SLOVENSKI STANDARD
oSIST prEN 15266:2023

01-december-2023

Upogljivi valoviti cevni kompleti iz nerjavnega jekla za plinske napeljave z delovnim tlakom do 0,2 MPa (2 bara)

Stainless steel pliable corrugated tubing kits for gas installation pipework with an operating pressure up to 0,2 MPa (2 bar)

Nichtrostende biegbare Wellrohrbausätze für Gasleitungsanlagen mit einem Arbeitsdruck bis 0,2 MPa (2 bar)

Kits de tuyaux onduleux pliables en acier inoxydable pour les installations intérieures à gaz avec une pression de service inférieure ou égale à 0,2 MPa (2 bar)

Ta slovenski standard je istoveten z: **prEN 15266**

ICS:

77.140.75	Jeklene cevi in cevni profili za posebne namene	Steel pipes and tubes for specific use
91.140.40	Sistemi za oskrbo s plinom	Gas supply systems

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EUROPEAN STANDARD

NORME EUROPÉENNE

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ICS

Will supersede EN 15266:2007

English Version

Stainless steel pliable corrugated tubing kits for gas installation pipework with an operating pressure up to 0,2 MPa (2 bar)

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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 342.

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword

This document (prEN 15266:2023) has been prepared by the Technical Committee CEN/TC 342 "Metal hoses, hose assemblies, bellows and expansion joints", the secretariat of which is held by SNV.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15266:2007.

In comparison with the previous edition, the following technical modifications have been made:

— operating pressure up to 0,2 MPa (2 bar)

Introduction

This document contains the general safety requirements relating to the safety of persons, animals, and property and the protection of their environment.

The requirements of this document concern designers, manufacturers, suppliers and importers of stainless steel pliable corrugated gas tubing kits for gas installation pipework.

Installation and mandatory strength and tightness tests before commissioning should consider the local application regulations where they exist.

This document is applicable to:

— new installation pipework;

— replacements of existing installations; or

— extensions to existing installations.

Stainless steel pliable corrugated gas tubing kits can be used in conjunction with other approved gas pipework.

This document defines performance requirements for the products to be placed on the European Economic Area EEA.

1 Scope

This document specifies the requirements for material, design, manufacture, testing, marking and documentation of stainless steel pliable corrugated gas tubing kits for gas installation pipework with a maximum allowable pressure (PS):

— less than or equal to 0,5 bar within a nominal size range from DN 10 to DN 50 (class 1); and

— less than or equal to 2 bar within a nominal size range from DN 10 to DN 25 (class 2).

This document applies to stainless steel pliable corrugated gas tubing kits used for 1st, 2nd and 3rd family gases (see EN 437) in residential, commercial and industrial gas installations to be installed outdoors or indoors at a temperature range from – 20 °C to + 60 °C.

This document does not apply to:

— pliable tubing without cover;

— corrugated safety metal hose assemblies for connection to moveable appliances

NOTE This document does not cover the installation aspects of stainless steel pliable corrugated gas tubing kits.

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 1363-1:2012, *Fire resistance tests – Part 1: General requirements*

EN 1775:2007, *Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations*

EN 10028-7, *Flat products made of steels for pressure purposes - Part 7: Stainless steels*

EN 10088-3, *Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10242, *Threaded pipe fitting in malleable cast iron*

EN 12164, *Copper and copper alloys - Rod for free machining purposes*

EN 12165, *Copper and copper alloys - Wrought and unwrought forging stock*

EN 13501-1:2019, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests*

EN 13823:2013, *Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 6509-1:2014, *Corrosion of metals and alloys - Determination of dezincification resistance of copper alloys with zinc - Part 1: Test method (ISO 6509-1:2014)*

EN ISO 7369:2020, *Pipework - Metal hoses and hose assemblies - Vocabulary (ISO 7369:2020)*

EN ISO 9227:2017, *Corrosion tests in artificial atmospheres - Salt spray tests*

EN ISO 10380:2012, *Pipework - Corrugated metal hoses and hose assemblies (ISO 10380:2012)*

EN ISO 11925-2:2010, *Reaction to fire tests - Ignitability of building products subjected to direct impingement of flame - Part 2: Single-flame source test (+AC: 2011)*

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

3 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions listed in EN ISO 7369:2004, EN 1775:2007 and the following apply.

3.1
pliable tubing
PLT
corrugated tubing capable of being bent easily by hand a limited number of times, incorporating an outer cover applied by the manufacturer at the time of production

3.2
PLT kit
pliable tubing with its related components obtained or specified from one manufacturing entity having design and performance responsibility for the kit

3.3
bend radius
radius measured to the centre line of the pliable tubing

3.4
PLT fitting
unique fitting using mechanical attachment methods, in which tightness is achieved with or without seals, excluding other joining methods such as welding, brazing, soldering or gluing

3.4.1
end fitting
PLT fitting intended to join pliable tubing to an external component

3.4.2
coupling
PLT fitting intended to join two sections of pliable tubing

3.4.3
tee
PLT fitting to join three sections of pliable tubing

3.4.4
manifold
PLT fitting designed to join 4 or more sections of pliable tubing

3.5
seal
any part intended to provide tightness within a PLT fitting

3.6
additional protection
outer sheath intended to protect the connection between the pliable tubing and a PLT fitting or eventual damage occurred to the cover during or after installation of the pliable tubing from corrosion or mechanical damage

Note 1 to entry This sheath has the same chemical resistance as the cover

EXAMPLE Wrapping tape or heat shrink tube

3.7
PLT support
element used to attach the PLT kit to the structure of the building

3.8
rated flow rate
flow rate at a given pressure drop, under standard reference conditions

3.9
family
group of products produced by one manufacturer for which test results for one product of that group are representative of characteristics for the whole group

3.10
1st, 2nd and 3rd family gases
group of gaseous fuels with similar burning behaviour linked together by a range of Wobbe indices

Note 1 to entry see EN 437:2021, Table 1

Note 2 to entry These gases are commonly referred to as manufacturer gases, natural gas and liquified petroleum gases.

