

**Ductile iron fittings for PVC-U or PE piping systems -
Requirements and test methods**

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NATIONAL FOREWORD

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English Version

Ductile iron fittings for PVC-U or PE piping systems - Requirements and test methods

Raccords en fonte ductile pour systèmes de canalisations
en PVC-U ou en PE - Prescriptions et méthodes d'essai

Duktile Gussformstücke für PVC-U oder PE-
Rohrleitungssysteme - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 23 June 2012.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	5
3 Terms and definitions	5
4 Technical requirements	8
4.1 General.....	8
4.2 Dimensional requirements.....	10
4.3 Material characteristics	12
4.4 Coatings.....	13
4.5 Marking	14
4.6 Leak tightness.....	14
5 Performance requirements for joints.....	14
5.1 General.....	14
5.2 Leak tightness of flexible joints	15
5.3 Long term hydrostatic strength test.....	17
5.4 Flanged joints.....	19
6 Test methods.....	19
6.1 Tensile testing for ductile iron	19
6.2 Brinell hardness for ductile iron	20
6.3 Works leak tightness test	21
7 Performance tests.....	21
7.1 Leak tightness of joints to internal hydrostatic pressure	21
7.2 Leak tightness of joints to negative internal pressure	23
7.3 Leak tightness of joints to dynamic internal pressure	24
7.4 Long term hydrostatic strength test for joints of fittings for PE pipes.....	24
7.5 Pull out test at 25 °C for restrained joints for PE pipes	25
7.6 Long term hydrostatic strength test for joints of fittings for PVC-U pipe	25
8 Tables of dimensions	26
8.1 Dimensions of sockets for push-in flexible joints.....	26
8.2 Dimensions of sockets for mechanical flexible joints	28
8.3 Dimensions of fittings	29
9 Evaluation of conformity.....	44
9.1 General.....	44
9.2 Initial performance testing.....	45
9.3 Factory production control (FPC)	46
Bibliography	49

Foreword

This document (EN 12842:2012) has been prepared by Technical Committee CEN/TC 203 "Cast iron pipes, fittings and their joints", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12842:2000.

The significant changes made since the previous version are as follows:

- a) Wording (relating to accessories, fittings, coupling and flange adaptor) modified in accordance with EN 545;
- b) Improvement of shear load test for flange adaptor and one socket fitting;
- c) Addition of aging test for PE pipe fittings and accessories.

This European Standard was prepared in co-operation with CEN/TC 155 "Plastics piping systems".

This standard is in conformity with the general requirements already established by CEN/TC 164 in the field of water supply.

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

- this standard provides no information as to whether the product may be used without restriction in any of the member states of the EU or EFTA;
- it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of these products remain in force.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the requirements and associated test methods applicable to ductile iron fittings, ductile iron and mild steel couplings and flange adaptors and their joints to be used with poly(vinyl chloride) (PVC-U) pipes or polyethylene (PE) pipes. It is in conformity with EN 1452-1 to -5, ENV 1452-6 and -7 and EN 12201-1 to -5 respectively, for the construction of pipelines:

- to convey water (e.g. water intended for human consumption);
- with or without pressure;
- to be installed below or above ground, inside or outside buildings.

This European Standard is not intended to cover sewerage applications, where additional requirements may be necessary.

This European Standard is applicable to fittings which are:

- manufactured with socketed, flanged or spigot ends;
- supplied externally and internally coated;
- suitable for PE and PVC-U pipes with fluid temperatures between 0°C and 25°C, excluding frost, and for pressures up to 16 bar (PFA). For higher temperatures (up to 45°C for PVC-U or 40°C for PE) the PFA is derated as given in EN 1452 and EN 12201;
- not intended for use in areas subjected to reaction to fire regulations.

NOTE 1 This does not preclude special arrangements for the products to be used at higher temperatures. Temperature limitations and pressure limitations are those coming from the PVC-U or PE pipes.

This European Standard covers ductile iron fittings, couplings and flange adaptors cast by any type of foundry process or manufactured by fabrication of cast components, as well as corresponding joints, in a size range extending from DN 60 to DN 700, to be used with pipes of external diameter from 63 mm to 710 mm.

As long as no equivalent European Standard exists for mild steel accessories, this European Standard also covers couplings and flange adaptors for use with PVC-U and PE pipes which are fabricated partly or entirely from mild steel as well as corresponding joints, in a size range extending from DN 60 to DN 700, to be used with pipes of external diameter from 63 mm to 710 mm.

This European Standard specifies requirements for materials, dimensions and tolerances, mechanical properties and standard coatings. It also gives minimum performance requirements for all components, including restrained and non-restrained flexible joints. Joint design and gasket shapes are outside the scope of this standard.

This European Standard does not cover fittings, couplings and flange adaptors intended to be used with different pipe materials other than PVC-U and PE.

NOTE 2 Fittings, couplings and flange adaptors complying with the requirements of this European Standard for PVC-U also usually meet the requirements for PVC-O and PVC-A pipes. Where this is not the case, the manufacturer is expected to declare this in the relevant literature.

NOTE 3 In this European Standard, all pressures are relative pressures, expressed in bars (100 kPa = 1 bar).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 805:2000, *Water supply — Requirements for systems and components outside buildings*

EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 10025-1:2004, *Hot rolled products of structural steels — General technical delivery conditions*

EN 10310, *Steel tubes and fittings for onshore and offshore pipelines — Internal and external polyamide powder based coatings*

EN 14901, *Ductile iron pipes, fittings and accessories — Epoxy coating (heavy duty) of ductile iron fittings and accessories — Requirements and test methods*

EN 15189, *Ductile iron pipes, fittings and accessories — External polyurethane coating for pipes — Requirements and test methods*

EN 15655, *Ductile iron pipes, fittings and accessories — Internal polyurethane lining for pipes and fittings — Requirements and test methods*

EN ISO 1167-1:2006, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 4016, *Hexagon head bolts — Product grade C (ISO 4016)*

EN ISO 4034, *Hexagon nuts — Product grade C (ISO 4034)*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1)*

EN ISO 7091, *Plain washers — Normal series — Product grade C (ISO 7091)*

EN ISO 9001:2008, *Quality management systems — Requirements (ISO 9001:2008)*

EN ISO 13846:2000, *Plastic piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure (ISO 13846:2000)*

3 Terms and definitions

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

3.1

ductile iron

cast iron used for fittings in which graphite is present substantially in spheroidal form

3.2

fitting

casting other than a pipe which allows pipeline deviation, change of direction or bore