# International Standard ISO 7279

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# Polypropylene (PP) fittings for pipes under pressure — Sockets for fusion using heated tools — Metric series — Dimensions of sockets

*Raccords en polypropylène (PP) à emboîtures pour tubes sous pression — Emboîtements à souder par fusion au moyen d'outils chauffés — Série métrique — Dimensions des emboîtures*

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## 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. Every 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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INTERNATIONAL STANDARD ISO 7279-1984 (E)

# Polypropylene (PP) fittings for pipes under pressure — Sockets for fusion using heated tools — Metric series — Dimensions of sockets

## 1 Scope

This International Standard specifies the dimensions of sockets for polypropylene (PP) fittings intended for fusion with heated tools to polypropylene pipes under pressure.

## 2 Field of application

This International Standard applies to polypropylene (PP) fittings with plain sockets intended for fusion jointing using heated tools to polypropylene (PP) pipes under pressure for the transport of fluids.

The socket dimensions and joints are given in :

Table 1 — Nominal diameter 16 to 63 mm

Table 2 — Nominal diameter 75 to 125 mm for type A fittings (fittings for pipes with closer tolerances on the outside diameter than those specified in ISO 3609)

Table 3 — Nominal diameter 75 to 125 mm for type B fittings (fittings for pipes with tolerances on the outside diameter in accordance with ISO 3609 but ends peeled before assembly).

This International Standard may later be extended to other types and sizes of fittings, when development in this field makes it necessary. Extension to other types should be made by observing the principles laid down in this International Standard.

## 3 Reference

ISO 3609, *Polypropylene (PP) pipes — Tolerances on outside diameters and wall thicknesses.*

## 4 Symbols

The figure shows the principal dimensions and symbols used.

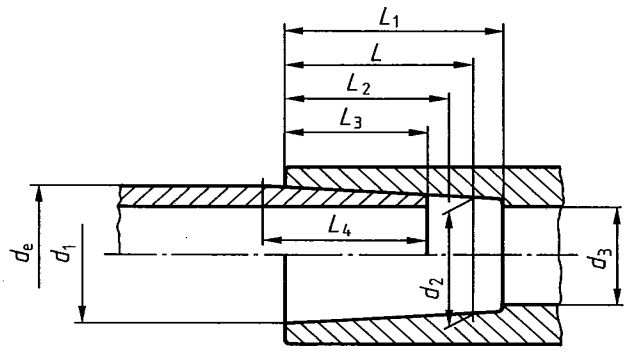


**Figure — Definition of dimensions**

where

$d_e$ is the nominal outside diameter of pipe which is equivalent to the nominal inside diameter of socket ($D$);

$d_1$ is the mouth diameter of socket which is the diameter of the circle at the intersection of the extension of the socket with the plane of the socket mouth;

$d_2$ is the root diameter of socket which is the diameter of the circle in a plane parallel to the plane of the mouth and separated from it by a distance $L$ which is the reference length of the socket;

$d_3$ is the minimum bore which is the minimum diameter of the passage through the body of the fitting;

$L$ is the reference socket length which is the theoretical minimum socket length used for the purpose of calculation;

$L_1$ is the actual length of the socket from mouth to fitting root;

$L_2$ is the heated length which is the length of penetration of the heated tool into the socket;

$L_3$ is the length of insertion of the heated pipe end into the socket;

$L_4$ is the heated length of pipe which is the length of penetration of the pipe end into the heated tool.

## 5 Definitions

**5.1 mean inside diameter** : At a given position in the socket, the arithmetical mean of two diameters measured perpendicular to each other in the same transverse plane.

**5.2 total out-of-roundness** : The maximum diameter minus the minimum diameter of the socket measured in the same plane.

**5.3 conicity** : The total included angle based on the average diameter of the mouth and the root.

## 6 Dimensions of socket

### 6.1 General

This International Standard concerns only fittings and assemblies and is not concerned with heating tool dimensions.

The dimensions of pipes and fittings shall be measured at a temperature of 23 ± 2 °C after conditioning for a period of at least 5 h and not less than 24 h after manufacture.

The fittings and tools are designated by the nominal inside diameter ($D$) of the socket, which corresponds to the external nominal diameter ($d_e$) of the pipe with which they are to be used.

The dimensions are independent of heating tool tolerances.

### 6.2 Sockets with nominal diameter 16 to 63 mm

#### 6.2.1 Formulae

$$L = 0{,}3\,D + 8{,}5 \text{ mm}$$

$$L_1 \geqslant L$$

$$L = L \geqslant L_2 \geqslant L_3 + 1 \text{ mm}$$

$$L - 1 \text{ mm} \geqslant L_{3\,max} \geqslant L - 3{,}5 \text{ mm}$$

$$L_4 \geqslant L_3$$

#### 6.2.2 Conicity

The diameter of the socket at the root shall in no case be greater than that of the mouth.

### 6.3 Sockets with nominal diameter 75 to 125 mm

There are two series of fittings for these diameters corresponding to different methods of jointing :

a) type A fittings for pipes with outside diameter tolerances closer than those given in ISO 3609, for which re-rounding clamps must be used;

b) type B fittings for pipes with outside diameter tolerances in accordance with ISO 3609.

For each series, there is a set of heating tools and auxiliary equipment such as clamps and/or peeling devices and an operating procedure.

