
**Cevni sistemi iz polimernih materialov za oskrbo z vodo - Polietilen (PE) - 7. del:
Ugotavljanje skladnosti**

Plastics piping systems for water supply - Polyethylene (PE) - Part 7: Guidance for the assessment of conformity

Kunststoff-Rohrleitungssysteme für die Wasserversorgung - Polyethylen (PE) - Teil 7 :
Empfehlungen für die Beurteilung der Konformität

Systemes de canalisations en plastiques pour l'alimentation en eau - Polyéthylène (PE) -
Partie 7: Guide pour l'évaluation de la conformité

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CEN/TS 12201-7:2003 (E)

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Foreword

This document CEN/TS 12201-7:2003 has been prepared by Technical Committee CEN /TC 155, "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This Technical Specification can be used to support the elaboration of national third party certification procedures for products conforming to the applicable Parts of EN 12201.

This Technical Specification is a Part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work being undertaken in ISO/TC 138 "*Plastics pipes, fittings and valves for the transport of fluids*", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with standards on general functional requirements and standards on recommended practice for installation.

EN 12201 consists of the following Parts, under the general title "*Plastics piping systems for water supply — Polyethylene (PE)*".

— *Part 1: General*

— *Part 2: Pipes*

— *Part 3: Fittings*

— *Part 4: Valves*

— *Part 5: Fitness for purpose of the system*

— *Part 7: Guidance for the assessment of conformity (this Technical Specification)*

NOTE It was decided not to publish a Part 6: Recommended practice for installation. Instead, existing national installation practices would be applicable.

This Part of EN 12201 includes the following:

— *Annex A (Normative) Change of PE compound*

— *Annex B (Normative) Change of design*

— *Bibliography*

System Standards for piping systems of other plastics materials used for the conveyance of water under pressure include the following:

EN 1452, *Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U)*

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

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

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CEN/TS 12201-7:2003 (E)**Introduction**

The System Standard, of which this is Part 7, specifies the requirements for a piping system and its components made from polyethylene (PE), intended to be used for water supply intended for human consumption including the conveyance of raw water prior to treatment.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this Technical Specification:

- 1) This Technical Specification provides no information as to whether the product may be used without restriction in any Member States of the EU or EFTA;
- 2) It should be noted that, while awaiting adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

This Part of EN 12201 gives guidance for the procedures and requirements for the assessment of conformity of materials, components, joints and assemblies and is intended to be used by certification bodies, inspection bodies, testing laboratories and manufacturers.

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1 Scope

This Part of EN 12201 gives guidance for the assessment of conformity to be included in the manufacturer's quality plan as part of his quality system.

This Technical Specification includes:

- a) requirements for materials, components, joints and assemblies given in Parts 1 to 5 of EN 12201;
- b) requirements for the manufacturer's quality system;

NOTE 1 It is recommended that the quality system conforms to EN ISO 9001:2000 [1]

- c) definitions and procedures to be applied if third party certification is involved.

NOTE 2 If third party certification is involved, it is recommended that the certification body is accredited to EN 45011[2] or EN 45012[3], as applicable.

In conjunction with one or more Parts of EN 12201 (see Foreword) it is applicable to polyethylene (PE) piping systems intended to be used for water supply intended for human consumption including the conveyance of raw water prior to treatment.

2 Normative references

This Technical Specification incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Technical Specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12201-1:2003, *Plastics piping systems for water supply — Polyethylene (PE) — Part 1: General.*

EN 12201-2:2003, *Plastics piping systems for water supply — Polyethylene (PE) — Part 2: Pipes.*

EN 12201-3:2003, *Plastics piping systems for water supply — Polyethylene (PE) — Part 3: Fittings.*

EN 12201-4:2001, *Plastics piping systems for water supply — Polyethylene (PE) — Part 4: Valves.*

EN 12201-5:2003, *Plastics piping systems for water supply — Polyethylene (PE) — Part 5: Fitness for purpose of the system.*

EN ISO 6259-1:2001, *Thermoplastics pipes — Determination of tensile properties — Part 1: General test method (ISO 6259-1:1997).*

EN ISO 12162:1995, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient (ISO 12162:1995).*

ISO 2859-1:1999, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection.*

ISO 3951:1989, *Sampling procedures and charts for inspection by variables for percent nonconforming.*

ISO 6259-3:1997, *Thermoplastics pipes — Determination of tensile properties — Part 3: Polyolefin pipes.*

ISO 13954:1997, *Plastics pipes and fittings — Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than or equal to 90 mm.*

ISO 13955:1997, *Plastics pipes and fittings — Crushing decohesion test for polyethylene (PE) electrofusion assemblies.*

ISO/DIS 13956:1996, *Plastics pipes and fittings — Determination of cohesive strength — Tear test for polyethylene (PE) assemblies.*

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3 Terms, definitions, symbols and abbreviations

For the purposes of this Technical Specification the terms, definitions, symbols and abbreviations given in Part 1 and Part 3 to Part 5 of EN 12201, apply together with the following.

