TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER REPORT

CEN/TR 17996

February 2024

ICS 23.040.10; 23.040.40

English Version

Ductile iron pipes, fittings, accessories and their joints for sewerage applications - Guidelines for Pipelines Installation

Rohre, Formstücke, Zubehörteile aus duktilem Gusseisen und ihre Verbindungen für Wasserleitungen - Richtlinien für die Installation von Rohrleitungen

This Technical Report was approved by CEN on 12 February 2024. It has been drawn up by the Technical Committee CEN/TC 203.

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European foreword

This document (CEN/TR 17996:2024) has been prepared by Technical Committee CEN/TC 203 “Cast iron pipes, fittings and their joints”, the secretariat of which is held by AFNOR.

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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.

1 Scope

This document is a complementary document for the installation of ductile iron pipes, fittings, accessories and their joints, covered by EN 598:2009 harmonized standard. It is intended to describe, in a wider perspective, installation technologies, tools and pipelines particular examples, applicable for the construction, outside buildings, of:

— drainage pipeline systems;

— raw water pipeline systems;

— sewage pipeline systems;

— water reuse pipeline systems;

— pipeline systems conveying surface water (e.g. rainwater), domestic wastewater and/or certain types of industrial effluents, either in separate systems or in combined systems;

— operating without pressure (gravity sewers) or with positive or negative pressure;

— below or above ground installation types.

It also gives some site operation/site instructions for the application of fittings, intended to be used for the connection of ductile iron drains and sewers to other materials as plastic, concrete, vitrified clay, etc.

This document is not intended to cover:

— hydraulic design of drains and sewers systems outside buildings. For this purpose, EN 16933-2 applies;

— construction and site testing of drains and sewers. For this purpose, EN 1610 applies;

— trenchless construction and testing of drains and sewers. For this purpose, EN 12889 applies.

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 476:2011, *General requirements for components used in drains and sewers*

EN 545:2010, *Ductile iron pipes, fittings, accessories and their joints for water pipelines - Requirements and test methods*

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

EN 752:2017, *Drain and sewer systems outside buildings - Sewer system management*

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

EN 1610:2015, *Construction and testing of drains and sewers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 598:2009, EN 476:2011, EN 1333:2006, EN 773:1999 and EN 1610:2015 apply.

ISO and IEC maintain terminology 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
ductile iron
cast iron used for pipes, fittings and accessories in which graphite is present substantially in spheroidal form

3.2
pipe
casting of uniform bore, straight in axis, having either socket, spigot or flanged ends, except for flanged-socket pieces, flanged-spigot pieces and collars which are classified as fittings

3.3
fitting
casting other than a pipe which allows pipeline deviation, change of direction or bore. In addition, flanged-socket pieces, flanged-spigot pieces and collars are also classified as fittings

3.4
accessory
any casting/fabrication other than a pipe or fitting which is intended for the use in a ductile iron pipeline including:

— inspection chambers (see 3.5);

— manholes (see 3.6);

— glands and bolts for mechanical flexible joints (sec 3.16);

— glands, bolts and locking rings for restrained flexible joints (see 3.17);

— adjustable flanges and flanges to be welded or screwed;

— pipe saddles for service pipe connections;

— flange adaptors for use with ductile iron pipes and fittings;

— couplings for use with ductile iron pipes and fittings;

— valves for use with ductile iron pipes and fittings

3.5
inspection chamber
structure with a removable cover, constructed on a drain or sewer that permits the introduction of cleaning and inspection equipment from surface level, but does not provide access for personnel

[SOURCE EN 16323:2014]

3.6
manhole
structure with a removable cover, constructed on a drain or sewer to permit entry by personnel

[SOURCE EN 16323:2014]

3.7
access chamber
component of a sewer, with one or two side inlets set at a variety of angles, ideal for making single connections

3.8
flange
flat circular end of a pipe or fitting extending perpendicular to its axis, with bolt holes equally spaced on a circle

Note 1 to entry: A flange is either fixed (e.g. integrally cast or welded-on) or adjustable; an adjustable flange comprises a ring, in one or several parts assembled together, which bears on an end joint hub and can be freely rotated around the pipe axis before jointing.

3.9
spigot
male end of a pipe or fitting

3.10
spigot end length
spigot over a length equal to maximum insertion depth plus 50 mm

3.11
socket
female end of a pipe or fitting to make the connection with the spigot of the next component

3.12
gasket
sealing component of a joint

3.13
joint
connection between the ends of two pipes and/or fittings in which a gasket is used to effect a seal

3.14
flexible joint
joint which permits significant angular deflection both during and after installation and which can accept a slight offset of the centreline

3.15
push-in flexible joint
flexible joint assembled by pushing the spigot through the gasket in the socket of the mating component

3.16
mechanical flexible joint
flexible joint in which sealing is obtained by applying pressure to the gasket by mechanical means, e.g. a gland