



# SLOVENSKI STANDARD

## SIST EN 13617-3:2012

01-maj-2012

Nadomešča:  
SIST EN 13617-3:2004

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### Bencinski servisi - 3. del: Varnostne zahteve za izdelavo in lastnosti varovalnih ventilov

Petrol filling stations - Part 3: Safety requirements for construction and performance of shear valves

Tankstellen - Teil 3: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Abscherventilen

Stations-service - Partie 3: Exigences de sécurité relatives à la construction et aux performances des raccords de sécurité

Ta slovenski standard je istoveten z: EN 13617-3:2012

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#### **ICS:**

75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment
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EUROPEAN STANDARD  
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## Petrol filling stations - Part 3: Safety requirements for construction and performance of shear valves

Stations-service - Partie 3: Exigences de sécurité relatives à la construction et aux performances des raccords de sécurité

Tankstellen - Teil 3: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Abscherventilen

This European Standard was approved by CEN on 28 January 2012.

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## Foreword

This document (EN 13617-3:2012) has been prepared by Technical Committee CEN/TC 393 "Equipment for tanks and filling stations", 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of an identical text or by endorsement, at the latest by September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13617-3:2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to edition EN 13617-3:2004 the following fundamental changes are given:

- a new note at the end of the scope: 'Fuels other than of Explosion Group IIA are excluded from this European Standard' added;
- informative Annex C concerning environmental aspects added.

The present standard is composed of the following parts:

- *Part 1: Safety requirements for construction and performance of metering pumps, dispensers and remote pumping units;*
- *Part 2: Safety requirements for construction and performance of safe breaks for use on metering pumps and dispensers;*
- *Part 3: Safety requirements for construction and performance of shear valves;*
- *Part 4: Safety requirements for construction and performance of swivels for use on metering pumps and dispensers.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

The function of the shear valve is to prevent continuous liquid or vapour release in the event of impact or fire

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## 1 Scope

This European Standard specifies safety and environmental requirements for the construction and performance of shear valves to be fitted to metering pumps, dispensers, and/or satellite delivery systems installed at petrol filling stations and used to dispense liquid fuels into the tanks of motor vehicles, boats and light aircraft and into portable containers at flow rates up to 200 l min<sup>-1</sup>.

The requirements apply to shear valves at ambient temperatures from –20 °C to +40 °C with the possibility for an extended temperature range.

It pays particular attention to mechanical and hydraulic characteristics.

NOTE 1 This European Standard does not apply to equipment for use with liquefied petroleum gas (LPG) or liquefied natural gas (LNG) or compressed natural gas (CNG).

NOTE 2 Fuels other than of Explosion Group IIA are excluded from this European Standard.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 976–1, *Underground tanks of glass-reinforced plastics (GRP) — Horizontal cylindrical tanks for the non-pressure storage of liquid petroleum-based fuels — Part 1: Requirements and test methods for single wall tanks*

EN 1127-1, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 13463–1:2009, *Non-electrical equipment for use in potentially explosive atmospheres — Part 1: Basic method and requirements*

EN 13617-1:2012, *Petrol filling stations — Part 1: Safety requirements for the construction and performance of metering pumps, dispensers and remote pumping units*

EN 60079-0, *Explosive atmospheres — Part 0: Equipment — General requirements*

EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182)*

ISO 7–1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designations*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 13617–1:2010 and the following apply.

### 3.1

#### **main valve (liquid)**

normally open valve on the inlet side, closing when the shear valve operates

### 3.2

#### **main valve (vapour)**

normally open valve on the outlet side, closing when the shear valve operates

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- 3.3 pressure relief valve**  
valve to allow liquid to return to the pipework below the dispenser if pressure in the dispenser increases beyond a defined level
- 3.4 separation zone**  
designed to be the first section of the shear valve to fracture when stressed
- 3.5 mechanical link**  
device to activate the closing mechanism automatically to stop the flow of liquid when the shear valve breaks
- 3.6 thermal detector**  
device to activate the closing mechanism automatically to stop the flow of liquid when the temperature in the vicinity of the shear valve exceeds the operating temperature
- 3.7 test plug**  
device to allow pressure testing of associated pipework
- 3.8 mounting point**  
rigid attachment facility on the inlet and outlet sections of the shear valve

**4 Explosion protection measures**

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**4.1** Explosion protection measures shall be taken in accordance with EN 1127-1 and Annex B of EN 13617-1:2012.

