
**Thermoplastics pipes —
Determination of ring stiffness**

*Tubes en matières thermoplastiques — Détermination de la
rigidité annulaire*

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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Symbols	1
4 Principle	1
5 Apparatus	2
6 Test pieces	3
6.1 Marking and number of test pieces.....	3
6.2 Length of test pieces.....	3
6.3 Inside diameter of test piece(s).....	4
6.4 Age of test pieces.....	4
7 Conditioning	5
8 Procedure	5
9 Calculation of ring stiffness	7
10 Test report	8

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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. 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).

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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is 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*.

This third edition cancels and replaces the second edition (ISO 9969:2007), which has been technically revised.

Thermoplastics pipes — Determination of ring stiffness

1 Scope

This International Standard specifies a test method for determining the ring stiffness of thermoplastics pipes having a circular cross section.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

3 Symbols

For the purposes of this document, the following symbols apply.

		Units
d_n	nominal diameter of pipe	mm
d_i	inside diameter of the test piece of pipe	mm
e_c	construction height	mm
F	loading force	kN
F_0	pre-load force	N
L	length of test piece	mm
p	pitch of ribs or windings	mm
S	ring stiffness	kN/m ²
y	vertical deflection	mm

4 Principle

The ring stiffness is determined by measuring the force and the deflection while deflecting the pipe at a constant deflection speed.

A cut length of pipe supported horizontally is compressed vertically between two parallel flat plates moved at a constant speed that is dependent upon the diameter of the pipe.

A plot of force versus deflection is generated. The ring stiffness is calculated as a function of the force necessary to produce a 3 % diametric deflection of the pipe.

NOTE It is assumed that the test temperature is set by the referring standard, if appropriate (see 8.1).