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(WSP/JSA)

**Coated steel pipes for water
service—Part 2: Fittings**

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Water Steel Pipe Association (WSP)/ Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS G 3443-2:2007** is replaced with this Standard.

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Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

JIS G 3443 series consists of the following 4 parts under the general title “*Coated steel pipes for water service*”:

Part 1: Pipes

Part 2: Fittings

Part 3: Long-life external plastic coatings

Part 4: Internal epoxy coatings

Coated steel pipes for water service— Part 2: Fittings

1 Scope

This Japanese Industrial Standard specifies the fittings of coated steel pipes used mainly for water works, sewage works, industrial water works and agricultural water works (hereafter referred to as “pipes”).

This Standard further includes hexagon head bolts/nuts and gaskets used for flange connection.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 1180 *Hexagon head bolts and hexagon head screws*

JIS B 1181 *Hexagon nuts and hexagon thin nuts*

JIS B 2311 *Steel butt-welding pipe fittings for ordinary use*

JIS B 2312 *Steel butt-welding pipe fittings*

JIS B 2313 *Steel plate butt-welding pipe fittings*

JIS G 0202 *Glossary of terms used in iron and steel (Testing)*

JIS G 0404 *Steel and steel products—General technical delivery requirements*

JIS G 0415 *Steel and steel products—Inspection documents*

JIS G 3101 *Rolled steels for general structure*

JIS G 3106 *Rolled steels for welded structure*

JIS G 3193 *Dimensions, mass and permissible variations of hot rolled steel plates, sheets and strips*

JIS G 3201 *Carbon steel forgings for general use*

JIS G 3443-1 *Coated steel pipes for water service—Part 1: Pipes*

JIS G 3443-3 *Coated steel pipes for water service—Part 3: Long-life external plastic coatings*

JIS G 3443-4 *Coated steel pipes for water service—Part 4: Internal epoxy coatings*

JIS G 3445 *Carbon steel tubes for machine structure*

JIS G 4051 *Carbon steels for machine structural use*

JIS G 5526 *Ductile iron pipes*

JIS G 5527 *Ductile iron fittings*

JIS K 6353 *Rubber goods for water works*

JIS Z 3104 *Methods of radiographic examination for welded joints in steel*

JIS Z 3801 *Standard qualification procedure for manual welding technique*

JIS Z 3841 *Standard qualification procedure for semi-automatic welding technique*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS G 0202**, **JIS G 3443-1**, and the following apply.

3.1 fitting

steel pipe except the straight pipes specified in **JIS G 3443-1**, which allows change in pipeline direction, bore or the like

4 Classification and symbols

Pipes shall be classified into five grades according to the maximum allowable working pressure, and the symbols shall be as given in table 1.

Table 1 Symbol of grade

Unit: MPa

Symbol of grade	Maximum allowable working pressure
F12	1.2
F15	1.5
F20	2.0
F25	2.5
F29	2.9

5 Materials and manufacturing method

5.1 Mother pipe

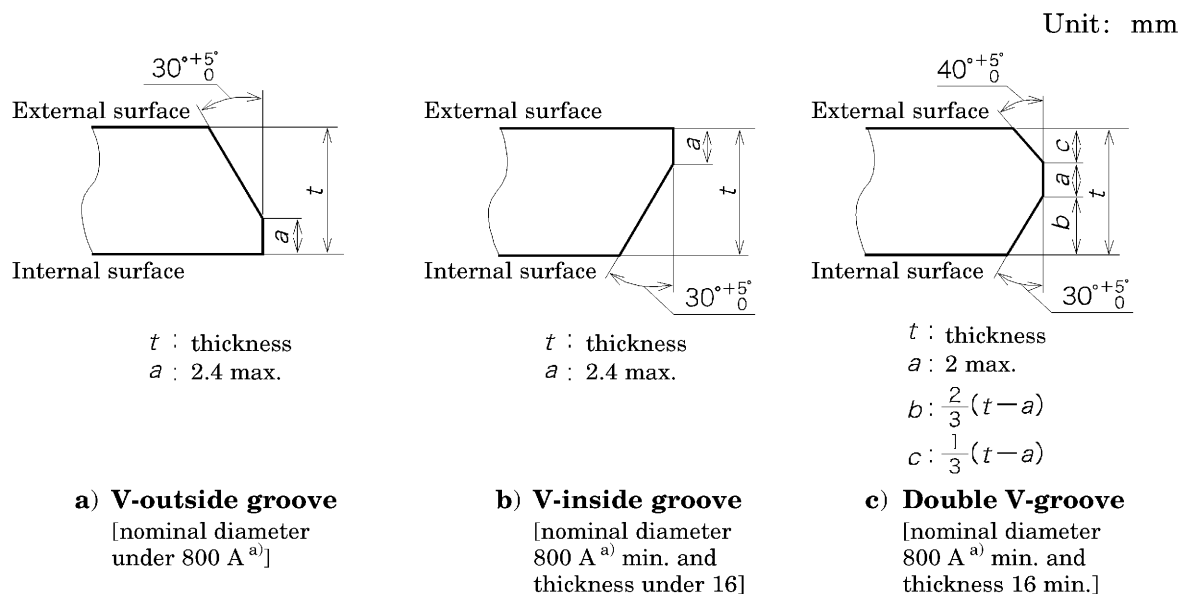
The materials and manufacturing method of mother pipes shall be as follows.

The chemical composition and mechanical properties of mother pipes shall be in accordance with the respective material standards.

a) The materials of mother pipes shall be as follows.

- 1) For steel pipes, STW290, STW370 or STW400 specified in **JIS G 3443-1**.
- 2) For steel plates, SS400 specified in **JIS G 3101**, or SM400 specified in **JIS G 3106**.
- 3) For pipe flanges, SS400 specified in **JIS G 3101**, SM400 specified in **JIS G 3106**, SF390A specified in **JIS G 3201**, SF440A specified in **JIS G 3201**, S20C specified in **JIS G 4051** or S25C specified in **JIS G 4051**, and to be machined after welding or forging.
- 4) For pipe fittings, black pipe fittings specified in **JIS B 2311**, carbon steel pipe fittings specified in **JIS B 2312** or carbon steel pipe fittings specified in **JIS B 2313**.

- 5) For spigots of short pipe for connection to ductile iron pipe, SS400 specified in **JIS G 3101**, SM400 specified in **JIS G 3106**, STKM13A-S-H specified in **JIS G 3445**, and to be machined after welding or forging.
- b) Mother pipes shall be manufactured by welding, using the materials given in a).
- c) The welder to be engaged in manufacturing mother pipes shall have the technical skill conforming to **JIS Z 3801** for hand welding, and to **JIS Z 3841** for semi-automatic welding.
- d) The mother pipe ends shall be of a plain end, the shape suitable for butt welded joint, or a flange. Other shapes for the mother pipe ends, when required, shall be as agreed between the manufacturer and the purchaser.
- e) Unless otherwise specified, the groove shape of mother pipe ends suitable for butt welded joint shall be as shown in figure 1. Other groove shapes, when required, shall be as agreed between the manufacturer and the purchaser.



Note ^{a)} The symbol A refers to nominal diameter.

Figure 1 Groove shape

5.2 Coating and coating method

The coating and coating method shall be as follows. Other types of coatings, when required, shall be as agreed between the manufacturer and the purchaser. When water works are included in the pipe usages¹⁾, the internal coating of pipes shall be suited for supplying drinkable water.

- a) The external coating shall be in accordance with **JIS G 3443-3**.
- b) The internal coating shall be in accordance with **JIS G 3443-4**.

Note ¹⁾ This refers to the case where water works are included in the intended use of versatile pipelines such as conduit water pipes from the water source.

6 Quality of welds

The weld of mother pipe shall be tested as specified in clause 9. In radiographic examination, the type of imperfections shall conform to one of Classes 1 to 3 of type 1, type 2 and type 4 specified in **JIS Z 3104**. In hydraulic test, the welds shall be free from leakage.

7 Shape, dimensions and dimensional tolerances

The shape, dimensions and dimensional tolerances shall be as follows.