[SOURCE: EN 437:2021, 3.18, modified with Note 2 to entry]

3.11
installation pipework
pipework downstream of the point of gas delivery terminating at the appliance inlet connection

3.12
cover
tubular outer sheath applied to the corrugated pipe by the manufacturer and intended to improve the resistance of the pipe to external corrosion and mechanical damage

3.13
maximum allowable pressure
PS
maximum pressure for which the equipment is designed, as specified by the manufacturer, and defined at a location specified by him

4 Design requirements

4.1 General

Where additional components are required to complete the PLT kit, these components shall be provided or specified by the kit manufacturer.

4.1.1 Materials

The material for the pliable tubing (see Table 1) shall be austenitic stainless steel and the grade shall be chosen according to long term suitability for the gas conveyed, the environment, the conditions under which it will be used and the suitability for fabrication, e.g. welding, cold forming, etc. as appropriate. Due regard shall be taken of the quality of the gas conveyed, possible variation in the composition, and possible development of corrosive agents both internally and externally.

NOTE 1 Examples of possible corrosive agents include:

— internal: combinations of sulphur, oxygen, moisture, etc;

— external: coastal and general environmental influence, building materials, etc.

NOTE 2 The material of the pliable tubing directly affects the safety of the works (building and civil engineering) in which the tubing kit is installed and the durability performance of the tubing kit itself.

4.1.2 Cover, PLT fittings and PLT supports

PLT fittings shall provide a gas-tight connection to the pliable tubing. PLT fittings, whether surface finished or not, shall be manufactured from materials listed in Table 1.

Table 1 — Materials

Component	Material
Pliable tubing	Austenitic Stainless steel according to EN 10028-7: 1.4306, 1.4404, 1.4401, 1.4541, 1.4571
Cover	Synthetic material [a]
Additional protection	Synthetic material [b]
PLT fittings	Stainless steel according to EN 10088-3, copper alloys according to EN 12164 and EN 12165 [c]
PLT manifold/tees	Stainless steel according to EN 10088-3, copper alloys according to EN 12164 and EN 12165 [c] Malleable cast iron according to EN 10242 types W 400-05; W 350-04; B 350-10 or B 300-06
Supports	Metallic corrosion resistant material

[a] see 4.8

[b] see 4.9

[c] A material containing at least 57 % copper and not more than 3,5 % lead for copper PLT fittings, PLT manifold and tees is an example of the percentages presenting an appropriate resistance against stress corrosion cracking and dezincification.

The choice of material for pliable tubing should relate to the composition of the gas conveyed and the external environment (see Table 2, adapted extract from EN ISO 10380:2012).

Typical classification of materials for corrosion resistance

Corrosion Resistance Class	Description	Material Grade	Examples
A	Basic corrosion resistance	Stainless steels	1.4306 1.4541
B	Good corrosion resistance	Mo-alloyed stainless steels	1.4404 1.4401 1.4571

NOTE For example, the addition of biogas may increase oxygen and moisture content.

4.2 Nominal size DN, wall thickness and pressure drop

The nominal size of a PLT kit shall be selected from the DN given in EN ISO 10380:2012, Table 2 .

The nominal size range shall be from DN 10 to DN 50.

The minimum bore size of the pliable tubing shall be at least 98 % of the nominal size DN in mm.

The manufacturer shall declare the related pressure drop (see 5.18) for each nominal size DN (see 5.3).

For direct burial if not stipulated in local installation standards, the minimum wall thicknesses values as included in the following Table 2 shall apply.

Table 2 – Nominal size DN, min. inner diameter and min. wall thickness

	DN 10	DN 12	DN 15	DN20	DN25	DN32	DN40	DN50
Min inner diameter (mm)	9,8	11,8	14,7	19,6	24,5	31,4	39,2	49,0
Min wall thickness (mm)	0,18	0,18	0,20	0,25	0,25	0,30	0,30	0,30

4.3 Threads

Male end fittings shall have terminating threads according to EN 10226-1 or any national standard referenced in the following table.

Male or female end fittings shall have terminating threads according to EN ISO 228-11 or any national standard referenced in the following table.

Integrated threads within the mechanical attachment of the PLT fittings shall not be compatible for EN 10226-1 nor EN ISO 228-1.

4.4 PLT fittings

4.4.1 General

PLT fittings shall provide a gas-tight connection to the pliable tubing. PLT fittings, whether surface finished or not, shall be manufactured from materials listed in Table 1. Copper alloys shall be selected from EN 12164 and/or EN 12165 and shall contain at least 57 % copper and not more than 3,5 % lead.

4.4.2 Stress corrosion

All fittings and components of copper alloy shall be resistant to stress corrosion.