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BSI Standards Publication

Plastics piping systems — General rules for structural design of glass-reinforced thermosetting plastics (GRP) pipes

Part 1: Buried pipes

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National foreword

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Plastics piping systems — General rules for structural design of glass-reinforced thermosetting plastics (GRP) pipes —

Part 1: Buried pipes

Systèmes de canalisations en matières plastiques - Règles générales pour la conception structurelle des

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Partie 1: Tubes enterré

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Foreword

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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).

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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*.

A list of all the parts in the ISO 20656- series, can be found on the ISO website.

Introduction

This document provides general rules for structural design of buried glass-reinforced thermosetting plastics (GRP) pipes. It provides the necessary link between the requirements for safety, serviceability and durability of GRP pipe construction products and the technical provisions for civil works. The basis for design of structures, as specified in ISO 2394 and Eurocode EN 1990, are addressed in this document by providing partial factors for effects of actions and resistance for buried GRP pipes.

TECHNICAL SPECIFICATION **ISO/TS 20656-1:2017(E)**

Plastics piping systems — General rules for structural design of glass-reinforced thermosetting plastics (GRP) pipes —

Part 1: Buried pipes

1 Scope

This document describes how partial factors for buried GRP pipes are developed, and are primarily intended to define the necessary safety measures for GRP pipes that meet the requirements of ISO 10639, ISO 10467 and ISO 25780, and EN 1796 and EN 14364. The same methodology can be utilised for other pipe product standards, although other parameters would apply.

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 2394:2015, *General principles on reliability for structures*

ISO 10639, *Plastics piping systems for pressure and non-pressure water supply — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin*

ISO 10467, *Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin*

ISO 25780, *Plastics piping systems for pressure and non-pressure water supply, irrigation, drainage or sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin — Pipes with flexible joints intended to be installed using jacking techniques*

EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*

EN 1990:2002, *Eurocode — Basis of structural design*

EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

EN/TS 17632, *Plastics piping systems for drainage, sewerage and water supply, pressure and non-pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Guidance for the assessment of conformity*

3 Terms and definitions

For the purposes of this document the terms and definitions given in ISO 2394 and EN 1990 apply.

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

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