- a) The shape and dimensions of mother pipes shall be as given in tables 5 to 23.
- b) The dimensional tolerances of mother pipes shall be as follows.
 - 1) The tolerances on outside diameter and thickness shall be as given in table 2.
 - 2) The tolerances on thickness of reinforcing plate shall be as given in table 5 of **JIS G 3193**.
 - 3) The dimensional tolerances of pipe flange shall be as given in table 3.
 - 4) The dimensional tolerances of each part of gasket shall be as given in table 4.
 - 5) The major dimensional tolerances such as pipe length, branch dimension and angle shall be the values as shown in figures of tables 5 to 23.

Table 2 Tolerances on outside diameter and thickness

	Condition		Tolerance
Outside diameter	Nominal diameter 80 A or over to and excl. 200 A		± 1 %
	Nominal diameter 200 A or over to and excl. 600 A ^{a)}		± 0.8 %
	Nominal diameter 600 A or over ^{b)}		± 0.5 %
Thickness	Nominal diameter under 350 A	Thickness 4.2 mm or over	+ 15 % – 12.5 %
		Thickness under 7.5 mm	+ 15 % – 0.6 mm
	Nominal diameter 350 A or over	Thickness 7.5 mm or over to and excl. 12.5 mm	+ 15 % – 8 %
		Thickness 12.5 mm or over	+ 15 % – 1.0 mm
Notes ^{a)} The tolerances on outside diameter of mother pipe of nominal diameter 350 A or over to and excl. 600 A may be in accordance with the circumferential length measurement. The tolerance in this case shall be ± 0.5 %. The tolerance on outside diameter in this case may be judged by the measured circumferential length or the outside diameter converted from the measured circumferential length. The conversion between the outside diameter and the circumferential length shall be obtained by the following formula. $D = l / \pi$ where, D : outside diameter (mm) l : circumferential length (mm) $\pi = 3.141\ 6$			
^{b)} The tolerances on outside diameter of mother pipe of nominal diameter 600 A or over shall be in accordance with the circumferential length measurement. The tolerance on outside diameter may be judged by the measured circumferential length or the outside diameter converted from the measured circumferential length. The conversion between the outside diameter (D) and the circumferential length (l) shall be obtained by the formula of Note ^{a)} .			

Table 3 Dimensional tolerances of pipe flange

Unit: mm

Flange part		Dimension	Tolerance
Outside diameter D_5		300 or under	± 1.0
		Over 300 up to and incl. 600	± 1.5
		Over 600 up to and incl. 1 000	± 2.0
		Over 1 000 up to and incl. 1 500	± 2.5
		Over 1 500	± 3.0
Bolt hole	Circle diameter D_4	250 or under	± 0.5
		Over 250 up to and incl. 550	± 0.6
		Over 550 up to and incl. 950	± 0.8
		Over 950 up to and incl. 1 350	± 1.0
		Over 1 350	± 1.5
	Hole pitch	—	± 0.5
	Hole diameter d'	—	$+1.5$ 0
Thickness K		20 or under	$+1.5$ 0
		Over 20 up to and incl. 50	$+2.0$ 0
		Over 50 up to and incl. 100	$+3.0$ 0
Hub height L		200 or under	$+2.0$ 0
		Over 200 up to and incl. 300	$+3.0$ 0
		Over 300	$+4.0$ 0
Gasket groove	Inside diameter G_1	450 or under	$+1.5$ 0
		Over 450 up to and incl. 1 600	± 1.5
		Over 1 600	± 2.0
	Width e	10 or under	$+1.0$ 0
		Over 10	$+0.5$ -1.0
	Depth S	5 or under	$+0.2$ -0.5
		Over 5 up to and incl. 10	$+0.2$ -0.8
		Over 10	$+0.5$ -0.8
Each symbol of the pipe flange dimension shall be as given in table 18.			

Table 4 Dimensional tolerances on each part of gasket

Unit: mm

Nominal diameter	Type GF gasket			Type RF gasket				
	G_1', G_1'' (%)	a, a_1	b, b_1	D_1	D_3	t		
80 A to 200 A	+1.0 0	± 0.3	± 0.3	+2.0 0	0 −2.0	+0.5 −0.3		
250 A to 450 A				+3.0 0	0 −3.0			
500 A to 600 A	0 −1.0			+4.0 0	0 −4.0			
700 A to 3 000 A				—	—			
Each symbol of the gasket dimension shall be as given in table 20.								

8 Appearance

The both mother pipe ends shall be perpendicular to the pipe axis. The internal and external surfaces shall be well-finished, and free from any defects detrimental to use.

9 Test

The test shall be as follows.

- The test shall be performed on each mother pipe.
- The weld shall be tested in accordance with **JIS Z 3104**, and the point of radiographic examination shall be predominantly the pipe ends and the crossover.

Alternatively, the welds may be tested by hydraulic test. In this case, the mother pipe shall be held at least under the maximum allowable working pressure specified in table 1 for 5 s or longer, and examined to see if it endures the pressure without leakage.

- The test method not specified in **b)** shall be as agreed between the manufacturer and the purchaser.

10 Inspection and re-inspection

10.1 Inspection

The inspection shall be as follows.

- The general requirements for inspection shall be in accordance with **JIS G 0404**.
- The quality of welds shall conform to the requirements in clause 6.
- The shape and dimensions shall conform to the requirements in clause 7.
- The appearance shall conform to the requirements in clause 8.
- The inspection of pipe coating shall conform to the requirements in clause 9 of **JIS G 3443-3** and clause 9 of **JIS G 3443-4**.

10.2 Re-inspection

Mother pipes which failed the quality inspection of welds may be repaired on the welds upon approval by the purchaser, tested as specified in clause 9, and judged for acceptance based on the conformance to the requirements in clause 6.

11 Marking

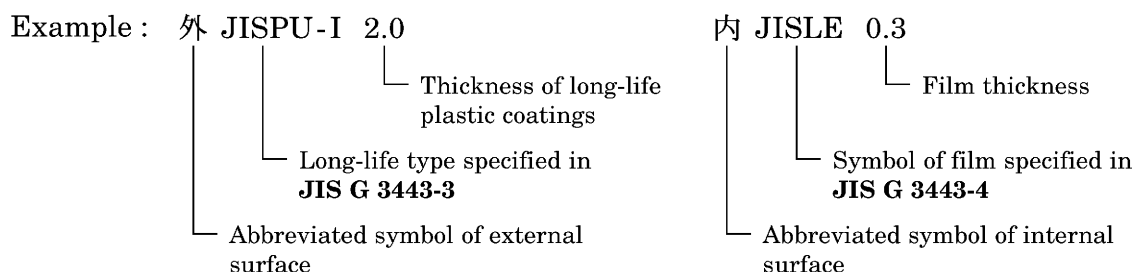
11.1 Marking on pipes

Each pipe which passed the inspection shall be marked with the following items. The arrangement of items is not specified. When approved by the purchaser, part of the items may be omitted to such extent that the product can be identified.

- a) Manufacturer's name or its identifying brand
- b) Symbol of grade
- c) Symbol of coating grade (see 11.2)
- d) Dimensions (see 11.3)
- e) Pipe number
- f) Year and month of manufacture or their abbreviation

11.2 Marking of symbol of coating grade

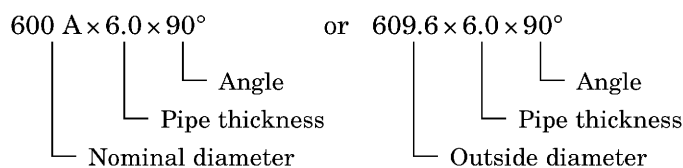
The symbol of coating grade shall be marked in accordance with **JIS G 3443-3** and **JIS G 3443-4** (see Example).



