ILNAS

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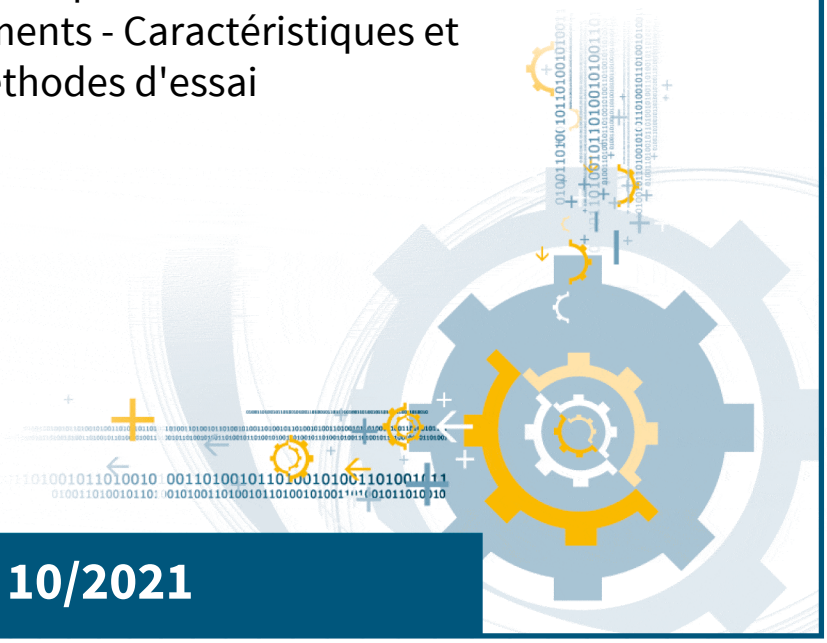
ILNAS-EN 877:2021

Cast iron pipe systems and their components for the evacuation of water from works - characteristics and test methods

Gussrohrsysteme zur Ableitung von Wasser aus Entwässerungsanlagen - Eigenschaften und Prüfverfahren

Réseaux de canalisations en fonte et leurs composants pour l'évacuation des eaux des bâtiments - Caractéristiques et méthodes d'essai



10/2021

National Foreword

This European Standard EN 877:2021 was adopted as Luxembourgish Standard ILNAS-EN 877:2021.

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ILNAS-EN 877:2021 **EN 877**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2021

ICS 23.040.01

Supersedes EN 877:1999

English Version

Cast iron pipe systems and their components for the evacuation of water from works - characteristics and test methods

Réseaux de canalisations en fonte et leurs composants pour l'évacuation des eaux des bâtiments - Caractéristiques et méthodes d'essai

Rohrsysteme aus Gusseisen und ihre Komponenten zur Entwässerung von Gebäuden - Merkmale und Prüfverfahren

This European Standard was approved by CEN on 16 August 2021.

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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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 877:2021 E

Contents

Page

European foreword

This document (EN 877:2021) 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 April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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

This document has been prepared under a Mandate given to CEN by the European Commission and the European Free Trade Association.

This document supersedes EN 877:1999, EN 877:1999/A1:2006 and EN 877:1999/A1:2006/AC:2008.

This document includes the following significant technical changes with respect to the previous:

a) Product standard has been extended to kit and components standard.

b) Chapter 4 about characteristics has been restructured with all essential characteristics first.

c) Grip collars have been included as kit components.

d) Pressure tightness including Fittings with access as a kit component has been added.

e) Fire reaction classification has been amended with the agreement of WG 4 of TC 127.

f) Chapter 6 about Assessment and verification of constancy of performance – AVCP has been updated.

This document is one of a series of standards for cast iron products for pipelines for various applications.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies product characteristics, test/assessment methods and how to express test/assessment results. Cast iron pipelines kits are usually composed of cast iron pipes, fittings, joints and accessories.

This document covers the range of nominal diameter from DN 40 to DN 600 inclusive.

The cast iron includes grey cast iron and ductile cast iron.

The roof gullies used for siphonic systems are outside the scope of this document.

Sewerage applications are outside the scope of this document.

It is intended to be used for the construction of gravity or vacuum discharge pressurized or unpressurised networks installed inside and/or outside works, above and/or below ground and in construction works.

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.

