

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8360-3 (1977): fabricated high density polyethylene (HDPE) fittings for potable water supplies, Part 3 Specific requirements for 90 degree bends [CED 50: Plastic Piping System]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard

SPECIFICATION FOR FABRICATED HIGH
DENSITY POLYETHYLENE (HDPE) FITTINGS
FOR POTABLE WATER SUPPLIES

PART III SPECIFIC REQUIREMENTS FOR 90° BENDS

(Second Reprint JANUARY 1998)

UDC 621.643.4.062.3 : [678.742.2] : 696.115

© Copyright 1977

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR FABRICATED HIGH DENSITY POLYETHYLENE (HDPE) FITTINGS FOR POTABLE WATER SUPPLIES

PART III SPECIFIC REQUIREMENTS FOR 90° BENDS

Sanitary Appliances and Water Fittings Sectional Committee, BDC 3

Chairman

SHRI V. D. DESAI

Representing

Bombay Municipal Corporation

Members

ADVISER

SHRI B. B. RAU (*Alternate*)

Ministry of Health

SHRI H. R. BADYAL

Indian Iron & Steel Co Ltd, Calcutta

SHRI K. D. BISWAS (*Alternate*)

SHRI S. P. CHAKRABARTI

Central Building Research Institute (CSIR),
RoorkeeSHRI S. K. SHARMA (*Alternate*)

CHIEF ENGINEER

Central Public Works Department, New Delhi

SUPERINTENDING ENGINEER (*Alternate*)

CHIEF ENGINEER

Tamil Nadu Water Supply & Drainage Board,
Madras

CHIEF ENGINEER

U. P. Jal Nigam, Lucknow

SUPERINTENDING ENGINEER (*Alternate*)

CHIEF ENGINEER (WATER)

Municipal Corporation of Delhi

DRAINAGE ENGINEER (*Alternate*)

CITY ENGINEER

Bombay Municipal Corporation

HYDRAULIC ENGINEER (*Alternate*)

SHRI H. N. DALLAS

Indian Institute of Architects, Bombay

LALA G. C. DAS

National Test House, Calcutta

SHRI T. R. DE

Institution of Engineers (India), Calcutta

SHRI M. T. KANSE

Directorate General of Supplies & Disposals

SHRI S. C. KAPOOR

Delhi Development Authority

SHRI R. V. LELE

Central Glass & Ceramic Research Institute
(CSIR), Calcutta

PROF N. MAJUMDER

National Environmental Engineering Research
Institute (CSIR), NagpurSHRI J. M. DAVE (*Alternate*)

SHRI R. N. MALLICK

Directorate General of Technical Development

SHRI N. R. SRINIVASAN (*Alternate*)

(Continued on page 2)

© Copyright 1977

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act (XIV of 1957)* and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI R. M. MEHRA	Bombay Potteries & Tiles Ltd, Bombay
SHRI R. N. MUKHERJEE	Calcutta Metropolitan Planning Organization
SHRI S. K. NEOGI (Alternate)	
SHRI D. APPUKUTTAN NAYAR	Public Health Engineering Department, Government of Kerala, Trivandrum
SHRI K. RAMACHANDRAN (Alternate)	
COL RAJ KUMAR	Engineer-in-Chief's Branch, Army Headquarters
SHRI I. S. BEDI (Alternate)	
SHRI P. S. RAJVANSHI	Public Health Engineering Department, Government of Rajasthan, Jaipur
SHRI RANJIT SINGH	Ministry of Railways
DR A. V. R. RAO	National Buildings Organization, New Delhi
SHRI G. T. BHIDE (Alternate)	
SHRI P. JAGANATH RAO	E. I. D. Parry Ltd, Madras
SHRI T. S. CHINTAMANI (Alternate)	
SHRI J. L. SETHI	Public Health Engineering Department, Government of Haryana, Chandigarh
SHRI A. N. MEHANDALE (Alternate)	
SHRI R. K. SOMANY	Hindustan Sanitaryware & Industries Ltd, Bahadurgarh
SHRI V. S. BHATT (Alternate)	
SHRI D. AJITHA SIMHA, Director (Civ Engg)	Director General, BIS (Ex-officio Member)

Secretary

SHRI S. P. MAGGU
Assistant Director (Civ Engg), ISI

Plastic Pipes Subcommittee, BDC 3 : 8

Convener

SHRI K. D. MULEKAR Bombay Municipal Corporation

Members

SHRI S. H. MHATRE (Alternate to Shri K. D. Mulkar)	
ADVISER	Ministry of Health
SHRI V. A. ANANDAOSS (Alternate)	
DR B. R. C. ANAND	Calico Chemicals, Plastics and Fibres Division, Bombay
SHRI S. MITRA (Alternate)	
SHRI P. M. APTE	Housing & Urban Development Corporation Ltd, New Delhi
SHRI B. K. CHAKRABARTY (Alternate)	
SHRI S. BHOOOTHALINGAM	Public Health Engineering Department, Government of Kerala, Trivandrum
SHRI H. R. BUTANI	Garware Plastics (Pvt) Ltd, Bombay
SHRI B. K. CHAWLA (Alternate)	

(Continued on page 6

Indian Standard

SPECIFICATION FOR FABRICATED HIGH DENSITY POLYETHYLENE (HDPE) FITTINGS FOR POTABLE WATER SUPPLIES

PART III SPECIFIC REQUIREMENTS FOR 90° BENDS

0. FOREWORD

0.1 This Indian Standard (Part III) was adopted by the Indian Standards Institution on 17 January 1977, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The fabricated HDPE fittings are used for connection, by welding process, to HDPE pipes covered by IS : 4984-1972*.