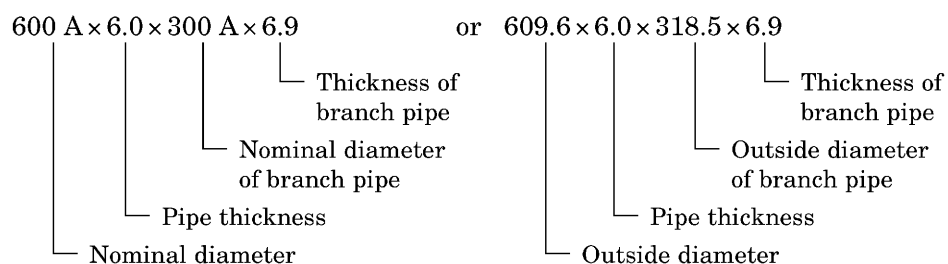
11.3 Marking of dimension

The dimensions shall be marked by either of the following examples.

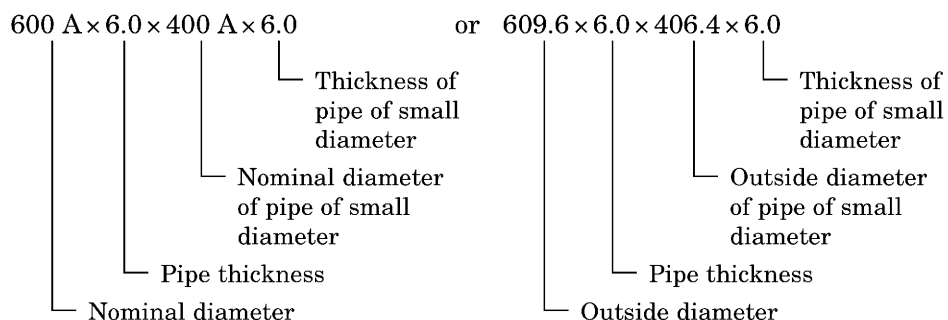
Example 1 For bend



Example 2 For tee



Example 3 For reducer

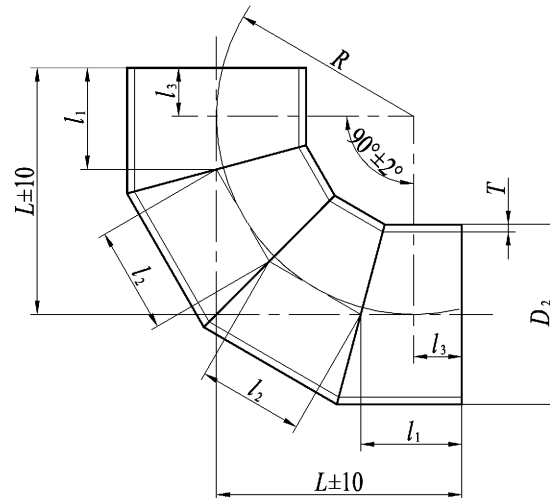


12 Report

When previously requested by the purchaser, the inspection document shall be submitted to the purchaser. The test report shall be in accordance with clause **13** of **JIS G 0404**. The type of the inspection document shall be the standard designation 3.1 in table 1 of **JIS G 0415**, unless otherwise specified at the time of ordering.

Table 5 90° bend

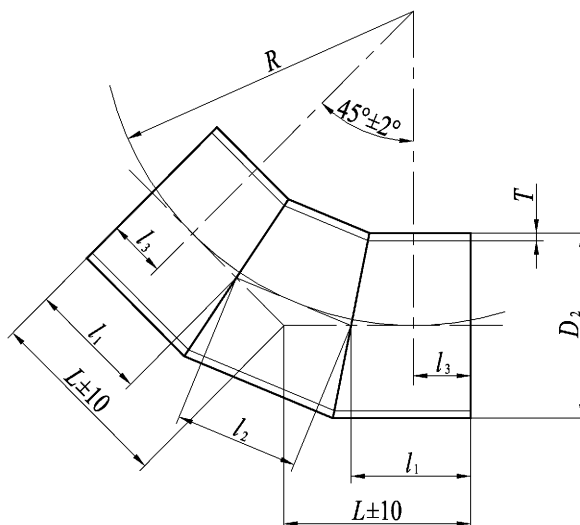
Unit: mm



Nominal diameter	Outside diameter	Pipe thickness			Dimensions of each part					Length of centre line	Mass for reference (kg)		
A	D ₂	T			R	l ₁	l ₂	l ₃	L	2 (l ₁ + l ₂)	F15	F25	F29
		F15	F25	F29									
80	89.1	4.2	—	4.5	230	231.6	123.2	170	400	709.6	6.24	—	6.66
100	114.3	4.5	—	4.9	230	231.6	123.2	170	400	709.6	8.66	—	9.37
125	139.8	4.5	—	5.1	230	231.6	123.2	170	400	709.6	10.6	—	12.0
150	165.2	5.0	—	5.5	250	267.0	134.0	200	450	802.0	15.9	—	17.4
200	216.3	5.8	—	6.4	310	273.1	166.2	190	500	878.6	26.4	—	29.1
250	267.4	6.6	—	6.4	360	286.5	193.0	190	550	959.0	40.7	—	39.5
300	318.5	6.9	—	6.4	410	299.9	219.8	190	600	1 039.4	55.1	—	51.2
350	355.6	—	—	6.0	460	263.3	246.6	140	600	1 019.8	—	—	52.7
400	406.4	—	—	6.0	510	276.7	273.4	140	650	1 100.2	—	—	65.1
450	457.2	—	—	6.0	530	312.0	284.0	170	700	1 192.0	—	—	79.6
500	508.0	—	—	6.0	560	290.1	300.2	140	700	1 180.6	—	—	87.7
600	609.6	—	—	6.0	660	366.8	353.6	190	850	1 440.8	—	—	129
700	711.2	—	6.0	7.0	790	371.7	423.4	160	950	1 590.2	—	165	194
800	812.8	—	7.0	8.0	790	371.7	423.4	160	950	1 590.2	—	221	253
900	914.4	—	7.0	8.0	860	420.4	460.8	190	1 050	1 762.4	—	277	316
1 000	1 016.0	—	8.0	9.0	910	433.8	487.6	190	1 100	1 842.8	—	367	411
1 100	1 117.6	—	8.0	10.0	910	433.8	487.6	190	1 100	1 842.8	—	404	503
1 200	1 219.2	—	9.0	11.0	970	439.9	519.8	180	1 150	1 919.4	—	516	630
1 350	1 371.6	—	10.0	12.0	1 020	453.3	546.6	180	1 200	1 999.8	—	672	804
1 500	1 524.0	—	11.0	14.0	1 070	466.7	573.4	180	1 250	2 080.2	—	853	1 080
1 600	1 625.6	—	12.0	15.0	1 200	471.5	643.1	150	1 350	2 229.2	—	1 060	1 330
1 650	1 676.4	—	12.0	15.0	1 250	484.9	669.9	150	1 400	2 309.6	—	1 140	1 420
1 800	1 828.8	—	13.0	16.0	1 300	498.3	696.7	150	1 450	2 390.0	—	1 390	1 710
1 900	1 930.4	—	14.0	17.0	1 350	511.7	723.5	150	1 500	2 470.4	—	1 640	1 980
2 000	2 032.0	—	15.0	18.0	1 400	525.1	750.3	150	1 550	2 550.8	—	1 900	2 280
2 100	2 133.6	—	16.0	19.0	1 450	538.5	777.1	150	1 600	2 631.2	—	2 200	2 610
2 200	2 235.2	—	16.0	20.0	1 500	551.9	803.8	150	1 650	2 711.4	—	2 380	2 960
2 300	2 336.8	—	17.0	21.0	1 550	565.3	830.6	150	1 700	2 791.8	—	2 720	3 350
2 400	2 438.4	—	18.0	22.0	1 600	578.7	857.4	150	1 750	2 872.2	—	3 080	3 770
2 500	2 540.0	—	18.0	23.0	1 650	592.1	884.2	150	1 800	2 952.6	—	3 300	4 220
2 600	2 641.6	—	19.0	24.0	1 700	605.5	911.0	150	1 850	3 033.0	—	3 730	4 700
2 700	2 743.2	—	20.0	25.0	1 750	618.9	937.8	150	1 900	3 113.4	—	4 180	5 220
2 800	2 844.8	—	21.0	26.0	1 800	632.3	964.6	150	1 950	3 193.8	—	4 670	5 770
2 900	2 946.4	—	21.0	27.0	1 850	645.7	991.4	150	2 000	3 274.2	—	4 960	6 360
3 000	3 048.0	—	22.0	29.0	1 900	659.1	1 018.2	150	2 050	3 354.6	—	5 510	7 240

