
Plastics piping systems — Plastics components — Determination of dimensions

*Systèmes de canalisations en plastiques — Composants en
plastiques — Détermination des dimensions*



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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 3126 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read “...this European Standard...” to mean “...this International Standard...”.

This second edition cancels and replaces the first edition (ISO 3126:1974), which has been technically revised.

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Foreword

This document (EN ISO 3126:2005) has been prepared by Technical Committee CEN /TC 155, "Plastics piping systems and ducting systems", the secretariat of which is held by NEN in collaboration with Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document is one of a series of standards on test methods, which support system standards for plastics piping systems and ducting systems.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This document specifies methods for measurement and/or determination of the dimensions of plastics pipes and fittings and the accuracy of the measurement.

It specifies procedures for measuring angles, diameters, lengths, squareness and wall thicknesses for the purposes of checking conformity to geometric limits.

NOTE This document is using metric units. However the procedures and tolerances are applicable to other units by using appropriate conversion factors.

2 Normative references

The following referenced documents are indispensable for the application 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/R 463, *Dial gauges reading in 0,01 mm, 0,001 in and 0,0001 in.*

ISO 3599, *Vernier callipers reading to 0,1 and 0,05 mm.*

ISO 3611, *Micrometer callipers for external measurement.*

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method.*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

3.1.1

accuracy

closeness of agreement between a test result and the accepted reference value

NOTE The term "accuracy", when applied to a set of test results, involves a combination of random components and a common systematic error or bias component (ISO 3534-1).

3.1.2

calibration

set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realised by standards

3.1.3

reference standard

internationally accepted definition of a given unit of measurement

3.2 Symbols

b_1 : distance between the edge of a flange bolt hole and its bore

b_2 : distance between the edge of a flange bolt hole and its outside diameter

b_3 : distance between the centre of a flange bolt hole and its bore

b_4 : distance between the centre of a flange bolt hole and its outside diameter

c_1 : distance between the edges of two adjacent flange bolt holes

c_2 : distance between the centres of two adjacent flange bolt holes

d_e	: outside diameter of a (part of a) component
$d_{i,m}$	: mean inside diameter of the main of a branch
d_1	: outside diameter of a socket end
d_2	: outside diameter of a spigot end
d_3	: bore of a flange
d_4	: diameter of a flange bolt hole
D	: outside diameter of a flange
e	: wall thickness of a component
k	: pitch circle diameter of a flange
$L_{e,b}$	: effective length of a branch
$L_{e,m}$	: effective length of the main of a branch
$L_{e,r}$	: effective length of a reducer
$L_{e,so}$	: effective length of the socket end of a fitting
$L_{e,sp}$	: effective length of the spigot end of a fitting
L_{str}	: length of the straight part of a socket or a spigot end of a fitting
L_t	: length of the tapered part of a reducer
L_1	: maximum out-of-squareness distance from theoretical
L_2	: measured distance from the root of the angle between a straight ruler and a reference surface to the component along the surface
L_3	: measured distance from the root of the angle between a straight ruler and a reference surface to the component along the ruler
L_4	: vertical distance from a reference surface to the nearest point of the upper end
L_5	: socket insertion depth
L_6	: overall length of a branch main
L_7	: distance, measured in the centre-line plane of a branch, between the end of the branch spigot or socket to the bottom of the main
L_8	: overall length of a reducer
L_9	: distance between the edges of two selected bolt holes of a flange
L_{10}	: overall length of a flange in axial direction
γ	: calculated angle of out-of-squareness
θ	: angle of bend or branch

4 Measuring devices

4.1 General requirements

4.1.1 Accuracy of measuring devices

The measuring device shall be selected so that together with the associated procedures used the required accuracy of the measured dimension is obtained.