
Vzdolžno varjene nerjavne jeklene cevi in spojniki z obojko za sisteme za odpadno vodo - 1. del: Zahteve, preskušanje in kontrola kakovosti

Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems - Part 1: Requirements, testing, quality control

Rohre und Formstücke aus längsnahtgeschweißtem, nichtrostendem Stahlrohr mit Steckmuffe für Abwasserleitungen - Teil 1: Anforderungen, Prüfungen, Güteüberwachung

Tubes et raccords de tube soudés longitudinalement en acier inoxydable, a manchon enfichable pour réseaux d'assainissement - Partie 1: Prescriptions, essais, contrôle de qualité

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English version

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This European Standard was approved by CEN on 16 December 1998.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	5
4 Materials and prefabricated components	5
5 Dimensions	5
5.1 Socket shape	6
5.2 Nominal sizes	6
6 Requirements of pipes and fittings	6
6.1 Straightness	6
6.2 Ends of pipes and fittings	6
6.3 Inner surface finish	6
6.4 Outside surface finish	6
6.5 Roundness	6
6.6 Welds	6
6.7 Annealing	7
7 Requirements of pipe joints	7
7.1 Seals	7
7.2 Watertightness	7
7.3 Airtightness	7
7.4 Thermal stressing	7
7.5 Joint assembling	7
8 Thermal requirements	8
9 Corrosion protection	8
9.1 Post-treatment	8
9.2 Buried pipes and fittings	8
10 Testing	8
10.1 Straightness of the pipes	8
10.2 Squareness of the ends of the pipes and fittings	9
10.3 Surfaces	9
10.4 Roundness	9
10.5 Appearance and watertightness of the welds	9
10.6 Materials	10
10.7 Corrosion protection	10
10.8 Dimensions	10
10.9 Seals	10

	Page
10.10 Temperature resistance	10
10.11 Joints	11
11 Marking	12
12 Quality control	12
12.1 General	12
12.2 Initial testing (type testing)	12
12.3 Factory production control	12
Annex A (informative) Third party control	14
A.1 Method and frequency	14
A.2 Sampling	14
A.3 Documentation	15
Annex B (informative) Bibliography	16

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 165 "Waste water engineering", the secretariat of which is held by DIN.

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 July 1999, and conflicting national standards shall be withdrawn at the latest by July 1999.

This European standard consists of the following parts:

- Part 1: Requirements, testing, quality control
- Part 2: System S; Dimensions
- Part 3: System X; Dimensions

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

SIST EN 1124-1:2000

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1 Scope

This European standard specifies requirements, tests and quality control for longitudinally welded, stainless steel pipes and fittings with spigot and socket for use in waste water systems usually operating under gravity or at a low head of pressure.

For the purposes of this standard, components are pipes, fittings, joints and seals.

This standard is for components used for the discharge of

- domestic waste water
- surface water and
- groundwater

This standard is also for components discharging other waste water (e.g. industrial waste water) as long as it does not damage the components or endanger the health and safety of personnel.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 476	General requirements for components used in discharge pipes, drains and sewers for gravity systems
EN 681-1	Elastomeric seals - Material requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber
EN 1123-1:1999	Pipes and fittings of longitudinally welded hot-dip galvanized steel pipes with spigot and socket for waste water systems - Part 1: Requirements, testing, quality control
EN 1124-2:1999	Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems - Part 2: System S; Dimensions
EN 1124-3:1999	Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems - Part 3: System X; Dimensions
EN 12068	Cathodic protection - External organic coatings for the corrosion protection of buried or immersed steel pipelines used in conjunction with cathodic protection - Tapes and shrinkable materials

ISO 559:1991	Steel tubes for water and sewage
ISO 683-13:1986	Heat-treatable steels, alloy steels and free-cutting steels - Part 13: Wrought stainless steel
ISO 8770:1991	High-density polyethylene (PE-HD) pipes and fittings for soil and waste discharge (low and high temperature) systems inside buildings - Specification

3 Definitions

For the purposes of this standard, the definitions of nominal size (DN), inside diameter (ID) and outside diameter (OD) as specified in EN 476 apply.

4 Materials and prefabricated components

Pipe and fittings are made of precision steel tube of austenitic stainless steels, manufactured generally of material No. 11 ISO 683-13:1986, No. 19a ISO 683-13:1986 and No. 21 ISO 683-13:1986. Comparable materials are permissible.