Table 6 45° bend

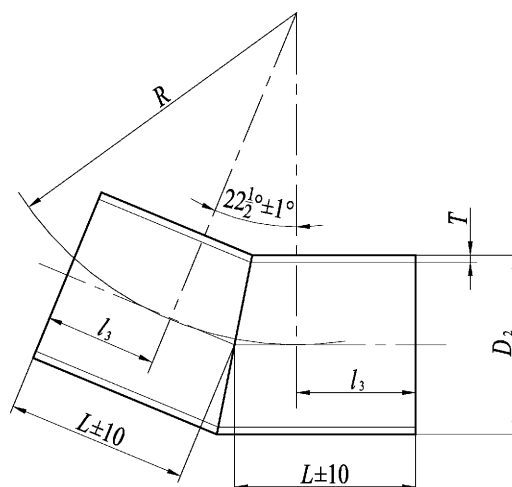
Unit: mm



Nominal diameter	Outside diameter	Pipe thickness			Dimensions of each part					Length of centre line	Mass for reference (kg)		
A	D ₂	T			R	l ₁	l ₂	l ₃	L	2 (l ₁ + l ₂)	F15	F25	F29
		F15	F25	F29									
80	89.1	4.2	—	4.5	370	270.3	147.2	196.7	350	687.8	6.05	—	6.46
100	114.3	4.5	—	4.9	370	270.3	147.2	196.7	350	687.8	8.39	—	9.08
125	139.8	4.5	—	5.1	370	270.3	147.2	196.7	350	687.8	10.3	—	11.6
150	165.2	5.0	—	5.5	430	357.4	171.0	271.9	450	885.8	17.5	—	19.2
200	216.3	5.8	—	6.4	490	344.5	195.0	247.0	450	884.0	26.6	—	29.3
250	267.4	6.6	—	6.4	550	331.6	218.8	222.2	450	882.0	37.4	—	36.3
300	318.5	6.9	—	6.4	610	318.6	242.6	197.3	450	879.8	46.6	—	43.4
350	355.6	—	—	6.0	680	353.6	270.6	218.3	500	977.8	—	—	50.6
400	406.4	—	—	6.0	740	340.7	294.4	193.5	500	975.8	—	—	57.8
450	457.2	—	—	6.0	800	327.7	318.2	168.6	500	973.6	—	—	65.0
500	508.0	—	—	6.0	860	314.9	342.2	143.8	500	972.0	—	—	72.2
600	609.6	—	—	6.0	980	539.0	389.8	344.1	750	1 467.8	—	—	131
700	711.2	—	6.0	7.0	1 170	498.1	465.4	265.4	750	1 461.6	—	152	178
800	812.8	—	7.0	8.0	1 170	748.1	465.4	515.4	1 000	1 961.6	—	273	312
900	914.4	—	7.0	8.0	1 290	722.4	513.2	465.7	1 000	1 958.0	—	307	350
1 000	1 016.0	—	8.0	9.0	1 350	709.3	537.0	440.8	1 000	1 955.6	—	389	436
1 100	1 117.6	—	8.0	10.0	1 350	709.3	537.0	440.8	1 000	1 955.6	—	428	534
1 200	1 219.2	—	9.0	11.0	1 410	696.4	560.8	416.0	1 000	1 953.6	—	526	641
1 350	1 371.6	—	10.0	12.0	1 470	683.5	584.8	391.1	1 000	1 951.8	—	656	785
1 500	1 524.0	—	11.0	14.0	1 530	670.6	608.6	366.3	1 000	1 949.8	—	799	1 020
1 600	1 625.6	—	12.0	15.0	1 680	638.3	668.3	304.1	1 000	1 944.9	—	928	1 160
1 650	1 676.4	—	12.0	15.0	1 680	638.3	668.3	304.1	1 000	1 944.9	—	959	1 200
1 800	1 828.8	—	13.0	16.0	1 680	638.3	668.3	304.1	1 000	1 944.9	—	1 130	1 390
1 900	1 930.4	—	14.0	17.0	1 800	612.5	716.1	254.4	1 000	1 941.1	—	1 290	1 560
2 000	2 032.0	—	15.0	18.0	1 800	612.5	716.1	254.4	1 000	1 941.1	—	1 450	1 740
2 100	2 133.6	—	16.0	19.0	1 920	636.6	763.8	254.7	1 050	2 037.0	—	1 700	2 020
2 200	2 235.2	—	16.0	20.0	1 920	636.6	763.8	254.7	1 050	2 037.0	—	1 780	2 230
2 300	2 336.8	—	17.0	21.0	2 040	660.8	811.6	255.0	1 100	2 133.2	—	2 080	2 560
2 400	2 438.4	—	18.0	22.0	2 040	660.8	811.6	255.0	1 100	2 133.2	—	2 290	2 800
2 500	2 540.0	—	18.0	23.0	2 160	685.0	859.3	255.3	1 150	2 229.3	—	2 500	3 180
2 600	2 641.6	—	19.0	24.0	2 160	685.0	859.3	255.3	1 150	2 229.3	—	2 740	3 450
2 700	2 743.2	—	20.0	25.0	2 160	685.0	859.3	255.3	1 150	2 229.3	—	2 990	3 740
2 800	2 844.8	—	21.0	26.0	2 280	709.1	907.0	255.6	1 200	2 325.2	—	3 400	4 200
2 900	2 946.4	—	21.0	27.0	2 280	709.1	907.0	255.6	1 200	2 325.2	—	3 520	4 520
3 000	3 048.0	—	22.0	29.0	2 400	733.3	954.8	255.9	1 250	2 421.4	—	3 980	5 230

