



# SLOVENSKI STANDARD

## oSIST prEN 14125:2023

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### Cevovodi iz kovinskih gibljivih cevi in cevi iz plastomerov za podzemne napeljave za bencinske servise

Thermoplastic and flexible metal pipework for underground installation at petrol filling stations

Thermoplastische und flexible metallene Rohrleitungen für erdverlegte Installationen für Tankstellen

Tuyauteries enterrées thermoplastiques et tuyauteries métalliques flexibles pour stations-service

Ta slovenski standard je istoveten z: prEN 14125

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#### ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment
83.140.30	Polimerne cevi in fittingi za snovi, ki niso tekočine	Plastics pipes and fittings for non fluid use

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## Thermoplastic and flexible metal pipework for underground installation at petrol filling stations

Tuyauteries enterrées thermoplastiques et tuyauteries  
métalliques flexibles pour stations-service

Thermoplastische und flexible metallene  
Rohrleitungen für erdverlegte Installationen für  
Tankstellen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 393.

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

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**prEN 14125:2023 (E)**

**European foreword**

This document (prEN 14125:2023) has been prepared by Technical Committee CEN/TC 393 “Equipment for storage tanks and for filling stations”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14125:2013.

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

- new test fuels added;
- Annex C for environmental aspects added.

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## Introduction

The purpose of this document is to ensure the suitability of underground pipework for conveying liquid fuels and their vapours at petrol filling stations.

Pipework should have a designated means of fitting specified by the manufacturer or supplier.

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## 1 Scope

This document specifies requirements for underground pipework systems used to transfer liquid fuels and their vapours at petrol filling stations. Minimum performance requirements covering fitness for purpose, safety and environmental protection are given.

This document applies to pipework made from thermoplastics, which can include some degree of reinforcement, and to flexible metal pipework. It does not apply to fibre reinforced thermosets, commonly referred to as glass fibre reinforced plastic (GRP), nor to rigid metals.

This document applies to:

- delivery pipes from tanks to dispensers, including positive pressure, vacuum suction and siphon modes;
- fill pipes from road tankers to tanks;
- vapour recovery and vent pipework;
- pipework for secondary containment;
- fittings.

It does not apply to pipework for use with liquefied petroleum gas.

## 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 1555-1, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General*

EN 1555-2, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes*

EN 1555-3, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings*

EN 1555-4, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves*

EN 1555-5, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 5: Fitness for purpose of the system*

EN 12201-1, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 1: General*

EN 12201-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes*

EN 12201-3, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 3: Fittings*

EN 12201-4, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 4: Valves*



EN 12201-5, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 5: Fitness for purpose of the system*

EN 13160-1, *Leak detection systems - Part 1: General Principles*

EN 13160-2, *Leak detection systems - Part 2: Requirements and test/assessment methods for pressure and vacuum systems*

EN 13160-7, *Leak detection systems - Part 7: Requirements and test/assessment methods for interstitial spaces, leak detection linings and leak detection jackets*

EN 14214, *Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods*

EN 15376, *Automotive fuels - Ethanol as a blending component for petrol - Requirements and test methods*

EN 15940, *Automotive fuels - Paraffinic diesel fuel from synthesis or hydrotreatment - Requirements and test methods*

EN 28510-1, *Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 1: 90° peel*

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 1: General method (ISO 1167-1)*

EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 2: Preparation of pipe test pieces (ISO 1167-2)*

EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 3: Preparation of components (ISO 1167-3)*

<https://standards.iteh.ai/catalog/standards/sist/6fdb0b89-d097-44c8-a035->  
EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 4: Preparation of assemblies (ISO 1167-4)*

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 8510-2, *Adhesives - Peel test for a flexible-bonded-to-rigid test specimen assembly - Part 2: 180 degree peel (ISO 8510-2)*

EN ISO 11306, *Corrosion of metals and alloys - Guidelines for exposing and evaluating metals and alloys in surface sea water (ISO 11306)*

EN ISO 11339, *Adhesives - T-peel test for flexible-to-flexible bonded assemblies (ISO 11339)*

EN ISO 13056, *Plastics piping systems - Pressure systems for hot and cold water - Test method for leaktightness under vacuum (ISO 13056)*

EN ISO 16871, *Plastics piping and ducting systems - Plastics pipes and fittings - Method for exposure to direct (natural) weathering (ISO 16871)*

EN ISO 19892, *Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of joints to pressure cycling (ISO 19892)*

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EN ISO 80079-36, *Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements (ISO 80079-36)*

ISO 11922-1, *Thermoplastics pipes for the conveyance of fluids — Dimensions and tolerances — Part 1: Metric series*

**3 Terms and definitions**

For the purposes of this document, the following terms and definitions 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/>

