PD ISO/TS 12512:2017

BSI Standards Publication

Glass reinforced thermosetting plastic (GRP) pipes — Determination of initial specific ring stiffness using segment test species cut from a pipe

bsi.

National foreword

This Published Document is the UK implementation of ISO/TS 12512:2017.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/2, Plastics piping for pressure applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2017

ISBN 978 0 580 69282 6

ICS 23.040.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 September 2017.

Amendments/corrigenda issued since publication

Date	Text affected

PD ISO/TS 12512:2017

TECHNICAL SPECIFICATION

ISO/TS 12512

First edition
2017-07

Glass reinforced thermosetting plastic (GRP) pipes — Determination of initial specific ring stiffness using segment test species cut from a pipe

Tubes en plastique thermodurcissables renforcés de verre (PRV) — Détermination de la rigidité annulaire spécifique initiale et de la résistance à la déflexion annulaire initiale en utilisant des éprouvettes segmentaires découpées dans un tube

Reference number
ISO/TS 12512:2017(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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).

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.

This document was prepared by ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, SC 6, *Reinforced plastics pipes and fittings for all applications*.

Introduction

This document develops an alternative to the testing of full pipe rings to measure initial specific ring stiffness (ISO 7685). The goal was to use ring segments which ideally would have led to the use of smaller and more easily handled test specimens and standard testing machines. Much work was done on developing equipment for testing ring segments and on the analysis of loading conditions and calculation procedures and conducting testing programs.

There was neither sufficient nor uniform correlation of segment testing results to standard ring testing results to allow the use of segment testing as an alternative stiffness test procedure. There were indications that correlation was perhaps diameter (DN), stiffness class (SN) and pressure class (PN), as well as specimen width, dependent. As initial ring stiffness (SN) is a key classification parameter for GRP pipes this resulted in the segment test being not accepted as a viable alternative stiffness testing procedure.

This document presents the last draft of the segment test method. It was agreed to issue this last draft as a Technical Specification so that the work done would not be lost and perhaps will allow interested parties to continue to develop the analysis of loading conditions, equipment development and calculation procedures. It may also prove useful as a research tool.

Glass reinforced thermosetting plastic (GRP) pipes — Determination of initial specific ring stiffness using segment test species cut from a pipe

1 Scope

This document specifies a method for determining the initial specific ring stiffness of pipes having a nominal size of DN 2000 or larger, using segment test pieces cut from a glass-reinforced thermosetting plastics (GRP) pipe.

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 7685, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial specific ring stiffness*

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 http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
compressive load
F
load applied to a pipe to cause a diametric deflection

Note 1 to entry: Compressive load is expressed in newtons (N).

3.2
load applied to 79 ° segmental test piece
F_{79}
load applied to 79 ° segmental test piece to cause deflection

Note 1 to entry: Load applied to 79 ° segmental test piece is expressed in newtons (N).

3.3
deflection coefficient applied to 79 ° segmental test piece
ξ
coefficient given by Formula (1):

$$\xi = \left\{1860 + \left(2500 \times y_s / d_m\right)\right\} \times 10^{-5} \quad (1)$$

where