Table 7 $22\frac{1}{2}^\circ$ bend

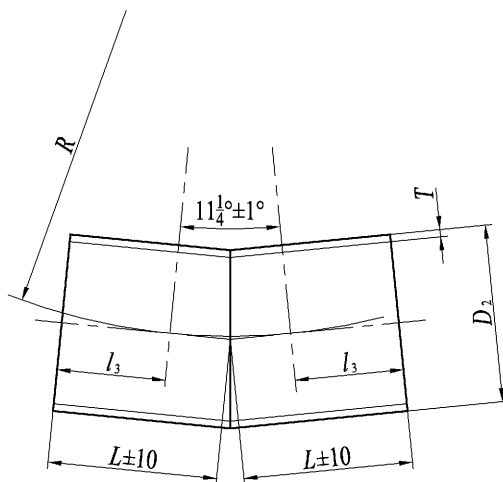
Unit: mm



Nominal diameter	Outside diameter	Pipe thickness			Dimensions of each part			Length of centre line	Mass for reference (kg)		
A	D ₂	T			R	l ₃	L	2L	F15	F25	F29
		F15	F25	F29							
80	89.1	4.2	—	4.5	380	124.4	200	400	3.52	—	3.76
100	114.3	4.5	—	4.9	380	124.4	200	400	4.88	—	5.28
125	139.8	4.5	—	5.1	380	124.4	200	400	6.00	—	6.76
150	165.2	5.0	—	5.5	380	124.4	200	400	7.92	—	8.68
200	216.3	5.8	—	6.4	510	148.6	250	500	15.1	—	16.5
250	267.4	6.6	—	6.4	510	148.6	250	500	21.2	—	20.6
300	318.5	6.9	—	6.4	640	122.7	250	500	26.5	—	24.6
350	355.6	—	—	6.0	640	372.7	500	1 000	—	—	51.7
400	406.4	—	—	6.0	770	346.8	500	1 000	—	—	59.2
450	457.2	—	—	6.0	770	346.8	500	1 000	—	—	66.8
500	508.0	—	—	6.0	890	323.0	500	1 000	—	—	74.3
600	609.6	—	—	6.0	1 020	547.1	750	1 500	—	—	134
700	711.2	—	6.0	7.0	1 150	521.3	750	1 500	—	156	183
800	812.8	—	7.0	8.0	1 150	771.3	1 000	2 000	—	278	318
900	914.4	—	7.0	8.0	1 280	745.4	1 000	2 000	—	314	358
1 000	1 016.0	—	8.0	9.0	1 410	719.5	1 000	2 000	—	398	446
1 100	1 117.6	—	8.0	10.0	1 410	719.5	1 000	2 000	—	438	546
1 200	1 219.2	—	9.0	11.0	1 410	719.5	1 000	2 000	—	538	656
1 350	1 371.6	—	10.0	12.0	1 530	695.7	1 000	2 000	—	672	804
1 500	1 524.0	—	11.0	14.0	1 530	695.7	1 000	2 000	—	820	1 040
1 600	1 625.6	—	12.0	15.0	1 750	651.9	1 000	2 000	—	954	1 190
1 650	1 676.4	—	12.0	15.0	1 750	651.9	1 000	2 000	—	986	1 230
1 800	1 828.8	—	13.0	16.0	1 750	651.9	1 000	2 000	—	1 160	1 430
1 900	1 930.4	—	14.0	17.0	1 750	651.9	1 000	2 000	—	1 320	1 600
2 000	2 032.0	—	15.0	18.0	1 750	651.9	1 000	2 000	—	1 490	1 790
2 100	2 133.6	—	16.0	19.0	1 950	612.1	1 000	2 000	—	1 670	1 980
2 200	2 235.2	—	16.0	20.0	1 950	612.1	1 000	2 000	—	1 750	2 190
2 300	2 336.8	—	17.0	21.0	1 950	612.1	1 000	2 000	—	1 950	2 400
2 400	2 438.4	—	18.0	22.0	1 950	612.1	1 000	2 000	—	2 150	2 620
2 500	2 540.0	—	18.0	23.0	1 950	612.1	1 000	2 000	—	2 240	2 860
2 600	2 641.6	—	19.0	24.0	2 150	572.3	1 000	2 000	—	2 460	3 100
2 700	2 743.2	—	20.0	25.0	2 150	572.3	1 000	2 000	—	2 690	3 350
2 800	2 844.8	—	21.0	26.0	2 150	572.3	1 000	2 000	—	2 920	3 610
2 900	2 946.4	—	21.0	27.0	2 150	572.3	1 000	2 000	—	3 030	3 890
3 000	3 048.0	—	22.0	29.0	2 150	572.3	1 000	2 000	—	3 280	4 320

Table 8 $11\frac{1}{4}^\circ$ bend

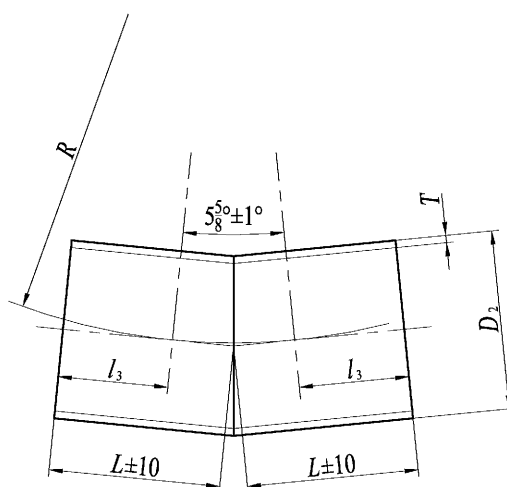
Unit: mm



Nominal diameter A	Outside diameter D_2	Pipe thickness T			Dimensions of each part			Length of centre line 2L	Mass for reference (kg)		
		F15	F25	F29	R	l_3	L		F15	F25	F29
80	89.1	4.2	—	4.5	770	124.2	200	400	3.52	—	3.76
100	114.3	4.5	—	4.9	770	124.2	200	400	4.88	—	5.28
125	139.8	4.5	—	5.1	770	124.2	200	400	6.00	—	6.76
150	165.2	5.0	—	5.5	770	124.2	200	400	7.92	—	8.68
200	216.3	5.8	—	6.4	1 030	148.6	250	500	15.1	—	16.5
250	267.4	6.6	—	6.4	1 030	148.6	250	500	21.2	—	20.6
300	318.5	6.9	—	6.4	1 290	122.9	250	500	26.5	—	24.6
350	355.6	—	—	6.0	1 290	372.9	500	1 000	—	—	51.7
400	406.4	—	—	6.0	1 550	347.3	500	1 000	—	—	59.2
450	457.2	—	—	6.0	1 550	347.3	500	1 000	—	—	66.8
500	508.0	—	—	6.0	1 810	321.7	500	1 000	—	—	74.3
600	609.6	—	—	6.0	2 060	547.1	750	1 500	—	—	134
700	711.2	—	6.0	7.0	2 320	521.5	750	1 500	—	156	183
800	812.8	—	7.0	8.0	2 320	771.5	1 000	2 000	—	278	318
900	914.4	—	7.0	8.0	2 580	745.9	1 000	2 000	—	314	358
1 000	1 016.0	—	8.0	9.0	2 840	720.3	1 000	2 000	—	398	446
1 100	1 117.6	—	8.0	10.0	2 840	720.3	1 000	2 000	—	438	546
1 200	1 219.2	—	9.0	11.0	2 840	720.3	1 000	2 000	—	538	656
1 350	1 371.6	—	10.0	12.0	3 100	694.7	1 000	2 000	—	672	804
1 500	1 524.0	—	11.0	14.0	3 100	694.7	1 000	2 000	—	820	1 040
1 600	1 625.6	—	12.0	15.0	3 530	652.3	1 000	2 000	—	954	1 190
1 650	1 676.4	—	12.0	15.0	3 530	652.3	1 000	2 000	—	986	1 230
1 800	1 828.8	—	13.0	16.0	3 530	652.3	1 000	2 000	—	1 160	1 430
1 900	1 930.4	—	14.0	17.0	3 530	652.3	1 000	2 000	—	1 320	1 600
2 000	2 032.0	—	15.0	18.0	3 530	652.3	1 000	2 000	—	1 490	1 790
2 100	2 133.6	—	16.0	19.0	3 950	611.0	1 000	2 000	—	1 670	1 980
2 200	2 235.2	—	16.0	20.0	3 950	611.0	1 000	2 000	—	1 750	2 190
2 300	2 336.8	—	17.0	21.0	3 950	611.0	1 000	2 000	—	1 950	2 400
2 400	2 438.4	—	18.0	22.0	3 950	611.0	1 000	2 000	—	2 150	2 620
2 500	2 540.0	—	18.0	23.0	3 950	611.0	1 000	2 000	—	2 240	2 860
2 600	2 641.6	—	19.0	24.0	4 400	566.6	1 000	2 000	—	2 460	3 100
2 700	2 743.2	—	20.0	25.0	4 400	566.6	1 000	2 000	—	2 690	3 350
2 800	2 844.8	—	21.0	26.0	4 400	566.6	1 000	2 000	—	2 920	3 610
2 900	2 946.4	—	21.0	27.0	4 400	566.6	1 000	2 000	—	3 030	3 890
3 000	3 048.0	—	22.0	29.0	4 400	566.6	1 000	2 000	—	3 280	4 320

