
Cevni sistemi iz polimernih materialov za odvodnjavanje, kanalizacijo in oskrbo z vodo, s tlakom in brez njega - S steklenimi vlakni okrepljeni duromerni materiali (GRP), ki temeljijo na nenasičeni poliestrski smoli (UP) - Navodilo za ugotavljanje skladnosti

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

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Systemes 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) a base de résine polyester (UP) - Guide pour l'évaluation de conformité

Ta slovenski standard je istoveten z: CEN/TS 14632:2006

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
91.140.60	Sistemi za oskrbo z vodo	Water supply systems
91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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 SPÉCIFICATION TECHNIQUE
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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

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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.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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CEN/TS 14632:2006 (E)

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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.

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CEN/TS 14632:2006 (E)**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.

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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^[1] 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^[2] or EN 45012^[3], 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)*

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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.

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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

3.1.6
acceptable quality level
(AQL)

when a continuous series of lots or batches is considered, the quality level which for the purposes of sampling inspection is the limit of a satisfactory process average (see ISO 2859-1 [5] and ISO 3951)

NOTE The designation of an AQL does not imply that a manufacturer has the right knowingly to supply any non conforming unit of product.

3.1.7
preliminary type test
(PTT)

test carried out by or on behalf of the manufacturer to prove that a material, component, joint or assembly is capable of conforming to the relevant requirement

3.1.8
initial type test
(ITT)

test carried out by or on behalf of a certification body for certification purposes

3.1.9
batch release test
(BRT)

test performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released

3.1.10
reduced long-term test
(RLTT)

test using shorter time periods than those specified for the long-term test. The RLTT results are to be compared to the results from the long-term test to verify that the current performance of a material or component conforms to the initially established long-term performance

3.1.11
process verification test
(PVT)

test performed by or on behalf of the manufacturer on materials, components, joints or assemblies at specified intervals to confirm that the process continues to be capable of producing components conforming to the requirements given in relevant standards

NOTE Such tests are not required to release batches of components and are carried out as a means of process control.

3.1.12
audit test
(AT)

test performed by, or on behalf of the certification body to confirm that a material, component, joint or assembly continues to conform to the requirements of the relevant standard and to provide information to assess the effectiveness of the quality system (see 3.1.4)

3.1.13
witnessed test
(WT)

test accepted by the certification body for initial type testing (ITT) (see 3.1.8) and/or audit testing (AT) (see 3.1.12), which is carried out by, or on behalf of, the manufacturer and supervised by a representative of the certification body who is qualified in testing

CEN/TS 14632:2006 (E)**3.1.14****indirect test****(IT)**

test performed by the manufacturer using a different parameter and/or test method from that specified, for which the correlation with the specified parameter or test has been verified

3.1.15**batch**

clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material conforming to the same specification

3.1.16**lot**

clearly identifiable sub-division of a batch for inspection purposes (see 3.1.15)

3.1.17**group**

collection of similar components from which samples are selected for testing purposes

3.1.18**sample**

one or more units drawn from a batch (see 3.1.15) or a lot (see 3.1.16) selected at random without regard to quality

NOTE The number of units in the sample is the sample size.

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3.1.19**inspection level**

relationship between the lot or batch size and the sample size (see ISO 2859-1 [5])

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3.2 Abbreviations

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NOTE 1 For reasons of avoiding misunderstanding the following abbreviations are kept the same in each of the languages. For the same reason the terms are given in the three languages.

NOTE 2 In the French language the abbreviation for "acceptable quality level" (AQL) is NQA, however for the purposes of this Technical Specification for all three languages the same abbreviation (AQL) is used.

AQL en: acceptable quality level
fr: niveau de qualité, acceptable
de: annehmbares Qualitätsniveau

AT en: audit test
fr: essai d'audit
de: Überwachungsprüfung

BRT en: batch release test
fr: essai de libération de campagne de fabrication
de: Freigabepfung einer Charge

IT en: indirect test
fr: essai indirect
de: indirekte Prüfung

ITT en: initial type test
fr: essai de type initial
de: Erst-Typprüfung

PTT	en: preliminary type test fr: essai de type préliminaires de: vorausgehende Typprüfung
PVT	en: process verification test fr: essai de vérification du procédé de fabrication de: Prozessüberprüfung
RLTT	en: reduced long-term test fr: essai à long terme écourté de: verkürzte Langzeitprüfung
WT	en: witnessed test fr: essai de témoins de: beaufsichtigte Prüfung

4 Requirements

4.1 General

4.1.1 The materials, pipes, fittings and joints shall conform to the requirements in the referring standard taking into account the applicable AQL. The quality plan shall show how an AQL of 6,5 % will be achieved.

4.1.2 Pipes, fittings and joints shall be produced by the manufacturer under a quality system including a quality plan.

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4.2 Testing and inspection

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4.2.1 General

4.2.1.1 Records of inspection and test

Records should be maintained for a minimum of ten years or as required by national regulations.

4.2.1.2 Indirect testing

Generally, testing shall be performed according to the test method referred to in the relevant standard. Indirect testing may be used for the BRT and PVT characteristics as indicated in 4.2.3.1 and 4.2.3.2. Indirect testing shall not be applied to type testing. The correlation or safe relationship of the indirect testing to the specified testing shall be documented in the manufacturer's quality plan and if third party certification is involved the IT shall be accepted by the certification body. The continuing validity of the indirect testing shall be checked at regular intervals. In cases of dispute the test methods referred to in the relevant standard shall be used for BRT or PVT, using RLTT where applicable.

4.2.1.3 Testing classification

In the relevant standard, reference is made to type tests and quality control tests. These are classified as follows:

- a) type tests:
 - 1) preliminary type tests (PTT);
 - 2) initial type tests (ITT);
 - 3) audit tests (AT).
- b) quality control tests:
 - 1) batch release tests (BRT);

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2) process verification tests (PVT).

4.2.1.4 Sampling**4.2.1.4.1 General**

Where different concepts of design or production are used then these are different products and shall be treated separately.

4.2.1.4.2 Sampling for type testing

For type test purposes (see 4.2.1.3 and 4.2.2) samples shall be obtained from type test groups defined by the conditions in Table 1.

Table 1 — Groups for type test purposes

Group	Limitation of groups
1	$100 \leq DN < 600$
2	$DN \geq 600$ and $DN \times PN^{0.5} \leq 3\,800$
3	$DN \geq 600$ and $DN \times PN^{0.5} > 3\,800$

If, when using the above groupings, there is only one product in a type test group then that product may be included in an adjacent group.

When two or more type test groups are manufactured the full range of long-term type tests (see Table 3 and Table 4) shall be performed on products from one group. The other type test group(s) may be covered by RLTT.

Grouping does not apply to joints (see Table 4).

4.2.1.4.3 Sampling for quality control testing

For quality control test purposes samples shall be obtained from either groups or individual products. A quality control group consists of a range of:

- diameter (DN)
- stiffness (SN)
- pressure class (PN)

An individual product consists of

- a particular diameter
- having a particular stiffness
- and a particular pressure class

When quality control grouping is used, the manufacturer shall document his grouping system based on his process and production activity. The grouping plan shall assure that over an extended period of time, as defined by the manufacturer in his quality plan, all products produced are sampled.

4.2.1.5 Sample size and sampling rate

The sample size to be used for either of the testing classes in 4.2.1.4 is detailed in the relevant standard when the characteristic is specified. For batch release testing the sampling size and sampling rate shall conform to the requirements detailed in 4.2.3.1.