shown in Attached Tables 2, 4, 5 and 10. The angle at the end portion of flow-out side of the U trap, however, shall be taken as 88°50'.

6. Threads The threads of the fittings shall be the taper threads specified in JIS B 0203.

7. Appearance The inside and outside surfaces of the fittings shall be smooth and be free from defects such as cracks and harmful flaws, casting fins and sand inclusion.

8. Materials The materials for the fittings shall conform to Table 2.

Table 2.

Classification	Material
Cast iron fittings	FC150 of JIS G 5501
Malleable cast iron fittings	FCMB270 of JIS G 5702

9. Plating In the case of plating the fittings, zinc hot dip galvanizing shall be carried out prior to threads cutting work.

10. Inspections The inspections for the fittings shall conform to the following (1) to (6). The sampling inspection plan in the lot inspection, however, shall be determined between the purchaser and supplier.

(1) Leakage inspection The leakage inspection shall conform to the requirements of 4.

(2) Shape and dimension inspection The shape and the dimension inspection shall conform to the requirements of 5.

(3) Threads inspection The threads inspection shall conform to the following:

(a) Appearance of threaded portion The complete thread shall be free from defects such as harmful thin thread and broken crest.

(b) Fitting of threads The fitting of the threads shall conform to the requirements of 6., when inspected using JIS B 0253.

- (c) Deviation of axes of threads The deviation of angle between axes of the threads shall be 2 mm or less per 300 mm in distance for the main axes and be 3 mm or less for the others.
- (4) Appearance inspection The appearance inspection shall conform to the requirements of 7.
- (5) Material inspection The material inspection shall be carried out on the tensile test and transverse test, and shall conform to the requirements of Table 3.

Table 3.

Classification of material	Tensile test	Transverse test
Material of cast iron pipe fitting	Tensile test Class 2 specified in JIS G 5501	Transverse test, Class 2 specified in JIS G 5501
Material of malleable cast iron pipe fitting	Tensile test Class 1 specified in JIS G 5702	

- (6) Plating inspection The plating inspection shall conform to the following:
- (a) Appearance of plated part The plated surface shall be uniformly attached with the plated layer.
- (b) Copper sulfate test The copper sulfate test shall conform to 4. of JIS H 0401.

Besides, the number of dippings, in this case, shall be five times.

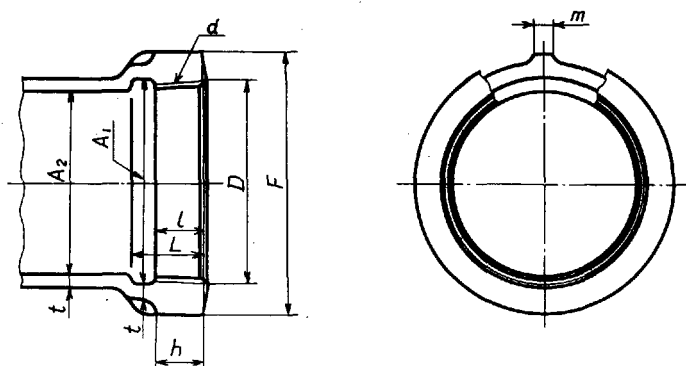
11. Designation of products The designation of fittings shall be given by the name of Standard, classification by material, classification by shape and nominal size.

Examples: Screwed drainage fitting cast iron 45° elbow 1 $\frac{1}{2}$.
Screwed drainage fitting malleable cast iron 45° elbow 1 $\frac{1}{2}$

12. Marking The fittings shall be clearly marked with the designation and manufacturer's name or abbreviation by the embossment casting (at least 1 mm in height) or by casting.

Besides, the ventilation tee and U trap shall be marked with the arrow marks that clearly indicate the directions of flow.

Attached Table 1. End part of fittings



Unit: mm

Nominal size	Threaded portion						Recess	Inside diameter	
	Designation of thread <i>d</i>	Gauge diameter of thread <i>D</i>	Number of threads (per 25.4 mm)	Length of internal thread (min.) <i>l</i>	Total length of threaded portion including recess		Inside diameter <i>A</i> ₁ (min.)	<i>A</i> ₂	
					Basic dimension	Tolerance		Basic dimension	Tolerance
1 ¹ / ₄	PT1 ¹ / ₄	41.910	11	10	18	+2.5 -0.5	43	36	±1
1 ¹ / ₂	PT1 ¹ / ₂	47.803	11	11	19	+2.5 -0.5	49	42	±1
2	PT2	59.614	11	13	22	+2.5 -0.5	61	53	±1
2 ¹ / ₂	PT2 ¹ / ₂	75.184	11	15	25	+3.5 -0.5	77	68	±1
3	PT3	87.884	11	17	28	+3.5 -0.5	90	81	±1
4	PT4	113.030	11	21	33	+3.5 -0.5	115	105	±1.5
5	PT5	138.430	11	23	36	+3.5 -0.5	141	131	±1.5
6	PT6	163.830	11	24	39	+3.5 -0.5	167	155	±1.5

Nominal size	Thickness				Band				Rib	
	Made of cast iron		Made of malleable cast iron		Made of cast iron		Made of malleable cast iron		Width number	
	<i>t</i>		<i>t</i>		Outside diameter <i>F</i>		Outside diameter <i>F</i>		<i>m</i>	
	Basic dimension	Tolerance	Basic dimension	Tolerance	<i>F</i>	<i>h</i>	<i>F</i>	<i>h</i>		
1 ¹ / ₄	4.5	+not specified	3.5	+not specified	57	10	53	8	5	2
1 ¹ / ₂	4.5	-0.7	3.5	-0.7	64	11	60	9	5	2
2	5		4		78	13	73	11	5	2
2 ¹ / ₂	5.5	+not specified	4.5	+not specified	96	15	91	12	6	2
3	6	-1.0	5	-1.0	111	17	105	13	7	2
4	7.5		6		139	21	133	16	8	4
5	8.5		6.5		169	23	161	18	8	4
6	9		7.5		199	24	189	20	8	4

- Remarks 1. Basic positions of measurement of the end face shall be in accordance with Annex 1.
2. The recess shall be as cast, and the shapes and dimensions shall be in accordance with Annex 2.