Table 9 $5\frac{5}{8}^\circ$ bend

Unit: mm

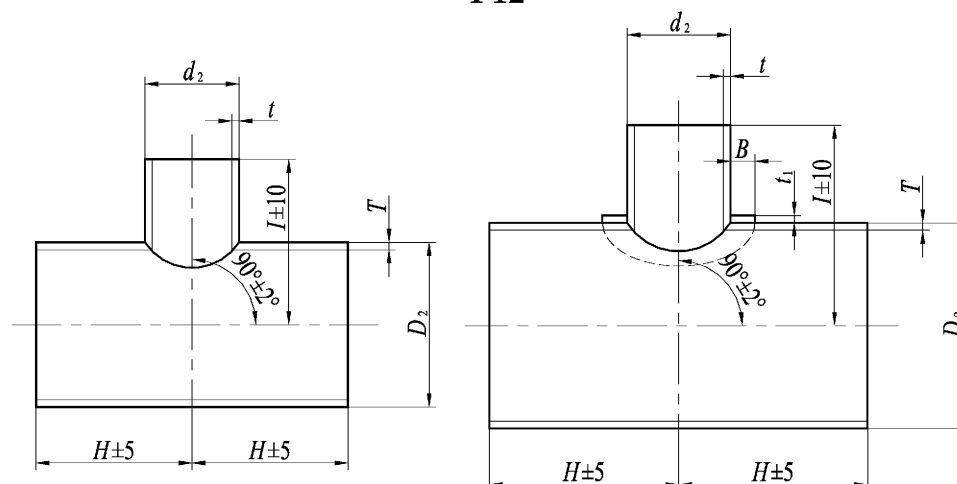


Nominal diameter	Outside diameter	Pipe thickness			Dimensions of each part			Length of centre line	Mass for reference (kg)		
A	D ₂	T			R	l ₃	L	2L	F15	F25	F29
		F15	F25	F29							
1 000	1 016.0	—	8.0	9.0	5 690	720.5	1 000	2 000	—	398	446
1 100	1 117.6	—	8.0	10.0	5 690	720.5	1 000	2 000	—	438	546
1 200	1 219.2	—	9.0	11.0	5 690	720.5	1 000	2 000	—	538	656
1 350	1 371.6	—	10.0	12.0	6 210	694.9	1 000	2 000	—	672	804
1 500	1 524.0	—	11.0	14.0	6 210	694.9	1 000	2 000	—	820	1 040
1 600	1 625.6	—	12.0	15.0	7 080	652.2	1 000	2 000	—	954	1 190
1 650	1 676.4	—	12.0	15.0	7 080	652.2	1 000	2 000	—	986	1 230
1 800	1 828.8	—	13.0	16.0	7 080	652.2	1 000	2 000	—	1 160	1 430
1 900	1 930.4	—	14.0	17.0	7 080	652.2	1 000	2 000	—	1 320	1 600
2 000	2 032.0	—	15.0	18.0	7 080	652.2	1 000	2 000	—	1 490	1 790
2 100	2 133.6	—	16.0	19.0	7 920	610.9	1 000	2 000	—	1 670	1 980
2 200	2 235.2	—	16.0	20.0	7 920	610.9	1 000	2 000	—	1 750	2 190
2 300	2 336.8	—	17.0	21.0	7 920	610.9	1 000	2 000	—	1 950	2 400
2 400	2 438.4	—	18.0	22.0	7 920	610.9	1 000	2 000	—	2 150	2 610
2 500	2 540.0	—	18.0	23.0	7 920	610.9	1 000	2 000	—	2 240	2 860
2 600	2 641.6	—	19.0	24.0	8 820	566.7	1 000	2 000	—	2 460	3 100
2 700	2 743.2	—	20.0	25.0	8 820	566.7	1 000	2 000	—	2 690	3 350
2 800	2 844.8	—	21.0	26.0	8 820	566.7	1 000	2 000	—	2 920	3 610
2 900	2 946.4	—	21.0	27.0	8 820	566.7	1 000	2 000	—	3 030	3 890
3 000	3 048.0	—	22.0	29.0	8 820	566.7	1 000	2 000	—	3 280	4 320

Table 10 Tee

Unit: mm

F12



Nominal diameter	Outside diameter		Pipe thickness		Reinforcing plate		Pipe length		Mass for reference
A	D ₂	d ₂	T	t	t ₁	B	H	I	(kg)
80 × 80	89.1	89.1	4.2	4.2	—	—	250	250	6.18
100 × 80	114.3	89.1	4.5	4.2	—	—	250	250	7.73
100 × 100	114.3	114.3	4.5	4.5	—	—	250	250	8.35
125 × 80	139.8	89.1	4.5	4.2	—	—	250	250	9.00
125 × 100	139.8	114.3	4.5	4.5	—	—	250	250	9.56
125 × 125	139.8	139.8	4.5	4.5	—	—	250	250	10.0
150 × 80	165.2	89.1	5.0	4.2	—	—	300	300	13.7
150 × 100	165.2	114.3	5.0	4.5	—	—	300	300	14.3
150 × 125	165.2	139.8	5.0	4.5	—	—	300	300	14.8
150 × 150	165.2	165.2	5.0	5.0	—	—	300	300	15.8
200 × 100	216.3	114.3	5.8	4.5	—	—	350	350	23.8
200 × 125	216.3	139.8	5.8	4.5	—	—	350	350	24.2
200 × 150	216.3	165.2	5.8	5.0	—	—	350	350	25.3
200 × 200	216.3	216.3	5.8	5.8	—	—	350	350	27.6
250 × 100	267.4	114.3	6.6	4.5	—	—	400	400	36.9
250 × 125	267.4	139.8	6.6	4.5	—	—	400	400	37.4
250 × 150	267.4	165.2	6.6	5.0	—	—	400	400	38.4
250 × 200	267.4	216.3	6.6	5.8	—	—	400	400	40.8
250 × 250	267.4	267.4	6.6	6.6	—	—	400	400	43.9
300 × 100	318.5	114.3	6.9	4.5	—	—	400	400	44.9
300 × 125	318.5	139.8	6.9	4.5	—	—	400	400	45.4
300 × 150	318.5	165.2	6.9	5.0	—	—	400	400	46.3
300 × 200	318.5	216.3	6.9	5.8	—	—	400	400	48.4
300 × 250	318.5	267.4	6.9	6.6	—	—	400	400	50.9
300 × 300	318.5	318.5	6.9	6.9	—	—	400	400	53.1
350 × 150	355.6	165.2	6.0	5.0	—	—	500	500	57.5
350 × 200	355.6	216.3	6.0	5.8	—	—	500	500	60.4
350 × 250	355.6	267.4	6.0	6.6	—	—	500	500	64.1
350 × 300	355.6	318.5	6.0	6.9	—	—	500	500	67.3
350 × 350	355.6	355.6	6.0	6.0	—	—	500	500	66.1
400 × 150	406.4	165.2	6.0	5.0	—	—	500	500	64.4
400 × 200	406.4	216.3	6.0	5.8	—	—	500	500	67.1
400 × 250	406.4	267.4	6.0	6.6	—	—	500	500	70.4
400 × 300	406.4	318.5	6.0	6.9	—	—	500	500	73.1
400 × 350	406.4	355.6	6.0	6.0	—	—	500	500	71.9
400 × 400	406.4	406.4	6.0	6.0	—	—	500	500	73.7

F20, F25 and F29 shall be in accordance with **JIS B 2312**, **JIS B 2313**, the beam stiffening system or the like.

Table 10 (continued)

