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**Cevi in fittingi iz polietilena visoke gostote (PE - HD) za zakopane drenažne in  
kanalizacijske sisteme - Specifikacije**

High-density polyethylene (PE-HD) pipes and fittings for buried drainage and sewerage systems -- Specifications

**iTeh STANDARD PREVIEW**

Tubes et raccords en polyéthylène haute densité (PE-HD) pour les systèmes  
d'assainissement enterrés et les égouts souterrains -- Spécifications

[SIST ISO 8772:1995](https://standards.itih.ai/catalog/standards/sist/3c415422-4e81-40b9-a01b-76078161bb8d/sist-iso-8772-1995)

**Ta slovenski standard je istoveten z: ISO 8772:1991**

**ICS:**

23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general
91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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# INTERNATIONAL STANDARD

**ISO**  
**8772**

First edition  
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## High-density polyethylene (PE-HD) pipes and fittings for buried drainage and sewerage systems — Specifications

**iTeh STANDARD PREVIEW**

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Reference number  
ISO 8772:1991(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 8772 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*.

Annexes A, B, C, D, E and F form an integral part of this International Standard.

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# High-density polyethylene (PE-HD) pipes and fittings for buried drainage and sewerage systems — Specifications

## 1 Scope

This International Standard specifies requirements for high-density polyethylene (PE-HD) pipes, fittings and joints with nominal outside diameters from 110 mm to 2 000 mm and for fittings with elastomeric sealing rings of nominal outside diameter from 110 mm to 400 mm, serving as buried gravity drain and sewer pipes for the transportation of soil and waste discharge of domestic origin.

It may also be applied to pipes, fittings and joints for discharges of industrial origin, provided chemical and temperature resistance is taken into account.

ISO 1167:—<sup>1)</sup>, *Thermoplastics pipes for the transport of fluids — Resistance to internal pressure — Test method and basic specification.*

ISO 2506:1981, *Polyethylene pipes (PE) — Longitudinal reversion — Test methods and specification.*

ISO 3126:1974, *Plastics pipes — Measurement of dimensions.*

ISO 3607:1977, *Polyethylene (PE) pipes — Tolerances on outside diameters and wall thicknesses.*

ISO 3663:1976, *Polyethylene (PE) pressure pipes and fittings, metric series — Dimensions of flanges.*

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## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 265-1:1988, *Pipes and fittings of plastics materials — Fittings for domestic and industrial waste pipes — Basic dimensions: Metric series — Part 1: Unplasticized poly(vinyl chloride) (PVC-U).*

ISO 1043-1:1987, *Plastics — Symbols — Part 1: Basic polymers and their special characteristics.*

ISO 1133:1991, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.*

## 3 Symbols

The symbols used in this International Standard are given in table 1.

Table 1 — Symbols

Symbol	Meaning
$D$	Nominal outside diameter of pipe
$D_{e, m}$	Mean outside diameter
$d_{s, m}$	Socket mean inside diameter
$e$	Nominal wall thickness
$e_2$	Wall thickness at socket cylindrical part
$e_3$	Wall thickness at socket groove
$l_1$	Spigot length
$l$	Nominal length of pipe
$A$	Length of engagement
$C$	Length of socket mouth

1) To be published. (Revision of ISO 1167:1973)

## 4 Material

**4.1** The material shall consist of polyethylene (PE) to which may be added only those additives needed to facilitate the manufacture of sound, durable pipes and fittings of good surface finish and mechanical strength.

When sealing rings are retained by means of retaining caps or rings, the retaining caps or rings may be made from polymers other than PE provided that they conform to the same functional dimensions and test requirements as applied to sockets with either loose or fixed sealing rings.

**4.2** The use of the manufacturer's own clean rework material is permissible provided that it conforms to the requirements of this International Standard. No other rework material shall be used.

**4.3** Carbon black added to ensure resistance to ultraviolet light shall comply with the following requirements:

- mass content: 2,4 %  $\pm$  0,6 %
- density: 1 500 kg/m<sup>3</sup> to 2 000 kg/m<sup>3</sup>
- average particle size: 0,01  $\mu$ m to 0,025  $\mu$ m

## 5 Geometrical characteristics

NOTE 1 The figures are schematic sketches only, to help demonstrate relevant dimensions. They do not necessarily represent manufactured components.

All measurements of dimensions shall be carried out in accordance with ISO 3126.

## 5.1 Pipe dimensions

The pipe dimensions are illustrated in figure 1.

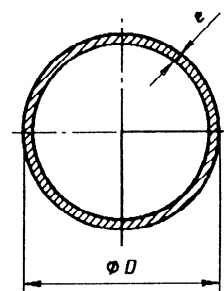


Figure 1 — Dimensions

### 5.1.1 Outside diameter

The nominal outside diameter  $D$  shall be in accordance with table 2.