**3.1 pipework system**

pipes and fittings used to convey or retain liquid fuels and their vapours

**3.2 fittings**

in-line connector, elbow, reducer, tee or cap, or flange or other component supplied to connect one pipe to another or pipework to equipment

**3.3 flexible pipe**

pipe that can be bent by hand to any radius above a set minimum without any change in performance

**3.4 primary delivery pipework**

pipework designed to convey liquid fuels by positive pressure or vacuum suction

**3.5 fill pipework**

pipework designed to convey liquid fuels from a delivery tanker to an underground storage tank by gravity discharge

**3.6 multilayer pipe**

pipe where more than one identified layer is present

**3.7 vent pipework**

pipework designed to convey vapour from a storage tank to the atmosphere

**3.8 vapour recovery pipework**

pipework designed to convey vapour (or condensate) to or from a storage tank

**3.9 liquid fuel**

commercially available petrol and diesel fuel comprising biofuels and biofuels blends

**3.10****leakage containment**

system which is designed to prevent leakage from a primary system entering the environment and which enables the detection of leakage

**3.11****secondary containment**

system which is designed to achieve leakage containment

**3.12****design pressure**

$P_d$

maximum effective pressure of the fluid in the piping system, expressed in bar, which is allowed in continuous use

**4 Classes and dimensions****4.1 Classes of pipework**

Pipes for underground fuel distribution shall conform to one of the following two classes:

- **Class 1** — Double wall pipework capable of containing and facilitating the detection of leakage from a primary delivery pipe.
- **Class 2** — Single wall pipework.

The primary pipe of Class 1, and pipes of Class 2, shall conform to one of Types A or B. The secondary pipe of Class 1 shall conform to one of Types C1 or C2.

a) **Type A.** Plastic systems.

Pipes shall be principally made of thermoplastic polymers, with some metal or fibre reinforcement optional.

b) **Type B.** Flexible metal systems.

Pipes shall comprise a fluid tight primary pipe made of a metal.

c) **Type C.** Secondary containment.

- 1) **Type CS.** System with continuous 360° separation between the primary containment and secondary containment.
  - i. **Type CS1:** A pipe system designed to contain any leakage from the primary pipe. The system is at atmospheric pressure.
  - ii. **Type CS2:** A pipe system designed to contain any leakage from the primary pipe. The system is designed to conform to the performance criteria of Class I leak detection systems in accordance with EN 13160-1, EN 13160-2 and EN 13160-7.
- 2) **Type CP:** System without continuous 360° separation between the primary containment and secondary containment.
  - i. **Type CP1:** A pipe system designed to contain leakage from the primary pipe. The system is at atmospheric pressure.

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- ii. **Type CP2:** A pipe system designed to contain leakage from the primary pipe. The system is designed to conform to the performance criteria of Class I leak detection systems in accordance with EN 13160-1, EN 13160-2 and EN 13160-7.

**4.2 Fittings**

All pipework shall include fittings to provide leak-tight attachment to other systems, terminations, branches and changes of direction.

**4.3 Dimensional tolerances**

The external diameter and wall thickness shall be stated by the manufacturer. For plastic pipework the tolerance on the external diameter shall be in accordance with ISO 11922-1, Grade B, and the out-of-roundness shall be in accordance with ISO 11922-1, Grade N.

**5 Physical properties****5.1 Pressure****5.1.1 General**

Operating and test pressures shall be in accordance with Table 1 according to the application.

All pressures in Table 1 are gauge pressures.

**Table 1 — Operating and test pressures for pipework**

Application	Operating pressure <b>bar</b>	Test vacuum <b>bar</b>	Lower test pressure <b>bar</b>	Higher test pressure <b>bar</b>
Primary delivery pipework: positive pressure	+3,5	—	+5,0 ± 0,1	+30,0 ± 1,0
Primary delivery pipework: vacuum suction including siphons	-0,6	-0,9 ± 0,05	+5,0 ± 0,1	
Vents and vapour recovery pipework	1,0	-0,9 ± 0,05	+5,0 ± 0,1	
Fill pipework	1,0	—	+5,0 ± 0,1	
Secondary containment Type CP1 and CS1	+0,5	—	+1,0 ± 0,02	+5,0 ± 0,1
Secondary containment Type CP2 and CS2	-0,5 to +4,5	-0,6 ± 0,05	+5,0 ± 0,1	+10 ± 0,2

**5.1.2 Hydrostatic pressure**

This requirement applies to all pipes and fittings.

When tested in accordance with 7.2.1.1, all pipes and fittings, sampled in accordance with 7.1.2 and connected together as one or more assemblies, shall:

- withstand the lower test pressure in Table 1 for no less than 5 min with no signs of leakage.

When tested in accordance with 7.2.1.2, all pipes and fittings, sampled in accordance with 7.1.2 and connected together as one or more assemblies, shall:

- withstand the lower test pressure in Table 1 for no less than 5 min with no signs of leakage;