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मानक

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IS 10124-13 (2009): Fabricated PVC-U Fittings for Potable Water Supplies - Specification Part 13 Specific Requirements for 11½° Bends, Part 12: SPECIFIC REQUIREMENTS FOR 22 ½° BENDS [CED 50: Plastic Piping System]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
पेय जल आपूर्ति के लिए सविरंचित
पी वी सी-यू फिटिंगें — विशिष्ट
भाग 13 11¼° बेंडों की विशिष्ट अपेक्षाएँ
(दूसरा पुनरीक्षण)

Indian Standard
FABRICATED PVC-U FITTINGS FOR POTABLE WATER
SUPPLIES — SPECIFICATION
PART 13 SPECIFIC REQUIREMENTS FOR 11¼° BENDS
(*Second Revision*)

ICS 23.040.45; 91.140.60

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FOREWORD

This Indian Standard (Part 13) (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Plastics Piping Systems Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1982 and revised in 1988. In this revision, following modifications have been made:

- a) Sizes and classes of fittings have been aligned with IS 4985 : 2000 'Unplasticized PVC pipes for potable water supplies — Specification'.
- b) Requirements for bends for elastomeric sealing ring joints have also been included.

The requirements of fabricated PVC-U fittings are covered in thirteen parts. The other parts in the series are:

- Part 1 General requirements
- Part 2 Specific requirements for sockets
- Part 3 Specific requirements for straight reducers
- Part 4 Specific requirements for caps
- Part 5 Specific requirements for equal tees
- Part 6 Specific requirements for flanged tail pieces with metallic flanges
- Part 7 Specific requirements for threaded adaptors
- Part 8 Specific requirements for 90° bends
- Part 9 Specific requirements for 60° bends
- Part 10 Specific requirements for 45° bends
- Part 11 Specific requirements for 30° bends
- Part 12 Specific requirements for 22 ½° bends

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard***FABRICATED PVC-U FITTINGS FOR POTABLE WATER
SUPPLIES — SPECIFICATION****PART 13 SPECIFIC REQUIREMENTS FOR 11¼° BENDS***(Second Revision)***1 SCOPE**

This standard (Part 13) lays down the requirements for manufacture, dimensions and marking for fabricated PVC-U 11¼° bends for potable water supplies.

2 REFERENCES

The standards listed below contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
4985:2000	Unplasticized PVC pipes for potable water supplies — Specification (<i>third revision</i>)
10124 (Part 1): 2009	Specification for fabricated PVC-U fittings for potable water supplies — Specification: Part 1 General requirements

3 REQUIREMENTS**3.1 General**

The general requirements for material, sizes, tests, sampling and criteria for conformity shall conform to IS 10124 (Part 1).

3.2 Manufacture

3.2.1 Typical illustration of 11¼° bend is shown in Fig.1. Typical illustration of 11¼° bend for elastomeric sealing ring joint is shown in Fig. 2.

3.2.2 Dimensions

The dimensions of 11¼° bend shall comply with those given in Table 1 read with Fig.1. The dimensions of 11¼° bend for elastomeric sealing ring joint shall comply with those given in Table 2 read with Fig. 2.

3.2.3 The bends may either be plain at both ends socketed either at one end or both ends as agreed to between the manufacturer and the purchaser. In the case of socket, measurements shall comply with IS 10124 (Part 1).

NOTE — For 0.25 MPa pressure class, bends should not be made from 0.25 MPa pressure class pipes. For this bends made from 0.4 MPa pressure class should be used.

4 MARKING

4.1 Each 11¼° bend shall be marked with the following information:

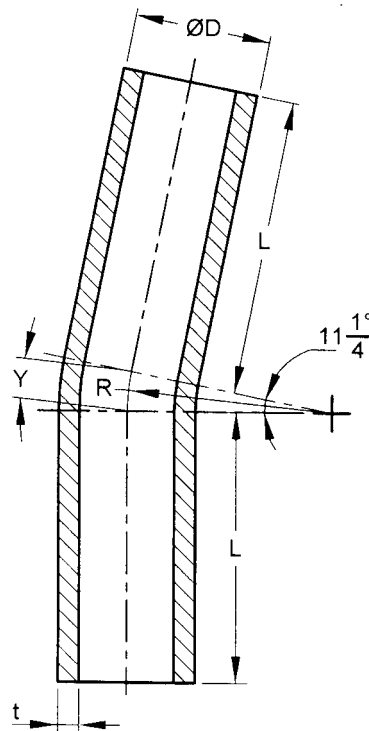
- Manufacturer's name or identification mark,
- Size of the bend and the appropriate class (working pressure) of IS 4985 to which the pressure rating of the fitting corresponds,
- Degree of bend, and
- Bends shall be marked in colour as indicated below for different classes of fittings:

<i>Class of the Fittings</i>	<i>Colour</i>
Class 2 (0.4 MPa)	Blue
Class 3 (0.6 MPa)	Green
Class 4 (0.8 MPa)	Brown
Class 5 (1.0 MPa)	Yellow
Class 6 (1.25 MPa)	Black
Plumbing	Pink

4.2 BIS Certification Marking

Each 11¼° bend may also be marked with the Standard Mark.

4.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to the manufacturer or producer may be obtained from the Bureau of Indian Standards.

FIG. 1 11 $\frac{1}{4}$ ° BEND**Table 1 Dimensions of 11 $\frac{1}{4}$ ° Bends**

(Clause 3.2.2, and Fig. 1)

All dimensions in millimetres.

