

District cooling pipes - Bonded single pipe systems for directly buried cold water networks - Part 3: Factory made steel valve assembly for steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylene

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 17415-3:2021 sisaldab Euroopa standardi EN 17415-3:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 17415-3:2021 consists of the English text of the European standard EN 17415-3:2021.
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English Version

**District cooling pipes - Bonded single pipe systems for
directly buried cold water networks - Part 3: Factory made
steel valve assembly for steel or plastic service pipe,
polyurethane thermal insulation and a casing of
polyethylene**

Réseaux d'eau glacée - Systèmes bloqués de tuyaux
pour les réseaux d'eau glacée enterrés directement -
Partie 3 : Assemblages d'appareils de robinetterie
manufacturés pour tubes de service en acier ou en
plastique, isolation thermique en polyuréthane et tube
de protection en polyéthylène

Fernkälterohre - Einzelrohr-Verbundsysteme für
direkt erdverlegte Fernkältenetze - Teil 3: Werkmäßig
gefertigte Stahl-Absperrarmaturen für Stahl- oder
Kunststoff-Mediumrohre, einer Wärmedämmung aus
Polyurethan und einer Ummantelung aus Polyethylen

This European Standard was approved by CEN on 18 July 2021.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17415-3:2021) has been prepared by Technical Committee CEN/TC 107 “Prefabricated district heating and district cooling pipe system”, the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by March 2022, and conflicting national standards shall be withdrawn at the latest by March 2022.

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Introduction

Factory made bonded single pipe systems for directly buried district cooling networks are of common technical usage. In order to ensure quality including product-related service life, to ensure safety in use, economical energy usage and to facilitate comparability in the market, CEN/TC 107 decided to set up standards for these products.

This document is one of a series of standards which form several parts of EN 17415, *District cooling pipes – Bonded single pipe systems for directly buried cold water networks*:

- Part 1: *Factory made pipe assembly of steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylene*;
- Part 2: *Factory made fitting assemblies of steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylene*;
- Part 3: *Factory made steel valve assembly for steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylene* (this document).

The other standards from CEN/TC 107 covering this subject are:

- EN 17414-1, *District cooling pipes — Factory made flexible pipe systems — Part 1: Classification, general requirements and test methods*;
- EN 17414-2, *District cooling pipes — Factory made flexible pipe systems — Part 2: Bonded system with plastic service pipes; requirements and test methods*;
- EN 17414-3, *District cooling pipes — Factory made flexible pipe systems — Part 3: Non bonded system with plastic service pipes; requirements and test methods*;
- EN XXXXX-1,¹ *District cooling pipes — Design and installation of thermal insulated bonded single and twin pipe systems for directly buried cold water networks — Part 1: Design*;
- EN XXXXX-2,¹ *District cooling pipes — Design and installation of thermal insulated bonded single and twin pipe systems for directly buried cold water networks — Part 2: Installation*;
- EN 489-1, *District heating pipes — Bonded single and twin pipe systems for buried hot water networks — Part 1: Joint casing assemblies and thermal insulation for hot water networks in accordance with EN 13941-1*;
- EN 14419, *District heating pipes — Bonded single and twin pipe systems for directly buried hot water networks — Surveillance systems*.

Waste management and recycling of materials is dealt with in Annex D.

¹ Under development.

1 Scope

This document specifies requirements, design and test methods for factory made thermally insulated bonded valve assemblies for directly buried district cooling distribution systems, comprising a steel valve from DN 15 to DN 1 200, rigid polyurethane foam insulation and a casing of polyethylene.

The valve assembly can also include the following additional elements: measuring wires, spacers and diffusion barriers.

This document applies only to insulated valve assemblies, for continuous operation with water at various temperatures (1 to 30) °C and a maximum operation pressure of 25 bar.

The design is based on an expected service life with continuous operation of a minimum 50 years.

NOTE An expected service life of 50 years presupposes that treated water is used.

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 19, *Industrial valves - Marking of metallic valves*

EN 736-1, *Valves - Terminology - Part 1: Definition of types of valves*

EN 1092-1, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

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

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

EN 12201-2:2011+A1:2013, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes*

EN 12266-1, *Industrial valves - Testing of metallic valves - Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements*

EN 13941-1, *District heating pipes - Design and installation of thermal insulated bonded single and twin pipe systems for directly buried hot water networks - Part 1: Design*

EN 14419, *District heating pipes - Bonded single and twin pipe systems for buried hot water networks - Surveillance systems*

EN 17248, *District heating and district cooling pipe systems - Terms and definitions*

EN 17415-1, *District cooling pipes - Bonded single pipe systems for directly buried cold water networks - Part 1: Factory made pipe assembly of steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylene*

EN 17415-2:2021, *District cooling pipes - Bonded single pipe systems for directly buried cold water networks - Part 2: Factory made fitting assemblies of steel or plastic service pipe, polyurethane thermal insulation and a casing of polyethylenen*

EN ISO 12944-2, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments (ISO 12944-2)*

EN ISO 12944-5, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 5: Protective paint systems (ISO 12944-5)*

CEN/TS 15223, *Plastics piping systems - Validated design parameters of buried thermoplastics piping systems*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 17248, EN 736-1 and EN 17415-1 apply.

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Requirements

4.1 Pressure ratings for valves

4.1.1 General

The valves shall be designed for use in pipe systems with a maximum operating pressure of 16 bar or 25 bar depending on the system design pressure.

The valves shall be able to withstand a strength test pressure of the district cooling system of 1,3 times the maximum operating pressure at ambient temperature in open and closed position.

4.1.2 Valves without indicated flow direction

Valves without an indicated flow direction shall support the pressure load in both directions.

4.2 Service temperatures for valves

The valves shall be able to withstand continuous operation with cold water at various temperatures in accordance with EN 17415-1.

4.3 Steel parts

4.3.1 General

Steel grades shall be in accordance with the steel material specifications in EN 17415-1.

All valves, steel pipes and steel components used for manufacturing of valve assemblies under the scope of this document shall as a minimum be delivered to the manufacturer with an inspection certificate 3.1 according to EN 10204. The inspection certificate shall on request be passed on to the client who orders the valve assemblies.

In case a material related inspection certificate 3.1 according to EN 10204 is required by the client who orders the valve assemblies, this information shall be given while placing the order with the manufacturer of the factory made valve assemblies.

NOTE Any later request for provision of such documentation could be too late and possibly can't be met by the manufacturer, since the manufacturer needs to organize the assignment of 3.1 certificates to valves and valve assemblies before starting the production.