



**SLOVENSKI STANDARD**

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**Plastomerne cevi - Preglednica univerzalne debeline stene**

Thermoplastics pipes -- Universal wall thickness table

Tubes en matières thermoplastiques -- Tableau universel des épaisseurs de paroi

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**Thermoplastics pipes — Universal  
wall thickness table**

*Tubes en matières thermoplastiques — Tableau universel des  
épaisseurs de paroi*



Reference number  
ISO 4065:2018(E)

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## ISO 4065:2018(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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This third edition cancels and replaces the second edition (ISO 4065:1996), which has been technically revised.

The significant changes are:

- S-values and design stresses for 6,0 bar are deleted;
- Wall thickness values for pipes with diameters up to 3000 mm are included;
- The upper limit for tabled wall thicknesses increased to 150 mm;
- Additional pipe series S 10,5, S 13,3 and S 16,7 are left for use in non-pressure purposes only;
- Definitions are updated to follow modern plastics piping terminology.

# Thermoplastics pipes — Universal wall thickness table

## 1 Scope

This document specifies the relationship between the nominal wall thickness  $e_n$  and the nominal outside diameter  $d_n$  of thermoplastics pipes.

It is applicable to solid-wall thermoplastics pipes of constant circular cross-section along the whole length of the pipe, whatever their method of manufacture, their composition or their intended application.

NOTE Pipes with constant circular cross-section along the whole length of the pipe are commonly known as pipes with smooth external and internal surfaces.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3, *Preferred numbers — Series of preferred numbers*

ISO 497:1973, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

### 3.1

#### nominal outside diameter

$d_n$

specified outside diameter, assigned to a nominal size DN

Note 1 to entry: Nominal outside diameter is expressed in millimetres.

Note 2 to entry: For metric pipes conforming to this document, the nominal outside diameter, expressed in millimetres, is the minimum mean outside diameter *dem.min* specified in the applicable pipe standard.

### 3.2

#### mean outside diameter

$d_{em}$

value of the measurement of the outer circumference of the pipe in any cross-section divided by  $\pi$ , rounded up to the nearest 0,1 mm

Note 1 to entry: The value of  $\pi$  is taken to be 3,142.

**ISO 4065:2018(E)****3.3  
wall thickness at any point** $e$ 

measured wall thickness at any point around the circumference of the pipe, rounded to the next higher 0,1 mm

**3.4  
nominal wall thickness** $e_n$ 

wall thickness tabulated in this document, and identical to the minimum permissible wall thickness at any point,  $e_{\min}$

**3.5  
standard dimension ratio****SDR**

numerical designation of a pipe series, which is a convenient round number, approximately equal to the ratio of the nominal outside diameter  $d_n$  of a pipe to its nominal wall thickness  $e_n$

Note 1 to entry: This value may also be derived from the formula given in [3.6](#).

**3.6  
pipe series****S**

dimensionless number related to the nominal outside diameter  $d_n$  and nominal wall thickness  $e_n$  given by the following formula:

$$S = \frac{\text{SDR} - 1}{2}$$

**4 Calculation of values****4.1 Calculation of S values**

For pressure pipes the relationship is expressed as follows:

$$S = \frac{\sigma}{p} \tag{1}$$

where

$$\sigma = \frac{p(d_e - e)}{2e}$$

where

$p$  is the internal pressure;

$\sigma$  is the induced stress;

$p$  and  $\sigma$  being expressed in the same units.

For the selection of  $p$  and  $\sigma$ , refer to ISO 161-1[1].

S-values are selected from the R 10 series of preferred numbers given in ISO 3, except for S 11,2 and S 14 which are selected from the R 20 series (see [Tables 2](#) and [3](#)).