Until a European Standard for as welded precision steel pipes is produced, national specifications remain available for the testing of steel pipe before finished into pipes and fittings for drainage.

The choice of the material depends on the application (see ISO 683-13:1986, EN 10088-2). The steel tube from which the pipes and fittings are made shall be of the materials specified in the first paragraph.

Prefabricated components are assembled at the manufacturer's plant. They shall be designed so as to function permanently and be interchangeable.

5 Dimensions

The dimensions shall comply with EN 1124-2 or EN 1124-3.

5.1 Socket shape

The socket shape shall comply with EN 1124-2 or EN 1124-3.

5.2 Nominal sizes

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The nominal sizes for pipes and fittings to EN 1124-2 shall be in the range of DN/OD 50, 75, 110 and 160. The nominal sizes for pipes and fittings to EN 1124-3 shall be in the range of DN/ID 40, 50, 70, 80, 100, 125, 150 and 200.

6 Requirements of pipes and fittings

6.1 Straightness

The pipes shall be straight. In the pipe axis, the bend over a length of 1 m shall not be more than 1,5 mm.

6.2 Ends of pipes and fittings

The pipes and fittings shall be cut perpendicular to the pipe axis. For fittings up to DN/OD 110 or DN/ID 100 a variation of the right angle of up to 3° is allowed. For the ends of pipes and fittings with nominal size larger than DN/ID 100 or DN/OD 110 the deviation of the right angle shall not be more than 1 ° 45'. All burrs shall be removed.

6.3 Inner surface finish

The inner surface shall be smooth and free from cracks and defects affecting flow. The inner surface of sockets shall be free from sharp irregularities and shall meet the requirements given in 6.4. Both requirements also apply to the weld area.

There shall be no visible annealing colour or material impurities.

6.4 Outside surface finish

The outside surface shall be smooth and free from sharp irregularities which could damage the seals during insertion.

There shall be no visible annealing colour or material impurities.

6.5 Roundness

The permissible variations of the pipe diameter according to table 4 of EN 1124-2:1999 or table 5 of EN 1124-3:1999 shall be satisfied.

6.6 Welds

Burrs, edges and lugs in the weld area shall be avoided. Welding burrs or inclusions shall be so small that acceptable post-treatment is possible by pickling.

The inner burr of the longitudinal weld shall, following ISO 559:1991, be worked down to a maximum of 0,3 mm. The weld shall withstand the stresses to be expected under normal working conditions and shall be watertight at internal pressures of 0 kPa to 50 kPa.

6.7 Annealing

Pipes and fittings shall be annealed depending on material and processing temperature.

7 Requirements of pipe joints

7.1 Seals

Seals shall be resistant to rainwater, domestic waste water and to industrial sewage. Industrial sewage may only be discharged if it does not damage the components nor the health and safety of the personnel.

Where pipes and fittings are fitted with joint seals, these shall be supplied with the pipe or fitting before it leaves the manufacturer or installed in the socket factory made.

The seals shall be homogeneous. The surface shall not have any defects or irregularities which could affect the waste water drainage.

The seals for system X shall be according to EN 1123-1 and EN 1124-3. The seals for system S shall be according to EN 681-1.

7.2 Watertightness

All pipes and fittings including their joints shall be watertight at an internal or an external pressure of 0 kPa to 50 kPa. The test shall be made according to 10.11.1.

For pipes likely to be subjected to greater pressures, e.g. pressurized pipes in lifting systems and rainfall pipes liable to "back flow", additional means shall be provided to give the pipes and fittings a friction fit according to EN 1124-3.

7.3 Airtightness

During the test specified in 10.11.2, even with a change of direction of 2° in the pipe joint, no air shall escape at any pressure. Pipe joints shall withstand an internal air test pressure of 10 kPa.

Joints of sanitary fittings shall withstand an internal air test pressure of 1 kPa.

7.4 Thermal stressing

Pipe connections from the service mains, downpipes and collecting pipes shall remain airtight and watertight throughout the temperature cycles and long-term stressing specified in 10.10.

7.5 Joint assembling

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The force of insertion for components of nominal size up to and including DN/ID 150 or DN/OD 160 shall not exceed 1,5 kN, or 2,0 kN for DN/ID 200 upwards.

The minimum insertion depths t_s given in table 4 of EN 1124-2:1999 and table 5 of EN 1124-3:1999 shall be adhered to.

After assembly, the effective cross-sectional area of the seals shall be such as to ensure their long-term sealing effect.