3.1 Terms and 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 organisation 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 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 products

3.1.4

quality management system

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

3.1.5

quality management 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

type testing (TT)

tests performed to prove that the material, component, joint or assembly is capable of conforming to the requirements given in the relevant standard

3.1.7

preliminary type testing (PTT)

type testing carried out by, or on behalf of, the manufacturer

3.1.8

initial type testing (ITT)

type testing 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 that batch can be released

3.1.10

process verification test (PVT)

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

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

3.1.11**audit test (AT)**

test performed by, or on behalf of a certification body to confirm that the material, component, joint or assembly continues to conform to the requirements given in the standard and to provide information to assess the effectiveness of the Quality System

3.1.12**indirect test (IT)**

test performed by the manufacturer different from that specified for that particular characteristic, having verified its correlation with the specified test

3.1.13**witness testing (WT)**

testing accepted by a certification body for initial type testing and/or audit testing, which is carried out by, or on behalf of, the manufacturer and supervised by a representative of the certification body, qualified in testing

3.1.14**material batch**

clearly identifiable quantity of a particular material

3.1.15**compound batch**

clearly identifiable quantity of a given homogeneous compound manufactured under uniform conditions. The compound batch is defined and identified by the compound manufacturer

3.1.16**production batch**

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

3.1.17**pipe batch**

number of pipes, all of them the same nominal diameter and nominal wall thickness, extruded from the same compound on the same machine. The pipe batch is defined and identified by the pipe manufacturer

3.1.18**fitting or valve batch**

number of fittings or valves of the same type, identical dimensional characteristics, all the same nominal diameter and wall thickness, from the same compound. The fitting or valve batch is defined and identified by the fitting or valve manufacturer

3.1.19**lot**

clearly identifiable sub-division of a batch for inspection purposes

3.1.20**sample**

one or more units of product drawn from a batch or lot, selected at random without regard to quality

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

3.1.21**acceptable quality level (AQL)**

when a continuous series of lots or batches is considered, the quality level which for purpose of sampling inspection is the limit of a satisfactory process average (see ISO 2859-1:1999 and ISO 3951:1989)

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

3.1.22**inspection level**

relationship between the lot or batch size and the sample size (see ISO 2859-1:1999)

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CEN/TS 12201-7:2003 (E)**3.1.23****group**

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

3.1.24**product type**

pipe or an individual fitting or valve or their main parts, of the same design, from a particular compound

3.1.25**body type**

valve body which can have different end connections

3.1.26**cavity**

part of the injection mould which gives the form to the injection moulded product

3.2 Abbreviations

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 purpose 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: annehmbare Qualitätsgrenzlage

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

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

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

ITT en: initial type testing
fr: essais de type initiaux
de: Erst-Typprüfung

PTT en: preliminary type testing
fr: essais de type préliminaire
de: vorausgehende Typprüfung

PVT en: process verification test
fr: essai de vérification du procédé de fabrication
de: Prozessüberprüfung

TT en: type test
fr: essai de type
de: Typprüfung

WT en: witness testing
fr: essais témoin
de: Prüfung unter Aufsicht

4 Requirements

4.1 General

4.1.1 Materials, components, joints and assemblies shall conform to the requirements in Parts 1 to 5 of EN 12201, as applicable.

4.1.2 Components and/or assemblies shall be produced by the manufacturer under a quality system which includes a quality plan.

4.2 Effect on water quality

Attention is drawn to the requirements of National regulations (see introduction).

4.3 Testing and inspection

4.3.1 Grouping

For purpose of this Technical Specification the following groups for pipes, fittings and valves given in Table 1 shall apply.

Table 1 — Size groups for pipes, fittings and valves

	Size group			
	1	2	3	4
Nominal outside diameter, d_n	≥ 16 and < 75	≥ 75 and < 250	≥ 250 and < 710	≥ 710

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4.3.2 Type tests (TT)

4.3.2.1 General

Type tests shall demonstrate that products conform to all requirements for the characteristics in Tables 2 to 5 as applicable.

In addition, relevant type tests shall be carried out whenever there is a change in design, in material and/or in the production method, other than routine in-process adjustments, and to extensions of the product range.

In the case of change in PE compound as defined in A.2, relevant type tests required for re-evaluation given in A.3 shall apply.

For the extension of the product range for fittings and valves the relevant characteristics given in Tables 4 and 5 shall be tested. If applicable the test schedule shall be agreed between the certification body and the manufacturer.

4.3.2.2 Preliminary type testing (PTT)

The manufacturer shall demonstrate that the products conform to all requirements of the characteristics given in Tables 3 to 5.

For the purpose of this Technical Specification the compound manufacturer shall demonstrate the conformity to all requirements given in Table 2.

4.3.2.3 Initial type testing (ITT)

If third party certification is involved the certification body shall assess the conformity of a product to all requirements for characteristics given in Tables 2 to 5.

In such case, the assessment shall be performed by validation or testing, using the sampling procedure in Tables 2 to 5 and grouping according to 4.3.1, in an approved testing laboratory or by witness testing.