EN 598:2007+A1:2009, *Ductile iron pipes, fittings, accessories and their joints for sewerage applications - Requirements and test methods*

EN 681-1:1996, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 10204, *Metallic products — Types of inspection documents*

EN 13501-1:2018, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1)*

EN ISO 898-2, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread (ISO 898-2)*

EN ISO 1514, *Paints and varnishes — Standard panels for testing (ISO 1514)*

EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 2409, *Paints and varnishes — Cross-cut test (ISO 2409)*

EN ISO 2808, *Paints and varnishes — Determination of film thickness (ISO 2808)*

EN ISO 2812-1, *Paints and varnishes — Determination of resistance to liquids — Part 1: Immersion in liquids other than water (ISO 2812-1)*

EN ISO 3506-1, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs with specified grades and property classes (ISO 3506-1)*

EN ISO 3506-2, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts with specified grades and property classes (ISO 3506-2)*

EN ISO 4628-2, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 2: Assessment of degree of blistering (ISO 4628-2)*

EN ISO 4628-3, *Paints and varnishes — Evaluation of degradation of coatings — Designation of quantity and size of defects, and of intensity of uniform changes in appearance — Part 3: Assessment of degree of rusting (ISO 4628-3)*

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

EN ISO 6892-1:2019, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2019)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO/CIE 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* colour space (ISO/CIE 11664-4)*

EN ISO 11925-2, *Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2)*

ISO 185:2020, *Grey cast irons — Classification*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

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

3.1
discharge system for buildings
system of pipes, fittings, accessories and joints used to collect and drain waste water and rainwater from a building; it comprises discharge pipes, stack ventilation and rainwater pipes, installed within the limits of a building or attached to the building and this includes pipes between the building and the inspection chambers

Note 1 to entry: This applies to gravity or vacuum, inside and outside buildings, above and below ground.

3.2
drain
system of pipes, fittings, accessories and joints installed outside the limits of a building in order to connect the discharge system of this building to a sewer or a septic tank

3.3
sewer
system of pipes designed to collect waste water and rainwater from buildings and surface water and to convey them to the point of disposal or treatment

3.4
cast iron
alloy of iron and carbon in which graphite can be present in different forms

3.5
kit
construction product placed on the market by a single manufacturer as a set of at least two separate components that need to be put together to be incorporated in the construction work

Note 1 to entry: The wording cast iron pipe systems is here in this document equivalent to cast iron pipe kits.

[SOURCE: CPR N° 305/2011 of 9 March 2011]

3.6
pipe
kit component casting of uniform bore, straight in axis, normally having plain ends but which can also be socketed

3.7
fitting
kit component in cast iron which allows a deviation, a change of direction or diameter, including access elements and traps

3.8
coupling
kit component, which is a jointing element for pipes and/or fittings subjected to internal or external pressure

3.9
gasket
kit component providing sealing function to joints

3.10
clamping
kit component, which is a securing element for pipes and/or fittings subjected to internal pressure, providing axial restraint to the end thrust arising from a change of direction, blank end etc., e.g. grip collars

3.11
grip collar
kit component that ensures axial restraint up to a defined pressure by mounting it over a joint

3.12
joint
connection between the ends of pipes and/or fittings, including the coupling or clamping component, with sealing effected by elastomeric gasket(s); as soon as it is an assembly of several kit components as coupling, clamping or gaskets, the joint is a kit

3.13
accessory
kit component, any element used in a network, e.g. for maintenance or inspection reasons

3.14
nominal size
DN
alphanumerical designation of size for components of a pipework system, to be used for reference purposes, which comprises the letters DN followed by a dimensionless which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections

Note 1 to entry: In this document, it is the bore.

[SOURCE: EN ISO 6708]

3.15
length
effective length of a pipe or fitting

Note 1 to entry: For double spigot pipes and fittings, the effective length is equal to the overall length. For spigot and socket pipes and fittings, the effective length is equal to the overall length minus the spigot insertion depth as given by the manufacturer.

3.16
range of products
design system produced by one manufacturer for which the test results for one or more characteristics from any one product within the range are valid for all other products within this range

3.17
cast iron pipe system under vacuum
siphonic system for draining rainwater and vacuum system for waste waters

3.18
design system
collection of components from which a "kit" may be created for subsequent installation in the works

Note 1 to entry: A design system might, for example, be presented in a supplier's catalogue, from which the purchaser can make a choice. A design system can give rise to one or many different "kits", but the system itself cannot be bought.

3.19
assembled system
kit after it has been installed in the works

Note 1 to entry: An "assembled system" may be made up only of the "kit" or it may comprise the "kit" assembled with one or more other products which could themselves be construction products.

4 Characteristics for cast iron pipe systems and components

4.1 Crushing strength (only for grey cast iron)

Cast iron components as pipes, fittings and accessories shall have the minimal crushing strength given in Table 7. Test method is described in 5.6.

The assessment of each of those components insures the assessment of the kit.