Tolerances on mean outside diameters  $D_{e,m}$  shall be in accordance with ISO 3607.

**Table 2 — Nominal outside diameter**

Dimensions in millimetres

$D$		
110	315	900
125	355	1 000
140	400	1 200
160	450	1 400
180	500	1 600
200	560	1 800
225	630	2 000
250	710	
280	800	

NOTE — These values have been taken from ISO 161-1:1978, *Thermoplastics pipes for the transport of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

### 5.1.2 Wall thickness

The nominal wall thickness  $e$  shall be in accordance with table 3.

Tolerances on wall thickness shall be in accordance with ISO 3607.

**Table 3 — Nominal wall thickness**

Dimensions in millimetres

Nominal outside diameter $D$	Pipe series		
	S16	S12,5	S8
Nominal wall thickness $e$			
110	3,4	4,2	6,6
125	3,9	4,8	7,4
140	4,3	5,4	8,3
160	4,9	6,2	9,5
180	5,5	6,9	10,7
200	6,2	7,7	11,9
225	6,9	8,6	13,4
250	7,7	9,6	14,8
280	8,6	10,7	16,6
315	9,7	12,1	18,7
355	10,9	13,6	21,1
400	12,3	15,3	23,7
450	13,8	17,2	26,7
500	15,3	19,1	29,6
560	17,2	21,4	33,2
630	19,3	24,1	37,3
710	21,8	27,2	42,1
800	24,5	30,6	47,4
900	27,6	34,4	53,3
1 000	30,6	38,2	59,3
1 200	36,7	45,9	
1 400	42,9	53,5	
1 600	49	61,2	
1 800	55,1		
2 000	61,2		

NOTE — These values are in accordance with ISO 4065:1978, *Thermoplastic pipes — Universal wall thickness table*.

### 5.1.3 Length

The nominal length  $l$  of a pipe shall be measured as shown in figure 2.

The nominal pipe length shall be agreed between the interested parties.

The tolerance on the agreed pipe length shall be  $\pm [(0,1 \% \text{ of } l) + 10 \text{ mm}]$ , measured at a temperature of  $23 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$ .

## 5.2 Dimensions of fittings

### 5.2.1 Basic dimensions

Basic dimensions of fittings shall be in accordance with ISO 265-1.

The angles of branches shall be  $45^\circ$ ,  $60^\circ$ ,  $(67,5^\circ)$  or  $90^\circ$ , where the value given in parentheses is non-preferred.

### 5.2.2 Wall thickness

The nominal wall thickness of the body of a fitting shall comply with the values given in table 3. The stiffness of the body of the fitting shall be not less than the stiffness of the corresponding pipe.

## 5.3 Socket and spigot dimensions of pipes and fittings

### 5.3.1 Basic dimensions

A socket and spigot joint fitted with a sealing component complying with this International Standard shall accommodate the thermal movement due to temperature variations in waste water of a pipe of nominal length  $l$  without losing its tightness. The basic dimensions shall be in accordance with table 4 (see also figure 3).

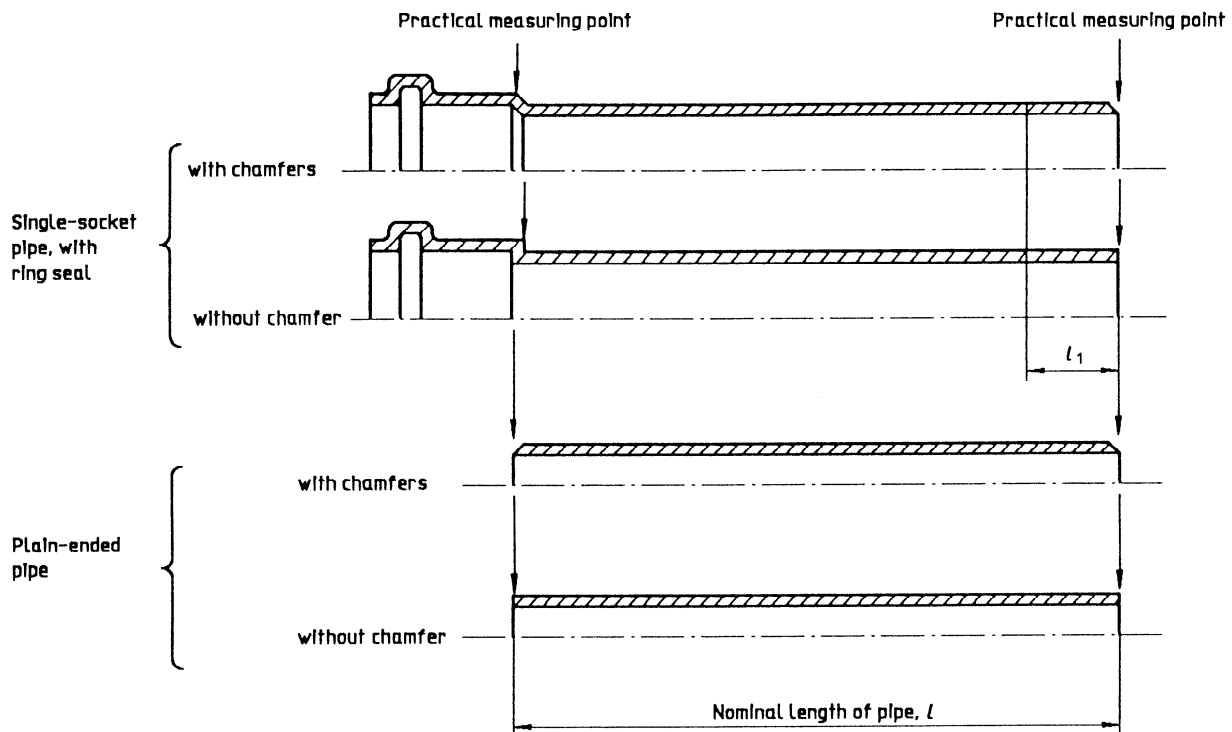
The basic dimensions of sockets and spigots of pipes and fittings shall be calculated as follows:

