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Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the ring creep properties under wet or dry conditions

Tubes en plastiques thermodurcissables renforcés de verre (PRV) — Détermination des propriétés de fluage annulaires en conditions humides ou sèches

Reference number
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Foreword

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This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 6, *Reinforced plastics pipes and fittings for all applications,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 10468:2018), which has been technically revised.

The main changes are as follows:

— the Introduction has been deleted as the information is no longer relevant to this edition of the document;

— in the test report, the “plot of measured deflection versus time” has been changed from an obligation into an option of plotting deflection versus time or stiffness versus time;

— initial ring stiffness according to ISO 7685 can now be measured by constant load or constant deflection.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the ring creep properties under wet or dry conditions

1 Scope

This document specifies methods for determining the ring creep properties for glass-reinforced thermosetting plastics (GRP) pipes. Properties include the creep factor and the long-term creep stiffness. Testing is performed under either wet (total immersion in water) or dry conditions.

Dry creep testing is typically performed for the assessment and control of raw material consistency. Wet creep testing is typically undertaken to determine the long-term creep performance in simulated use conditions.

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

ISO 7685, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial ring stiffness*

ISO 10928:2016, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*

3 Terms and definitions

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

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

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

— IEC Electropedia: available at https://www.electropedia.org/

3.1
vertical compressive force
F
vertical force, applied to a horizontal pipe to cause a *vertical deflection* (3.7)

Note 1 to entry: Vertical compressive force is expressed in Newtons.

3.2
ring stiffness
S
measure of the resistance of a pipe to ring deflection, per metre of length, under external load as defined by Formula (1):

$$S = \frac{E \times I}{d_{\mathrm{m}}^3} \tag{1}$$

where

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