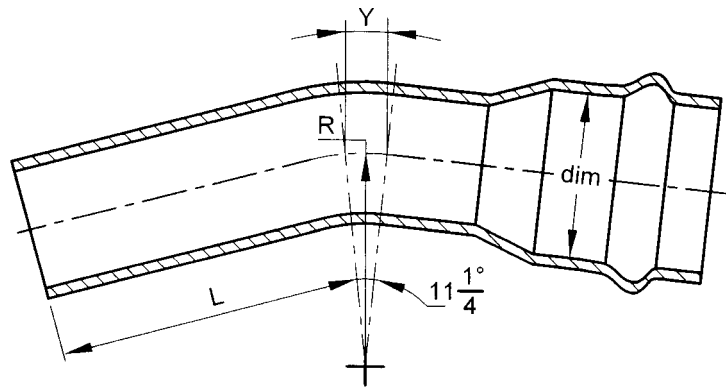
Sl No.	Nominal Size	Y Min	L (Only for Plain Ends) Min	R Min	Minimum Wall Thickness (t) for Working Pressure MPa					
					0.4 (Class 2)	0.6 (Class 3)	0.8 (Class 4)	1.0 (Class 5)	1.25 (Class 6)	Plumbing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	20	12	20	60	—	—	—	1.0	1.3	2.5
ii)	25	15	25	75	—	—	1.1	1.3	1.5	2.6
iii)	32	19	32	96	—	—	1.4	1.6	1.9	3.1
iv)	40	24	40	120	—	1.3	1.6	1.9	2.5	3.3
v)	50	30	50	150	—	1.5	2.1	2.5	3.0	3.4
vi)	63	38	63	189	1.4	2.0	2.5	3.2	3.8	—
vii)	75	45	75	225	1.7	2.4	3.1	3.8	4.6	—
viii)	90	53	90	270	1.9	2.8	3.6	4.5	5.5	—
ix)	110	65	110	330	2.3	3.4	4.4	5.5	6.7	—
x)	125	74	125	375	2.7	3.9	5.1	6.3	7.6	—
xi)	140	83	140	420	2.9	4.4	5.7	7.0	8.6	—
xii)	160	95	160	480	3.4	4.9	6.5	8.0	9.8	—
xiii)	180	106	180	540	3.8	5.5	7.2	9.0	10.9	—
xiv)	200	118	200	600	4.2	6.2	8.0	10.0	12.3	—
xv)	225	133	225	675	4.7	6.9	9.0	11.2	13.8	—
xvi)	250	148	250	750	5.2	7.7	10.0	12.5	15.3	—
xvii)	280	165	280	840	5.8	8.6	11.3	13.9	17.1	—
xviii)	315	186	315	945	6.5	9.7	12.6	15.6	19.3	—
xix)	355	209	355	1 065	7.3	10.8	14.3	17.7	21.7	—
xx)	400	236	400	1 200	8.2	12.2	16.1	19.8	24.5	—
xxi)	450	265	450	1 350	9.3	13.7	18.0	22.4	27.5	—
xxii)	500	295	500	1 500	10.3	15.3	20.1	24.8	30.5	—
xxiii)	560	330	560	1 680	11.6	17.2	22.4	27.8	34.2	—
xxiv)	630	371	630	1 890	13.0	19.2	25.2	31.8	38.4	—

NOTES

1 Minimum wall thickness is calculated on the basis of 90 percent of the minimum wall thickness of the corresponding size and pressure class of pipe rounded off to the next higher 0.1 mm.

2 Y, Min is calculated from $\frac{11\frac{1}{4}^\circ \times 2 \delta \delta R}{360^\circ}$

3 R, Min radius of the bend, is equal to 3 times the nominal outside diameter (D).



NOTE — The drawings are only intended to define the terms used in Table 1 and Table 2 and are not intended to illustrate specific design features

FIG. 2 $11\frac{1}{4}^\circ$ BEND FOR ELASTOMERIC SEALING RING JOINT

Table 2 Dimensions of $11\frac{1}{4}^\circ$ Bend for Elastomeric Sealing Ring Joint

(Clause 3.2.2, and Fig. 2)

All dimensions in millimetres.

Sl No.	Nominal Size	Y Min	L (Plain Ends) Min	R Min	Minimum Wall Thickness (t) for Working Pressure				
					MPa				
					0.4 (Class 2)	0.6 (Class 3)	0.8 (Class 4)	1.0 (Class 5)	1.25 (Class 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	63	38	107	189	—	2.0	2.6	3.2	3.9
ii)	75	45	112	225	—	2.4	3.1	3.8	4.6
iii)	90	53	118	270	—	2.8	3.6	4.5	5.5
iv)	110	65	127	330	2.3	3.4	4.4	5.5	6.8
v)	125	74	133	375	2.7	3.9	5.1	6.3	7.7
vi)	140	83	139	420	2.9	4.4	5.7	7.0	8.6
vii)	160	95	146	480	3.4	4.9	6.5	8.0	9.9
viii)	180	106	156	540	3.8	5.5	7.2	9.0	11.0
ix)	200	118	164	600	4.2	6.2	8.0	10.0	12.3
x)	225	133	175	675	4.7	6.9	9.0	11.2	13.8
xi)	250	148	185	750	5.2	7.7	10.1	12.5	15.3
xii)	280	165	198	840	5.8	8.6	11.3	13.9	17.1
xiii)	315	186	215	945	6.5	9.7	12.6	15.6	19.3
xiv)	355	209	229	1 065	7.3	10.8	14.3	17.7	21.7
xv)	400	236	242	1 200	8.2	12.2	16.1	19.8	24.5
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xix)	630	371	322	1 890	13.0	19.2	25.2	31.3	38.5

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Amendments Issued Since Publication

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