$$A_{\min} = 0,2D + 18 \text{ mm}$$

$$C_{\max} = 0,2D + 18 \text{ mm}$$

$$l_{1, \min} = 0,4D + 18 \text{ mm}$$

Where sealing rings are firmly fixed and have multiple sealing zones, the dimensions  $A_{\min}$  and  $C_{\max}$  (see figure 4) shall be measured to the effective sealing point as specified by the manufacturer.  $C_{\max}$  shall be checked with a gauge, as this dimension determines the tightness of the joint.



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Figure 2 — Nominal pipe length and definitions  
(standards.iteh.ai)

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Table 4 — Basic dimensions of sockets and spigots

Dimensions in millimetres

Nominal outside diameter $D$	Minimum mean inside diameter of the socket $D_{s, m, \min}$	Maximum length of the socket mouth $C_{\max}$	Minimum length of engagement $A_{\min}$	Minimum length of the spigot end $l_{1, \min}$
110	111,1	40	40	62
125	126,3	43	43	68
140	141,4	46	46	74
160	161,6	50	50	82
180	181,7	54	54	90
200	201,9	58	58	98
225	227,1	63	63	108
250	252,4	68	68	118
280	282,6	74	74	130
315	318	81	81	144
355	358,3	85	85	160
400	403,7	98	98	178

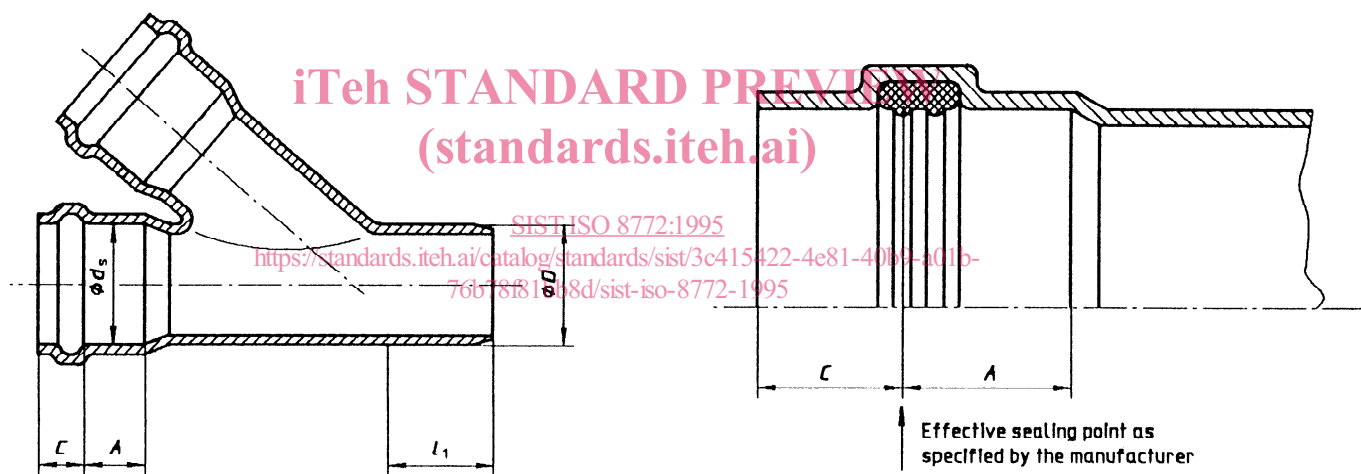


Figure 3 — Basic dimensions

Figure 4 — Effective sealing point