

ICS 23.040.01; 91.140.60; 91.140.80; 93.030

English Version

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

Systèmes de canalisations en plastique pour les  
branchements, les collecteurs d'assainissement et  
l'alimentation en eau, avec ou sans pression - Plastiques  
thermodurcissables renforcés de verre (PRV) à base de  
résine polyester (UP) - Guide pour l'évaluation de  
conformité

Kunststoff-Rohrleitungssysteme für die Entwässerung und  
Wasserversorgung mit und ohne Druck -  
Glasfaserverstärkte duroplastische Kunststoffe (GFK) auf  
der Basis von Polyesterharz (UP) - Empfehlungen für die  
Beurteilung der Konformität

This Technical Specification (CEN/TS) was approved by CEN on 17 December 2005 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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## Foreword

This Technical Specification (CEN/TS 14632:2006) has been prepared by Technical Committee CEN/TC155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This Technical Specification can be used to support elaboration of national third party certification procedures for GRP products (glass-reinforced thermosetting resins based on unsaturated polyesters) to be used in piping systems for the transport of water, drainage and sewage.

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

## Introduction

This Technical Specification covers procedures and requirements for the assessment of conformity of materials, components, joints and assemblies made from GRP (glass-reinforced thermosetting resins based on unsaturated polyesters) intended to be used for drainage, sewerage or water supply. Requirements and test methods for materials, pipes, fittings and joints are specified in the relevant system standards.

## 1 Scope

This Technical Specification gives guidance for parties involved in the assessment of conformity of piping systems made from GRP-UP (glass-reinforced thermosetting resins based on unsaturated polyesters) intended to be used for drainage, sewerage or water supply. It contains procedures for the assessment of conformity to the requirements in the relevant system standards for materials, pipes, fittings and joints.

NOTE 1 These procedures can be included in the manufacturer's quality plan as part of his quality system, which should conform to EN ISO 9001<sup>[1]</sup> or other systems, as applicable.

NOTE 2 This Technical Specification can be included in a quality system subject to third party certification of conformity by a certification body that is accredited to EN 45011<sup>[2]</sup> or EN 45012<sup>[3]</sup>, as applicable.

## 2 Normative references

The following referenced documents are indispensable for the application of this Technical Specification. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 637, *Plastics piping systems — Glass-reinforced plastics components — Determination of the amounts of constituents using the gravimetric method*

EN 681-1, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 705:1994, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Methods for regression analysis and their use*

EN 761, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the creep factor under dry conditions*

EN 978, *Underground tanks of glass-reinforced plastics (GRP) — Determination of factor alpha and factor beta*

EN 1119 *Plastics piping systems — Joints for glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness and resistance to damage of flexible and reduced-articulation joints*

EN 1120, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Determination of the resistance to chemical attack from the inside of a section in a deflected condition*

EN 1226, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test method to prove the resistance to initial ring deflection*

EN 1228:1996, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial specific ring stiffness*

EN 1393, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial longitudinal tensile properties*

EN 1394, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of initial apparent circumferential tensile strength*

EN 1447, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Determination of long-term resistance to internal pressure*

EN 1796:2006, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*

EN 14364:2006, *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 ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126:2005)*

ISO 7432, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of locked socket-and-spigot joints, including double-socket joints, with elastomeric seals*

ISO 8483, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of bolted flange joints*

ISO 8533, *Glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods to prove the design of cemented or wrapped joints*

ISO 10468, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term specific ring creep stiffness under wet conditions and calculation of the wet creep factor*

ISO 10471, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term ultimate bending strain and the long-term ultimate relative ring deflection under wet conditions*

ISO 14828, *Glass-reinforced thermosetting plastics (GRP) pipes — Determination of the long-term specific ring relaxation stiffness under wet conditions and calculation of the wet relaxation factor*

### **3 Terms, definitions and abbreviations**

For the purposes of this Technical Specification, the terms, definitions and abbreviations given in EN 14364:2006 and EN 1796:2006 and the following apply.

#### **3.1 Definitions**

##### **3.1.1**

##### **certification body**

impartial body, governmental or non-governmental, possessing the necessary competence and responsibility to carry out certification of conformity according to given rules of procedure and management

##### **3.1.2**

##### **inspection body**

impartial organization or company, approved by a certification body, as possessing the necessary competence to verify and/or to carry out initial type testing, audit testing and/or inspection of the manufacturer's factory production control in accordance with the relevant European Standard

##### **3.1.3**

##### **testing laboratory**

laboratory which measures, tests, calibrates or otherwise determines the characteristics of the performance of materials and/or products

##### **3.1.4**

##### **quality system**

organizational structure, responsibilities, procedures, processes and resources for implementing quality management (see EN ISO 9000 [4])

##### **3.1.5**

##### **quality plan**

document setting out the specific quality practices, resources and sequence of activities relevant to a particular product or range of products