Unit: mm

F12

Nominal diameter	Outside diameter		Pipe thickness		Reinforcing plate		Pipe length		Mass for reference
A	D_2	d_2	T	t	t_1	B	H	I	(kg)
450 × 150	457.2	165.2	6.0	5.0	—	—	500	500	71.5
450 × 200	457.2	216.3	6.0	5.8	—	—	500	500	73.8
450 × 250	457.2	267.4	6.0	6.6	—	—	500	500	76.7
450 × 300	457.2	318.5	6.0	6.9	—	—	500	500	79.2
450 × 350	457.2	355.6	6.0	6.0	—	—	500	500	78.0
450 × 400	457.2	406.4	6.0	6.0	—	—	500	500	79.5
450 × 450	457.2	457.2	6.0	6.0	—	—	500	500	81.0
500 × 200	508.0	216.3	6.0	5.8	—	—	500	500	80.5
500 × 250	508.0	267.4	6.0	6.6	—	—	500	500	83.1
500 × 300	508.0	318.5	6.0	6.9	—	—	500	500	85.1
500 × 350	508.0	355.6	6.0	6.0	—	—	500	500	84.1
500 × 400	508.0	406.4	6.0	6.0	—	—	500	500	85.2
500 × 450	508.0	457.2	6.0	6.0	—	—	500	500	86.3
500 × 500	508.0	508.0	6.0	6.0	—	—	500	500	87.5
600 × 200	609.6	216.3	6.0	5.8	—	—	750	500	138
600 × 250	609.6	267.4	6.0	6.6	—	—	750	500	140
600 × 300	609.6	318.5	6.0	6.9	—	—	750	500	142
600 × 350	609.6	355.6	6.0	6.0	—	—	750	500	141
600 × 400	609.6	406.4	6.0	6.0	—	—	750	500	141
600 × 450	609.6	457.2	6.0	6.0	—	—	750	500	143
600 × 500	609.6	508.0	6.0	6.0	—	—	750	500	142
600 × 600	609.6	609.6	6.0	6.0	—	—	750	500	144
700 × 250	711.2	267.4	7.0	6.6	—	—	750	600	191
700 × 300	711.2	318.5	7.0	6.9	—	—	750	600	193
700 × 350	711.2	355.6	7.0	6.0	—	—	750	600	191
700 × 400	711.2	406.4	7.0	6.0	—	—	750	600	193
700 × 450	711.2	457.2	7.0	6.0	—	—	750	600	192
700 × 500	711.2	508.0	7.0	6.0	—	—	750	600	193
700 × 600	711.2	609.6	7.0	6.0	—	—	750	600	194
700 × 700	711.2	711.2	7.0	7.0	—	—	750	600	201
800 × 300	812.8	318.5	8.0	6.9	—	—	1 000	700	330
800 × 350	812.8	355.6	8.0	6.0	—	—	1 000	700	329
800 × 400	812.8	406.4	8.0	6.0	—	—	1 000	700	329
800 × 450	812.8	457.2	8.0	6.0	—	—	1 000	700	329
800 × 500	812.8	508.0	8.0	6.0	—	—	1 000	700	330
800 × 600	812.8	609.6	8.0	6.0	—	—	1 000	700	330
800 × 700	812.8	711.2	8.0	7.0	—	—	1 000	700	337
800 × 800	812.8	812.8	8.0	8.0	—	—	1 000	700	348
900 × 300	914.4	318.5	8.0	6.9	—	—	1 000	700	367
900 × 350	914.4	355.6	8.0	6.0	—	—	1 000	700	366
900 × 400	914.4	406.4	8.0	6.0	—	—	1 000	700	366
900 × 450	914.4	457.2	8.0	6.0	—	—	1 000	700	365
900 × 500	914.4	508.0	8.0	6.0	—	—	1 000	700	366
900 × 600	914.4	609.6	8.0	6.0	—	—	1 000	700	365
900 × 700	914.4	711.2	8.0	7.0	—	—	1 000	700	371
900 × 800	914.4	812.8	8.0	8.0	—	—	1 000	700	377
900 × 900	914.4	914.4	8.0	8.0	—	—	1 000	700	379
1 000 × 350	1 016.0	355.6	9.0	6.0	—	—	1 000	800	455
1 000 × 400	1 016.0	406.4	9.0	6.0	—	—	1 000	800	456
1 000 × 450	1 016.0	457.2	9.0	6.0	—	—	1 000	800	456
1 000 × 500	1 016.0	508.0	9.0	6.0	—	—	1 000	800	455
1 000 × 600	1 016.0	609.6	9.0	6.0	—	—	1 000	800	455
1 000 × 700	1 016.0	711.2	9.0	7.0	—	—	1 000	800	460
1 000 × 800	1 016.0	812.8	9.0	8.0	—	—	1 000	800	467
1 000 × 900	1 016.0	914.4	9.0	8.0	—	—	1 000	800	468

F20, F25 and F29 shall be in accordance with JIS B 2312, JIS B 2313, the beam stiffening system or the like.

Table 10 (continued)

Unit: mm

F12

Nominal diameter	Outside diameter		Pipe thickness		Reinforcing plate		Pipe length		Mass for reference
A	D_2	d_2	T	t	t_1	B	H	I	(kg)
1 100 × 400	1 117.6	406.4	10.0	6.0	—	—	1 000	800	552
1 100 × 450	1 117.6	457.2	10.0	6.0	—	—	1 000	800	551
1 100 × 500	1 117.6	508.0	10.0	6.0	—	—	1 000	800	550
1 100 × 600	1 117.6	609.6	10.0	6.0	—	—	1 000	800	548
1 100 × 700	1 117.6	711.2	10.0	7.0	—	—	1 000	800	550
1 100 × 800	1 117.6	812.8	10.0	8.0	—	—	1 000	800	554
1 100 × 900	1 117.6	914.4	10.0	8.0	—	—	1 000	800	551
1 100 × 1 000	1 117.6	1 016.0	10.0	9.0	—	—	1 000	800	559
1 200 × 400	1 219.2	406.4	11.0	6.0	—	—	1 000	900	664
1 200 × 450	1 219.2	457.2	11.0	6.0	—	—	1 000	900	663
1 200 × 500	1 219.2	508.0	11.0	6.0	—	—	1 000	900	662
1 200 × 600	1 219.2	609.6	11.0	6.0	—	—	1 000	900	660
1 200 × 700	1 219.2	711.2	11.0	7.0	—	—	1 000	900	662
1 200 × 800	1 219.2	812.8	11.0	8.0	—	—	1 000	900	667
1 200 × 900	1 219.2	914.4	11.0	8.0	—	—	1 000	900	664
1 200 × 1 000	1 219.2	1 016.0	11.0	9.0	—	—	1 000	900	671
1 200 × 1 100	1 219.2	1 117.6	11.0	10.0	—	—	1 000	900	682
1 350 × 450	1 371.6	457.2	12.0	6.0	—	—	1 250	1 000	1 010
1 350 × 500	1 371.6	508.0	12.0	6.0	—	—	1 250	1 000	1 010
1 350 × 600	1 371.6	609.6	12.0	6.0	—	—	1 250	1 000	1 010
1 350 × 700	1 371.6	711.2	12.0	7.0	—	—	1 250	1 000	1 010
1 350 × 800	1 371.6	812.8	12.0	8.0	—	—	1 250	1 000	1 020
1 350 × 900	1 371.6	914.4	12.0	8.0	—	—	1 250	1 000	1 010
1 350 × 1 000	1 371.6	1 016.0	12.0	9.0	—	—	1 250	1 000	1 020
1 350 × 1 100	1 371.6	1 117.6	12.0	10.0	—	—	1 250	1 000	1 030
1 350 × 1 200	1 371.6	1 219.2	12.0	11.0	—	—	1 250	1 000	1 040
1 500 × 500	1 524.0	508.0	14.0	6.0	—	—	1 250	1 000	1 300
1 500 × 600	1 524.0	609.6	14.0	6.0	—	—	1 250	1 000	1 290
1 500 × 700	1 524.0	711.2	14.0	7.0	—	—	1 250	1 000	1 290
1 500 × 800	1 524.0	812.8	14.0	8.0	—	—	1 250	1 000	1 290
1 500 × 900	1 524.0	914.4	14.0	8.0	—	—	1 250	1 000	1 280
1 500 × 1 000	1 524.0	1 016.0	14.0	9.0	—	—	1 250	1 000	1 280
1 500 × 1 100	1 524.0	1 117.6	14.0	10.0	—	—	1 250	1 000	1 280
1 500 × 1 200	1 524.0	1 219.2	14.0	11.0	—	—	1 250	1 000	1 290
1 500 × 1 350	1 524.0	1 371.6	14.0	12.0	—	—	1 250	1 000	1 290
1 600 × 800	1 625.6	812.8	15.0	8.0	6.0	70	1 500	1 200	1 800
1 600 × 900	1 625.6	914.4	15.0	8.0	6.0	70	1 500	1 200	1 790
1 600 × 1 000	1 625.6	1 016.0	15.0	9.0	6.0	70	1 500	1 200	1 800
1 600 × 1 100	1 625.6	1 117.6	15.0	10.0	6.0	70	1 500	1 200	1 810
1 600 × 1 200	1 625.6	1 219.2	15.0	11.0	6.0	70	1 500	1 200	1 820
1 650 × 800	1 676.4	812.8	15.0	8.0	6.0	70	1 500	1 200	1 850
1 650 × 900	1 676.4	914.4	15.0	8.0	6.0	70	1 500	1 200	1 850
1 650 × 1 000	1 676.4	1 016.0	15.0	9.0	6.0	70	1 500	1 200	1 850
1 650 × 1 100	1 676.4	1 117.6	15.0	10.0	6.0	70	1 500	1 200	1 860
1 650 × 1 200	1 676.4	1 219.2	15.0	11.0	6.0	70	1 500	1 200	1 860
1 800 × 900	1 828.8	914.4	16.0	8.0	6.0	70	1 500	1 400	2 160
1 800 × 1 000	1 828.8	1 016.0	16.0	9.0	6.0	70	1 500	1 400	2 170
1 800 × 1 100	1 828.8	1 117.6	16.0	10.0	6.0	70	1 500	1 400	2 180
1 800 × 1 200	1 828.8	1 219.2	16.0	11.0	6.0	70	1 500	1 400	2 190
1 800 × 1 350	1 828.8	1 371.6	16.0	12.0	6.0	70	1 500	1 400	2 210
1 900 × 1 000	1 930.4	1 016.0	17.0	9.0	6.0	70	1 500	1 400	2 410
1 900 × 1 100	1 930.4	1 117.6	17.0	10.0	6.0	70	1 500	1 400	2 420
1 900 × 1 200	1 930.4	1 219.2	17.0	11.0	6.0	70	1 500	1 400	2 430
1 900 × 1 350	1 930.4	1 371.6	17.0	12.0	6.0	70	1 500	1 400	2 430

