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# INTERNATIONAL STANDARD



# 161/II

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Thermoplastic pipes for the transport of fluids — Nominal outside diameters and nominal pressures — Part II : Inch series

*Tubes en thermoplastiques pour le transport des fluides — Diamètres extérieurs nominaux et pressions nominales — Partie II : Série en inches*

First edition — 1977-09-01

(standards.iteh.ai)

[ISO 161-2:1977](https://standards.iteh.ai/catalog/standards/sist/d18369aa-3757-4245-aa01-ef25e5ea1376/iso-161-2-1977)

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**Descriptors** : pipes (tubes), plastic tubes, dimensions, diameters, pressure.

Price based on 2 pages

## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 161/II (originally ISO/DIS 330) was developed by Technical Committee ISO/TC 138, *Plastic pipes, fittings and valves for the transport of fluids*, and this edition was circulated to the member bodies in July 1973.

It was approved by the member bodies of the following countries :

Australia	Germany	Spain
Austria	Ireland	Sweden
Belgium	Israel	Switzerland
Bulgaria	Mexico	Thailand
Czechoslovakia	Netherlands	Turkey
Denmark	New Zealand	United Kingdom
Egypt, Arab Rep. of	Poland	U.S.A.
Finland	Portugal	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

France  
Italy  
Japan  
Romania  
South Africa, Rep. of

This International Standard cancels and replaces ISO Recommendation R 330-1963, of which it constitutes a technical revision.

# Thermoplastic pipes for the transport of fluids – Nominal outside diameters and nominal pressures – Part II : Inch series

## 0 INTRODUCTION

The first part of this International Standard, ISO 161/I, shall be considered as the ISO standard for the future.

This second part provides, on a temporary basis, the metric values corresponding to dimensions based on the inch system still in use in certain countries, in order to enable them to ensure continuity in interchangeability.

The first edition of this second part was published as ISO Recommendation R 330, *Pipes of plastics materials for the transport of fluids (Outside diameters and nominal pressures) – Part II : Inch series*.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard deals solely with circular-section plastic pipes for the transport of fluids, whatever their method of manufacture, their composition and their use.

It is intended, as a temporary measure pending the generalization of ISO 161/I, to serve as a guide to manufacturers and users still using the inch system, and as a basis for specific standards for thermoplastic pipes made from a given plastic material and/or for a definite application.

## 2 REFERENCES

ISO 161/I, *Thermoplastics pipes for the transport of fluids – Thermoplastics outside diameters and nominal pressures – Part I : Metric series*.

ISO 336, *Plain end steel tubes, welded or seamless – General table of dimensions and masses per unit length*.

## 3 NOMINAL OUTSIDE DIAMETERS

The pipe shall have one of the nominal outside diameters given in table 1.

TABLE 1 – Nominal outside diameters

mm	(in)
10,2	( 0.402)
13,5	( 0.531)
17,2	( 0.677)
21,3	( 0.839)
26,9	( 1.059)
33,7	( 1.327)
42,4	( 1.669)
48,3	( 1.902)
60,3	( 2.374)
75,3	( 2.965)
88,9	( 3.500)
101,6	( 4.000)
114,3	( 4.500)
140,3	( 5.524)
168,3	( 6.626)
193,7	( 7.626)
219,1	( 8.626)
244,5	( 9.626)
273,0	(10.75 )
323,9	(12.75 )
355,6	(14.00 )
406,4	(16.00 )
457,2	(18.00 )
508,0	(20.00 )
558,8	(22.00 )
609,6	(24.00 )
660,4	(26.00 )
711,2	(28.00 )
762,0	(30.00 )
812,8	(32.00 )
863,6	(34.00 )
914,4	(36.00 )
1 016	(40.00 )

## 4 TOLERANCES ON OUTSIDE DIAMETERS

The actual limits on outside diameters for each size of pipe shall be obtained by applying a tolerance appropriate to the application and material in question.

The tolerances may comprise positive and/or negative values.

**5 NOMINAL PRESSURES AND WORKING PRESSURES**

5.1 The nominal pressure of a pipe is the working pressure of the pipe conveying water at a temperature of 20 °C.

5.2 The working pressure of a pipe is the maximum pressure which the pipe can sustain in continuous use.

5.3 The nominal pressures of thermoplastic pipes are given in table 2.

TABLE 2 – Nominal pressures

Nominal pressure MPa	Head of water ft
0,3	(100)
0,6	(200)
0,9	(300)
1,2	(400)
1,5	(500)

If necessary, higher nominal pressures may be selected by extending the progression in 0,3 MPa steps.

**6 CONVENTIONAL FORMULA RELATING THE INDUCED STRESS IN THE WALL OF A PIPE TO THE PRESSURE OF THE FLUID CONTAINED BY THE PIPE**

It is taken conventionally that the stress induced in the wall of a pipe, the pressure of the fluid, the outside diameter and the wall thickness of the pipe are related by the formula

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

where

$\sigma$  is the induced stress, in megapascals;

$p$  is the pressure of the fluid, in megapascals;

$d_e$  is the outside diameter of the pipe, in millimetres;

$e$  is the wall thickness of the pipe, in millimetres.

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ISO 161-2:1977

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