
Cevi za daljinsko ogrevanje - Poviti dvocevni sistemi za neposredno vkopana vročevodna omrežja - 2. del: Tovarniško izdelan sestav fittingov in ventilov iz jeklene cevi, poliuretanske toplotne izolacije in zunanjega polietilenskega plašča

District heating pipes - Bonded twin pipe systems for directly buried hot water networks - Part 2: Factory made fitting and valve assemblies of steel service pipes, polyurethane thermal insulation and a casing of polyethylene

Fernwärmerohre - Doppelrohr-Verbundsysteme für direkt erdverlegte Fernwärmenetze - Teil 2: Werkmäßig gefertigtes Verbundformstück und vorgedämmte Absperrarmatur, bestehend aus Stahl-Mediumrohr, einer Wärmedämmung aus Polyurethan und einer Ummantelung aus Polyethylen

Tuyaux de chauffage urbain - Systèmes bloqués de bitubes pour les réseaux d'eau chaude enterrés directement - Partie 2: Assemblages de raccords et d'appareils de robinetterie manufacturés pour tube de service en acier, isolation thermique en polyuréthane et tube de protection en polyéthylène

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District heating pipes - Bonded twin pipe systems for directly buried hot water networks - Part 2: Factory made fitting and valve assemblies of steel service pipes, polyurethane thermal insulation and one casing of polyethylene

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Fernwärmerohre - Verbundmanteldoppelrohre für direkt erdverlegte Fernwärmenetze - Teil 2: Werkmäßig hergestelltes Verbundformstück und vorgedämmte Absperrarmatur, bestehend aus Stahl-Mediumrohr, Polyurethan-Wärmedämmung und einem Mantel aus Polyethylen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 107.

If this draft becomes a European Standard, 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.

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prEN 15698-2:2023 (E)**European foreword**

This document (prEN 15698-2:2023) 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 15698-2:2019.

The main changes compared to the previous edition are listed below:

- Alignment with the structure of EN 253;
- In alignment with the other standards of CEN/TC 107, explanatory information has been included in Annex B.

The EN 15698 series, under the title *District heating pipes — Bonded twin pipe systems for directly buried hot water networks*, is currently composed of the following parts:

- *Part 1: Factory made twin pipe assembly of steel service pipes, polyurethane thermal insulation and one casing of polyethylene;*
- *Part 2: Factory made fitting and valve assemblies of steel service pipes, polyurethane thermal insulation and one casing of polyethylene (this document).*

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Introduction

This document has been elaborated as a complement to the standards for bonded pipe systems for buried hot water networks using steel service pipe and polyurethane foam thermal insulation and one casing of polyethylene.

These standards are:

- EN 253, *District heating pipes - Bonded single pipe systems for directly buried hot water networks - Factory made pipe assembly of steel service pipe, polyurethane thermal insulation and a casing of polyethylene*
- prEN 448, *District heating pipes - Bonded single pipe systems for directly buried hot water networks - Factory made fitting assemblies of steel service pipes, polyurethane thermal insulation and a casing of polyethylene*
- prEN 488-1, *District heating pipes — Bonded single pipe systems for directly buried hot water networks — Part 1: Factory made steel valve assembly for steel service pipes, polyurethane thermal insulation and a casing of polyethylene;*
- prEN 488-2, *District heating and district cooling pipes - Bonded pipe systems for directly buried hot and cold water networks - Part 2: Factory made steel valve assembly for draining and venting, polyurethane thermal insulation and a casing of polyethylene*
- 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 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 13941-2, *District heating pipes - Design and installation of thermal insulated bonded single and twin pipe systems for directly buried hot water networks - Part 2: Installation*
- EN 14419, *District heating pipes - Bonded single and twin pipe systems for buried hot water networks - Surveillance systems*
- EN 15632 (all parts), *District heating pipes - Factory made flexible pipe systems*
- prEN 15698-1, *District heating pipes - Bonded twin pipe systems for directly buried hot water networks - Part 1: Factory made twin pipe assembly of steel service pipes, polyurethane thermal insulation and one casing of polyethylene*
- EN 17248, *District heating and district cooling pipe systems - Terms and definitions*
- EN 17414 (all parts), *District cooling pipes - Factory made flexible pipe systems*
- EN 17415 (all parts), *District cooling pipes - Bonded single pipe systems for directly buried cold water networks*
- EN 17878 (all parts), *District heating pipes - Factory made flexible pipe systems with a lower temperature profile*

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

prEN 15698-2:2023 (E)**1 Scope**

This document specifies requirements and test methods for fittings and valves of factory made thermally insulated bonded twin pipe assemblies for hot water networks in accordance with EN 13941-1, comprising two steel service pipes, in most cases steel fittings and/or steel valves, steel components, polyurethane (PUR) foam thermal insulation and a casing of polyethylene.

NOTE Steel components can be e.g. fixing bars.

The twin pipe assembly can also include the following additional elements: Measuring wires, spacers and diffusion barriers.

This document covers the following assemblies:

- fittings: bends, T-pieces and reducers;
- valves for main line.

This document applies to fitting assemblies with a minimum design pressure of 1,6 MPa and valve assemblies with a minimum design pressure of 2,5 MPa.