F20, F25 and F29 shall be in accordance with **JIS B 2312**, **JIS B 2313**, the beam stiffening system or the like.

Table 10 (continued)

Unit: mm

F12

Nominal diameter	Outside diameter		Pipe thickness		Reinforcing plate		Pipe length		Mass for reference
A	D_2	d_2	T	t	t_1	B	H	I	(kg)
2 000 × 1 000	2 032.0	1 016.0	18.0	9.0	6.0	70	1 500	1 500	2 690
2 000 × 1 100	2 032.0	1 117.6	18.0	10.0	6.0	70	1 500	1 500	2 700
2 000 × 1 200	2 032.0	1 219.2	18.0	11.0	6.0	70	1 500	1 500	2 710
2 000 × 1 350	2 032.0	1 371.6	18.0	12.0	6.0	70	1 500	1 500	2 720
2 000 × 1 500	2 032.0	1 524.0	18.0	14.0	6.0	70	1 500	1 500	2 750
2 100 × 1 100	2 133.6	1 117.6	19.0	10.0	6.0	100	1 500	1 500	2 970
2 100 × 1 200	2 133.6	1 219.2	19.0	11.0	6.0	100	1 500	1 500	2 980
2 100 × 1 350	2 133.6	1 371.6	19.0	12.0	6.0	100	1 500	1 500	2 980
2 100 × 1 500	2 133.6	1 524.0	19.0	14.0	6.0	100	1 500	1 500	3 000
2 200 × 1 100	2 235.2	1 117.6	20.0	10.0	6.0	100	1 500	1 600	3 280
2 200 × 1 200	2 235.2	1 219.2	20.0	11.0	6.0	100	1 500	1 600	3 290
2 200 × 1 350	2 235.2	1 371.6	20.0	12.0	6.0	100	1 500	1 600	3 290
2 200 × 1 500	2 235.2	1 524.0	20.0	14.0	6.0	100	1 500	1 600	3 310
2 200 × 1 600	2 235.2	1 625.6	20.0	15.0	6.0	100	1 500	1 600	3 330
2 200 × 1 650	2 235.2	1 676.4	20.0	15.0	6.0	100	1 500	1 600	3 320
2 300 × 1 200	2 336.8	1 219.2	21.0	11.0	6.0	100	1 500	1 600	3 580
2 300 × 1 350	2 336.8	1 371.6	21.0	12.0	6.0	100	1 500	1 600	3 570
2 300 × 1 500	2 336.8	1 524.0	21.0	14.0	6.0	100	1 500	1 600	3 590
2 300 × 1 600	2 336.8	1 625.6	21.0	15.0	6.0	100	1 500	1 600	3 600
2 300 × 1 650	2 336.8	1 676.4	21.0	15.0	6.0	100	1 500	1 600	3 590
2 400 × 1 200	2 438.4	1 219.2	22.0	11.0	9.0	100	1 750	1 700	4 580
2 400 × 1 350	2 438.4	1 371.6	22.0	12.0	9.0	100	1 750	1 700	4 580
2 400 × 1 500	2 438.4	1 524.0	22.0	14.0	9.0	100	1 750	1 700	4 590
2 400 × 1 600	2 438.4	1 625.6	22.0	15.0	9.0	100	1 750	1 700	4 600
2 400 × 1 650	2 438.4	1 676.4	22.0	15.0	9.0	100	1 750	1 700	4 600
2 400 × 1 800	2 438.4	1 828.8	22.0	16.0	9.0	100	1 750	1 700	4 600
2 500 × 1 200	2 540.0	1 219.2	23.0	11.0	9.0	100	1 750	1 700	4 960
2 500 × 1 350	2 540.0	1 371.6	23.0	12.0	9.0	100	1 750	1 700	4 950
2 500 × 1 500	2 540.0	1 524.0	23.0	14.0	9.0	100	1 750	1 700	4 960
2 500 × 1 600	2 540.0	1 625.6	23.0	15.0	9.0	100	1 750	1 700	4 960
2 500 × 1 650	2 540.0	1 676.4	23.0	15.0	9.0	100	1 750	1 700	4 950
2 500 × 1 800	2 540.0	1 828.8	23.0	16.0	9.0	100	1 750	1 700	4 950
2 600 × 1 350	2 641.6	1 371.6	24.0	12.0	12.0	125	1 750	1 750	5 370
2 600 × 1 500	2 641.6	1 524.0	24.0	14.0	12.0	125	1 750	1 750	5 380
2 600 × 1 600	2 641.6	1 625.6	24.0	15.0	12.0	125	1 750	1 750	5 380
2 600 × 1 650	2 641.6	1 676.4	24.0	15.0	12.0	125	1 750	1 750	5 370
2 600 × 1 800	2 641.6	1 828.8	24.0	16.0	12.0	125	1 750	1 750	5 360
2 600 × 1 900	2 641.6	1 930.4	24.0	17.0	16.0	125	1 750	1 750	5 380
2 700 × 1 350	2 743.2	1 371.6	25.0	12.0	16.0	125	1 750	1 750	5 790
2 700 × 1 500	2 743.2	1 524.0	25.0	14.0	16.0	125	1 750	1 750	5 790
2 700 × 1 600	2 743.2	1 625.6	25.0	15.0	16.0	125	1 750	1 750	5 790
2 700 × 1 650	2 743.2	1 676.4	25.0	15.0	16.0	125	1 750	1 750	5 770
2 700 × 1 800	2 743.2	1 828.8	25.0	16.0	16.0	125	1 750	1 750	5 760
2 700 × 1 900	2 743.2	1 930.4	25.0	17.0	16.0	125	1 750	1 750	5 760
2 700 × 2 000	2 743.2	2 032.0	25.0	18.0	16.0	125	1 750	1 750	5 760
2 800 × 1 350	2 844.8	1 371.6	26.0	12.0	16.0	125	2 000	1 900	7 180
2 800 × 1 500	2 844.8	1 524.0	26.0	14.0	16.0	125	2 000	1 900	7 190
2 800 × 1 600	2 844.8	1 625.6	26.0	15.0	16.0	125	2 000	1 900	7 190
2 800 × 1 650	2 844.8	1 676.4	26.0	15.0	16.0	125	2 000	1 900	7 180
2 800 × 1 800	2 844.8	1 828.8	26.0	16.0	16.0	125	2 000	1 900	7 170
2 800 × 1 900	2 844.8	1 930.4	26.0	17.0	16.0	125	2 000	1 900	7 170
2 800 × 2 000	2 844.8	2 032.0	26.0	18.0	16.0	125	2 000	1 900	7 180
2 800 × 2 100	2 844.8	2 133.6	26.0	19.0	16.0	125	2 000	1 900	7 190

F20, F25 and F29 shall be in accordance with **JIS B 2312**, **JIS B 2313**, the beam stiffening system or the like.