
Cevi za daljinsko ogrevanje - Poviti dvocevni sistemi za neposredno vkopana vročevodna omrežja - 1. del: Tovarniško izdelan dvocevni sestav iz jeklene cevi, poliuretanske toplotne izolacije in zunanega polietilenskega plašča

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

Fernwärmerohre - Doppelrohr-Verbundsysteme für direkt erdverlegte Fernwärmenetze - Teil 1: Werkmäßig gefertigtes Verbund-Doppelrohrsystem, bestehend aus Stahl-Mediumrohren, einer Wärmedämmung aus Polyurethan und einer Ummantelung aus Polyethylen

Tuyaux de chauffage urbain - Systèmes bloqués de bitubes pré-isolés pour les réseaux d'eau chaude enterrés directement - Partie 1 : Assemblages de bitubes 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 1: Factory made twin pipe assembly of steel service pipes, polyurethane thermal insulation and one casing of polyethylene

Fernwärmerohre - Verbundmanteldoppelrohre für direkt erdverlegte Fernwärmenetze - Teil 1: Werkmäßig gefertigte Verbund-Doppelrohrsystem, 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.

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prEN 15698-1:2023 (E)**European foreword**

This document (prEN 15698-1:2023) 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 15698-1:2019.

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

- alignment with the structure of EN 253;
- mistake correction in Table 3;
- In alignment with the other standards of CEN/TC 107, explanatory information has been included in Annex A.

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.*

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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 outer 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 15698-2, *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*
- 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 B.

1 Scope

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

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

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 10204, *Metallic products - Types of inspection documents*

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*

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:

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

4 Requirements

4.1 Steel service pipe

4.1.1 Specification

Steel grades are specified in EN 13941-1.

All steel service pipes and steel components used for manufacturing of twin pipe 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 twin pipe assemblies, this request shall be given whilst placing the order with the manufacturer of the twin pipe 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 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.

A length of pipe shall not include a circular weld.

4.1.2 Diameter and wall thickness

The diameter and the wall thickness of the steel service pipes shall be according to EN 253.

4.1.3 Surface condition

The surface conditions of the steel service pipes shall be in accordance with EN 253.

4.2 Casing

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

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

4.3 Polyurethane foam thermal insulation

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

4.4 Twin pipe assembly

4.4.1 General

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

4.4.2 Thermal insulation series

For thermal insulation series, Table 1 gives the allocation of the nominal diameter of service pipes and casing diameters.

Table 1 — Casing diameters

Nominal diameter of steel service pipes DN	Nominal casing diameter, thermal insulation series 1 D_c mm	Nominal casing diameter, thermal insulation series 2 D_c mm	Nominal casing diameter, thermal insulation series 3 D_c mm
15	125	140	160
20	125	140	160
25	140	160	180
32	160	180	200
40	160	180	200
50	200	225	250
65	225	250	280
80	250	280	315
100	315	355	400
125	400	450	500
150	450	500	560
200	560	630	710
250	710	800	900

4.4.3 End alignment of flow and return steel service pipes

The alignment of the ends of the flow and return steel service pipes shall not differ more than 1 mm when measured in the longitudinal direction.

4.4.4 Distance between flow and return steel service pipes

The distance between flow and return steel service pipes shall be in accordance with Table 2.

The tolerance of the distance between the flow and return steel service pipes, L_p , is ± 1 mm when measured in the pipe ends and ± 2 mm when measured at any point inside the twin pipe assembly, see Figure 1.

Table 2 — Distance between steel service pipes

Nominal diameter of steel service pipes DN	Distance between steel service pipes L_p mm
15	19
20	19
25	19
32	19
40	19
50	20
65	20
80	25
100	25
125	30
150	40
200	45
250	45

4.4.5 Twisting of steel service pipes

The twisting, w , of the steel service pipes in one end of the twin pipe assembly in relation to the other end shall be maximum 3 mm. The twisting, w , of the steel service pipes in any end of the twin pipe assembly in relation to any point inside the twin pipe assembly shall be maximum 6 mm. For cut twin pipe assemblies, the twisting, w , shall be maximum ± 3 mm, see Figure 1.