
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 zunanjega 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 pipe, polyurethane thermal insulation and a casing of polyethylene

Fernwärmerohre - Verbundmanteldoppelrohre für direkt erdverlegte Fernwärmenetze - Teil 1: Werkmäßig hergestelltes Verbund-Doppelrohrsystem, bestehend aus Stahl-Mediumrohr, Polyurethan-Wärmedämmung und einem Mantel aus Polyethylen

Tuyaux de chauffage urbain - Systèmes bloqués de bitubes 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 pipe, polyurethane
thermal insulation and a casing of polyethylene**

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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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European foreword

This document (prEN 15698-1:2018) 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 15698-1:2009.

In comparison with the previous edition, the main changes in this new edition of EN 15698-1 are:

- editorial changes to the new structure of standards prepared by the Technical Committee CEN/TC 107.

EN 15698 is currently composed with the following parts:

- *District heating pipes — Bonded twin pipe systems for directly buried hot water networks — Part 1: Factory made twin pipe assembly of steel service pipe, polyurethane thermal insulation and a casing of polyethylene* [the present Enquiry draft];
- *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* [new edition currently at Enquiry stage].

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SIST EN 15698-1:2020

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Introduction

This standard 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 — Preinsulated bonded pipe systems for directly buried hot water networks — Pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene;*
- EN 448, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene;*
- EN 488, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Steel valve assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene;*
- prEN 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;*
- prEN 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;*
- prEN 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 — Preinsulated bonded pipe systems for directly buried hot water networks — Surveillance systems;*
- EN 15632 (all parts), *District heating pipe — Pre-insulated flexible pipe systems;*
- EN 15698-2, *District heating pipes — Preinsulated bonded twin pipe systems for directly buried hot water networks — Part 2: Fitting and valve assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene.*

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 prEN 13941-1, comprising two steel service pipes, rigid polyurethane foam insulation and one casing of polyethylene.

The 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 253:2009+A2:2015, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene*

prEN 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 — Preinsulated bonded pipe systems for directly buried hot water networks — Surveillance systems*

EN ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126)*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Requirements

4.1 General

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

For information on suitable guidelines for inspection of manufactured bonded twin pipe assemblies see Annex A.

4.2 Steel service pipe

The material of the steel service pipes shall be as specified in prEN 13941-1. Dimensions and surface condition of the steel service pipes shall be as specified in EN 253.

4.3 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.

The maximum out-of-roundness shall conform to Table 1 and be measured in accordance with EN ISO 3126.

Table 1 — Casing diameters

Nominal diameter of steel service pipes DN	Casing diameter, thermal insulation series 1 D_C min mm	Casing diameter, thermal insulation series 2 D_C min mm	Casing diameter, thermal insulation series 3 D_C min mm	Maximum out-of-roundness mm
15	125	140	160	1,2
20	125	140	160	1,2
25	140	160	180	1,2
32	160	180	200	1,3
40	160	180	200	1,4
50	200	225	250	1,4
65	225	250	280	1,5
80	250	280	315	1,6
100	315	355	400	2,0
125	400	450	500	2,5
150	450	500	560	3,0
200	560	630	710	4,0
250	710	800	900	5,0

4.4 Polyurethane rigid foam thermal insulation (PUR)

Material and thermal insulation properties shall be as specified in EN 253.

4.5 Pipe assembly

4.5.1 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.

4.5.2 Distance between flow and return steel service pipes

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

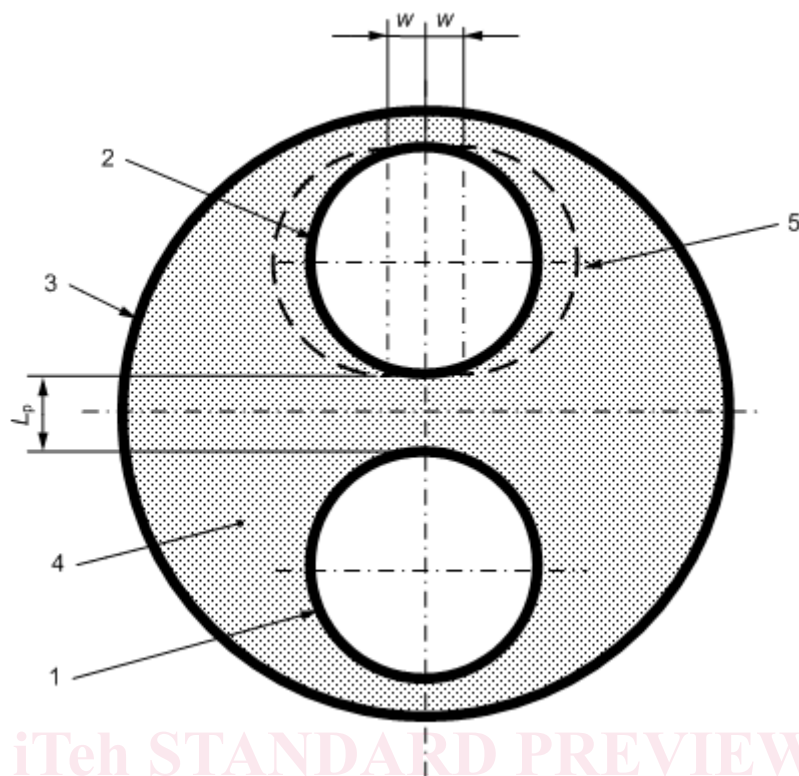
The tolerance of the distance between the flow and return steel service pipes, L_p , is ± 1 mm when measured in the pipe ends and ± 2 mm when measured at any point inside the twin pipe assembly, see Figure 1.

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

4.5.3 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 pipe assembly in relation to any point inside the pipe assembly shall be maximum 6 mm. For cut pipes the twisting, w , shall be maximum ± 3 mm, see Figure 1.



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Key

- 1 flow steel service pipe
 2 return steel service pipe
 3 casing
 4 thermal insulation
 5 steel service pipe at maximum twisting, w_{\max}
 L_p distance between steel service pipes
 w twisting

Figure 1 — Twisting, w , and distance between steel service pipes, L_p

4.5.4 Centre line deviation

The distance between the common centre line of the steel service pipes and the centre line of the casing at any point shall not exceed the limits given in Table 3.

Table 3 — Centre line deviation related to nominal diameters

Nominal outside diameter of casing mm	Maximum centre line deviation mm
75 to 160	3,0
180 to 400	5,0
450 to 630	8,0
710 to 800	10,0