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 253, *District heating pipes - Bonded single pipe systems for directly buried hot water networks - Factory made pipe assembly of steel service pipe, polyurethane thermal insulation and a casing of polyethylene*

EN 448, *District heating pipes - Bonded single pipe systems for directly buried hot water networks - Factory made fitting assemblies of steel service pipes, polyurethane thermal insulation and a casing of polyethylene*

prEN 488-1, *District heating pipes - Bonded single pipe systems for directly buried hot water networks - Part 1: Factory made steel valve assembly for steel service pipes, polyurethane thermal insulation and a casing of polyethylene*

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

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*

prEN 15698-1, *District heating pipes - Bonded twin pipe systems for directly buried hot water networks - Part 1: Factory made twin pipe assembly of steel service pipes, polyurethane thermal insulation and one casing of polyethylene*

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

3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 17248 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/>

4 Requirements

4.1 General

All components shall be designed in accordance with EN 13941-1, for the actions and stresses that normally occur during a system's entire service life.

Unless otherwise specified, the requirements shall be valid for each single measurement.

For information on suitable guidelines for inspection and testing see Annex A.

4.2 Steel parts

4.2.1 Specification

Steel grades are specified in EN 13941-1.

All steel valves, steel service pipes, steel fittings and steel components used for manufacturing of fitting and 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 customer.

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

NOTE 1 Any later request for provision of such documentation could be too late and possibly can't be met by the manufacturer, since the start of the production is depending on organizing the assignment of 3.1 certificates to the steel valves and parts of the steel service pipes beforehand.

NOTE 2 For cold-formed bends, the material certificates according to EN 10208 apply to the values of the chemical composition, but not to the values of the mechanical properties.

4.2.2 Steel valves

The steel valves shall be in accordance with prEN 488-1.

4.2.3 Diameter and wall thickness

The nominal diameter and the minimum nominal wall thickness shall be according to EN 253.

4.2.4 Surface condition

The surface conditions of the steel service pipes, the steel fittings and the valve bodies shall be in accordance with EN 253.

4.3 Welding of steel parts

4.3.1 Welding of steel service pipes and elements

Fusion welding between the steel parts, steel fittings and valve bodies shall be in accordance with EN 448.

prEN 15698-2:2023 (E)**4.3.2 Welding of fixing bars**

The fixing bars shall be welded to the steel service pipes according to the requirements of EN 13941-1. Dimensions of the fixing bars shall be in accordance with EN 13941-1, Type A or B.

4.3.3 Placing of the fixing bars

Fixing bars shall be welded to the straight part of the twin pipe fittings at

- transition assembly at the twin pipe part of fitting assemblies,
- horizontal and vertical bends from both sides of bended area,
- reducers at the largest pipe diameter,
- tees at branch pipes,
- valve assemblies from both sides of the valve.

4.4 Casing

Material and casing properties shall be as specified in EN 253.

For the casing diameters specified in EN 15698-1 the dimensions of the casing shall be as specified in EN 253.

4.5 Polyurethane foam thermal insulation

The polyurethane foam thermal insulation shall be in accordance with EN 253.

Test specimens from fitting and valve assemblies to establish foam properties shall be taken in accordance with EN 448.

4.6 Fitting and valve assemblies**4.6.1 General**

All requirements are valid including the diffusion barrier, if any.

Fitting assemblies shall meet the requirements of EN 448.

Valve assemblies shall meet the requirements of prEN 488-1.

4.6.2 Thermal insulation series

The thermal insulation series shall be in accordance with EN 15698-1,

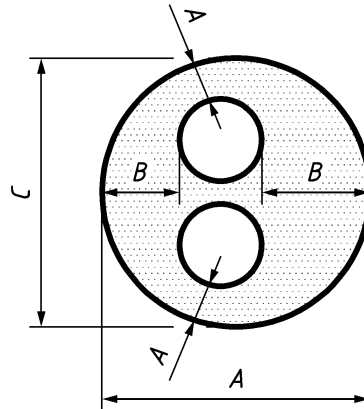
The minimum thickness of the polyurethane foam thermal insulation shall be in accordance with EN 448.

4.6.3 End alignment of flow and return steel service pipes

The alignment of the ends of the flow and return steel service pipes shall be in accordance with EN 15698-1.

4.6.4 Distance between flow and return steel service pipes

The distance between flow and return steel service pipes at the ends of the fitting / valve assemblies shall be in accordance with EN 15698-1.

**Key**

- A the 2 smallest distances from service pipe to casing surface expressed in millimetres (mm)
- B the 2 long distances from service pipe casing surface expressed in millimetres (mm)
- C diameter expressed in millimetres (mm)

Figure 1 — Centre line deviations

The distance between the flow and return steel service pipes, at the joint ends, shall be in accordance with EN 15698-1.

The distance inside the fitting and valve assemblies may vary on the condition that welding is still possible.

4.6.5 End of fitting and valve assemblies**4.6.5.1 Pipe ends without thermal insulation**

The ends of the steel service pipes shall be free from insulation according to EN 253.

The ends of the steel service pipes shall be prepared for welding according to EN 448.

4.6.5.2 Diameter and wall thickness of the casing

The outside diameter and the minimum wall thickness after manufacturing of the fitting and valve assemblies shall be in accordance with EN 253.

4.6.5.3 Centre line deviation

The distance between the common centre line of the steel service pipes and the centre line of the casing at the ends of the fitting/valve assembly shall not exceed the limits given in EN 15698-1.

The centre line deviation shall be measured between the centre lines at the welding end of the fitting and valve assembly.

Centre line deviation and out of roundness are measured as 3×2 linear measurements (see A, B and C in Figure 1).

The distance inside the fitting and valve assemblies may vary on the condition that welding is still possible.

4.6.5.4 Angular deviation between steel service pipes / valve extension pipes and casing

The angular deviation between the centre lines of the ends of the steel service pipes / the valve extension pipes and the casing shall not exceed the limits given in EN 448.