#### 6.3.1 Sockets with nominal inside diameter 75 to 125 mm — Type A fittings

6.3.1.1 Formulae

$$L = 0{,}2\,D + 15 \text{ mm}$$

$$L_1 \geqslant L$$

$$L - 1 \text{ mm} \geqslant L_3 \geqslant L - 5 \text{ mm}$$

$$L_4 \geqslant L_3$$

6.3.1.2 Conicity

The diameter at the root of the socket shall in no case exceed that at the mouth. The total included angle shall not be less than 2°.

#### 6.3.2 Sockets with nominal diameter 75 to 125 mm — Type B fittings

6.3.2.1 Formulae

$$L = 0{,}3\,D + 8{,}5 \text{ mm}$$

$$L_1 \geqslant L$$

$$L = L \geqslant L_2 \geqslant L_3 + 1 \text{ mm}$$

$$L - 1 \text{ mm} \geqslant L_3 \geqslant L - 5 \text{ mm}$$

$$L_4 \geqslant L_3$$

6.3.2.2 Conicity

The diameter at the root of the socket shall in no case exceed that at the mouth. The total included angle shall not be less than 0,5°.

**Table 1 — Dimensions and tolerances of sockets — Types A and B fittings**

Dimensions in millimetres

| Nominal inside diameter of socket $D$ | Mean inside diameter of socket | | | | Total out-of-roundness | Bore | Socket reference length | Penetration of pipe into socket | |
|---|---|---|---|---|---|---|---|---|---|
| | Mouth ($d_1$) | | Root ($d_2$) | | | $d_3$ | $L$ | $L_3$ | |
| | max. | min. | max. | min. | max. | min. | | max. | min. |
| **16** | 15,5 | 15,2 | 15,4 | 15,1 | 0,4 | 11,2 | 13,3 | 12,3 | 9,8 |
| **20** | 19,5 | 19,2 | 19,3 | 19,0 | 0,4 | 15,2 | 14,5 | 13,5 | 11,0 |
| **25** | 24,5 | 24,1 | 24,3 | 23,9 | 0,4 | 19,4 | 16,0 | 15,0 | 12,5 |
| **32** | 31,5 | 31,1 | 31,3 | 30,9 | 0,5 | 25,0 | 18,1 | 17,1 | 14,6 |
| **40** | 39,45 | 39,05 | 39,2 | 38,8 | 0,5 | 31,4 | 20,5 | 19,5 | 17,0 |
| **50** | 49,45 | 48,95 | 49,2 | 48,7 | 0,6 | 39,4 | 23,5 | 22,5 | 20,0 |
| **63** | 62,4 [1] | 62,0 [1] | 62,1 | 61,6 | 0,6 | 49,8 | 27,4 | 26,4 | 23,9 |

1) Where type A fittings are used, the maximum diameter of 62,4 mm may be increased by 0,1 mm to 62,5 mm. Conversely, where a peeling technique with type B fittings is used, the minimum diameter of 62,0 mm may be reduced by 0,1 mm to 61,9 mm.

**Table 2 — Dimensions and tolerances of sockets — Type A fittings**

Dimensions in millimetres

| Nominal inside diameter of socket $D$ | Mean outside diameter of pipe[1] | | Mean inside diameter of socket | | | | Total out-of-roundness | Bore | Socket reference length | Penetration of pipe into socket | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mouth ($d_1$) | | Root ($d_2$) | | | $d_3$ | $L$ | $L_3$ | |
| | max. | min. | max. | min. | max. | min. | max. | min. | | max. | min. |
| **75** | 75,5 | 75,0 | 74,8 | 74,3 | 73,5 | 73,0 | 1,0 | 59,4 | 30,0 | 29 | 25 |
| **90** | 90,6 | 90,0 | 89,9 | 89,3 | 88,5 | 87,9 | 1,0 | 71,6 | 33,0 | 32 | 28 |
| **110** | 110,6 | 110,0 | 110,0 | 109,4 | 108,3 | 107,7 | 1,0 | 87,6 | 37,0 | 36 | 32 |
| **125** | 125,6 | 125,0 | 125,0 | 124,4 | 123,2 | 122,6 | 1,0 | 99,6 | 40,0 | 39 | 35 |

1) Pipes with closer tolerances on the outside diameter than those specified in ISO 3609.

**Table 3 — Dimensions and tolerances of sockets — Type B fittings**

Dimensions in millimetres

| Nominal inside diameter of socket $D$ | Mean outside diameter of peeled pipe[1] | | Mean inside diameter of socket | | | | Total out-of-roundness | Bore | Socket reference length | Penetration of pipe into socket | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mouth ($d_1$) | | Root ($d_2$) | | | $d_3$ | $L$ | $L_3$ | |
| | max. | min. | max. | min. | max. | min. | max. | min. | | max. | min. |
| **75** | 75,0 | 74,7 | 74,25 | 73,75 | 73,95 | 73,45 | 1,0 | 59,4 | 31,0 | 30,0 | 26,0 |
| **90** | 90,0 | 89,7 | 89,2 | 88,6 | 88,85 | 88,25 | 1,0 | 71,6 | 35,5 | 34,5 | 30,5 |
| **110** | 110,0 | 109,6 | 109,05 | 108,45 | 108,65 | 108,05 | 1,0 | 87,6 | 41,5 | 40,5 | 36,5 |
| **125** | 125,0 | 124,6 | 123,95 | 123,35 | 123,5 | 122,9 | 1,0 | 99,6 | 46,0 | 45,0 | 41,0 |

1) Pipes with tolerances on the outside diameter in accordance with ISO 3609, or pipes with closer tolerances on the outside diameter than those specified in ISO 3609, but in cases where the ends are peeled before assembly.