0.3 The requirements of fabricated HDPE fittings are covered in three parts of this standard. Part I of the series deals with the general requirements applicable to all fabricated HDPE fittings, and specific requirements of different types of fittings are covered in separate parts of the standard. This Part III deals with the specific requirements for 90° bends.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final values, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off values should be the same as that of the specified values in this standard.

1. SCOPE

1.1 This standard (Part III) lays down the requirements for manufacture, dimensions and tolerances and marking for fabricated HDPE 90° bends for potable water supplies.

*Specification for high density polyethylene pipes for potable water supplies (*first revision*).

†Rules for rounding off numerical values (*revised*).

2. REQUIREMENTS

2.1 General — The general requirements for material, sizes, methods of test and sampling shall conform to IS : 8360 (Part I)-1977*.

2.2 Manufacture

2.2.1 A typical illustration of 90° fabricated bend is shown in Fig. 1.

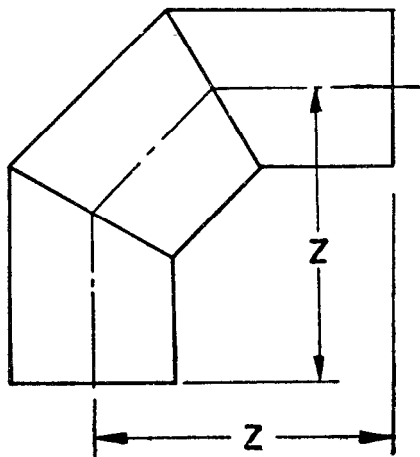


FIG. 1 90° BEND

2.2.2 Laying Length — The overall laying length \tilde{Z} and the tolerances thereon shall comply with those given in Table 1 read with Fig. 1.

2.2.3 The outside diameters and wall thicknesses of pipes out of which 90° bends are fabricated shall comply with those given in IS : 8360 (Part I)-1977*. The wall thickness of fabricated bend shall not be less than that of the pipe to which it is to be welded.

3. MARKING

3.1 Each fabricated 90° bend fitting shall be marked with the following information:

- a) Manufacturer's name or identification mark, and
- b) The size of the fitting and the appropriate class (working pressure) to which the pressure rating of the fitting corresponds.

*Specification for fabricated high density polyethylene (HDPE) fittings for potable water supplies: Part I General requirements.

**TABLE 1 DIMENSIONS FOR OVERALL LAYING LENGTH OF
FABRICATED 90° BENDS**

(Clause 2.2.2 and Fig. 1)

Size	90° BEND, OVERALL LAYING LENGTH, ζ
(1)	(2)
mm	mm
20	100 \pm 3
25	100 \pm 3
32	100 \pm 3
40	100 \pm 3
50	100 \pm 3
63	108 \pm 5
75	128 \pm 5
90	154 \pm 5
110	188 \pm 5
125	213 \pm 5
140	239 \pm 8
160	273 \pm 8
180	307 \pm 8
200	341 \pm 8
225	384 \pm 10
250	427 \pm 10
280	478 \pm 10
315	538 \pm 10
355	606 \pm 12
400	683 \pm 12
450	769 \pm 12
500	855 \pm 12

3.1.1 Each fabricated 90° bend fitting may also be marked with the Standard mark.

3.1.2 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 the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI S. S. CHHEDA	Small Scale Plastics Pipes and Fittings Manufacturers' Association, Bombay
CHIEF ENGINEER	Tamil Nadu Water Supply & Drainage Board, Madras
CHIEF ENGINEER	U. P. Jal Nigam, Lucknow
SUPERINTENDING ENGINEER (Alternate)	
CHIEF ENGINEER (WATER)	Municipal Corporation of Delhi
DEPUTY CHIEF ENGINEER (WATER) (Alternate)	
SHRI J. M. DAVE	National Environmental Engineering Research Institute, Nagpur
SHRI R. PARAMASIVAM (Alternate)	
SHRI S. K. DEY	EMCO General (Plastic) Industries (P) Ltd, Calcutta
SHRI R. K. JAIN	Central Building Research Institute (CSIR), Roorkee
SHRI S. P. CHAKRABARTI (Alternate)	
SHRI A. R. KANGA	City & Industrial Development Corporation Ltd, Bombay
DR S. L. KAPUR	National Chemical Laboratory (CSIR), Pune
SHRI A. E. LADHABHOY	Imperial Chemical Industries (India) Ltd, Calcutta
DR V. B. V. RAJAN (Alternate)	
SHRI U. S. MAJUMDAR	Union Carbide India Ltd, Calcutta
SHRI S. P. KHURANA (Alternate)	
SHRI R. PARIKSHIT	Directorate General of Technical Development
SHRI G. S. RAO	Central Public Works Department
SHRI K. C. S. RAO	Ministry of Defence
MAJ S. K. AGGARWAL (Alternate)	
SHRI P. B. RAO	Polyolefins Industries Ltd, Bombay
SHRI V. DORAIRAJ (Alternate)	
SHRI O. P. RATNA	National Buildings Organization, New Delhi
REPRESENTATIVE	Public Health Engineering Department, Government of Haryana, Chandigarh
SHRI R. SIVARAMAKRISHNAN	Chemicals & Plastics (India) Ltd, Madras
SHRI R. KALIDAS (Alternate)	
SHRI G. K. SRINIVASAN	Wavin India Ltd, Madras
SHRI K. R. RANGARAJAN (Alternate)	

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha
(Common to all Offices)

Central Laboratory :

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

Telephone

8-77 00 32

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Manikola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),
MUMBAI 400093 832 92 95

Branch Offices::

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C- Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square,
BANGALORE 560002 222 39 71