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**4.2** The shear valve shall be explosion protected and shall be Category 2 in accordance with EN 13463-1. When a shear valve has a vapour path, the vapour path shall be category 1 in accordance with EN 13463-1. The shear valve shall fulfil the requirements for temperature Class T3 and Group IIA to EN 60079-0 or EN 13463-1.

**5 Construction****5.1 General requirements**

**5.1.1** All electrical and non-electrical equipment and components, intended for use in potentially explosive atmospheres, shall be designed and constructed according to good engineering practice and in conformity with the required categories for Group II equipment to ensure avoidance of any ignition source. To classify the category of the equipment it shall be subjected to an ignition hazard assessment in accordance with 5.2 of EN 13463-1:2009.

**5.1.2** All materials used in the construction shall be chemically and dimensionally stable under known service conditions. Materials likely to come into contact with fuels in both liquid and vapour phases shall be resistant to attack by these fuels. Conformity shall be demonstrated by testing in accordance with Clause 8.

**5.1.3** Light alloys when used shall conform to the requirements of 6.4.4.2 of EN 13463-1:2009. If other specifications for explosion protected equipment impose more stringent requirements then the more stringent requirement shall apply.

**5.1.4** All components shall be of corrosion resistant material or shall be provided with a corrosion resistant protective coating.

**5.1.5** Outside surfaces likely to be handled shall be free of sharp edges.



## 5.2 Specific requirements

**5.2.1** Means shall be provided to connect the shear valve to input and output pipework. The means selected shall not fail at forces less than the design shear force of the shear valve.

**5.2.2** The shear valve shall be so designed that after fracture of the weak section, the input and output sections shall be completely decoupled.

**5.2.3** The shear valve shall not have a means to prevent the main valve from closing completely when it is operated by the weak section or by the thermal detector.

**5.2.4** The thermal detector shall be so constructed that when it operates the main valve closes.

**5.2.5** Shear valves for liquids may include a manual means of closing the main valve (liquid) for maintain purposes.

**5.2.6** Test plugs, where fitted to shear valves in liquid containment systems, shall be on the inlet side of the main valve.

## 5.3 Classes of construction

Shear valves are classified in accordance with Table 1.

**Table 1 — Classes of construction**

Valve type	Class		
	I	II	III
Main valve	Yes	Yes	Yes
Thermal detector	Yes	Yes	No
Check valve	Yes	No	No
Pressure relief valve	Yes	No	No

Class I and II for liquid pressure systems,

Class III for vapour systems only.

## 5.4 Threads

Input and output threads shall be in accordance with ISO 7-1.

## 6 Physical properties

The physical properties of the shear valve shall conform to Table 2 when tested by the methods indicated.

**Table 2 — Physical properties of shear valve**

Physical property	Requirement	Test method
Fuel compatibility (preconditioning)	Clause 5	B.5
Electrostatic properties	6.7 of EN 13463-1:2009	EN 13463-1
Fire resistance	EN ISO 1182	EN ISO 1182

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## 7 Operational requirements

The shear valve shall conform to the operational requirements according to Table 3 and Table 4 when tested by the methods indicated.

**Table 3 — Operational requirements**

Item	Requirement	Test method
Housing	No quantifiable leakage, as evidenced by bubbles, or permanent deformation visible to an eye with normal visual acuity.	B.2
Main valve	No quantifiable leakage, as evidenced by bubbles, or permanent deformation visible to an eye with normal visual acuity.	B.3
Housing	B.6.5 No catastrophic damage B.6.7 No leakage	B.6
Main valve	B.7.5 No catastrophic damage B.7.7 No leakage	B.7
Check valve (class I only)	No quantifiable leakage or permanent deformation visible to an eye with normal visual acuity	B.8
Pressure relief valve (class I only)	There shall be a continuous leak through the relief valve	B.9
Thermal link 1 (class I and class II only)	Main valve shall remain open	B.10
Thermal link 2 (class I and class II only)	Main valve shall be closed	B.11
Main valve closure (Shear valve for liquids)	Main valve shall be closed. There shall be no continuous leakage past main valve. Weak section shall have permitted separation of the inlet and outlet sections.	B.12
Main valve closure (Shear valve for vapour recovery)	Main valve shall be closed. There shall be no continuous leakage past main valve. Weak section shall have permitted separation of the inlet and outlet sections.	B.13
Fire resistance	EN ISO 1182	EN ISO 1182

## 8 Tests

### 8.1 General

Testing shall be performed in accordance with Table 4.

### 8.2 Type tests

All four shear valves shall be preconditioned in accordance with B.5, and then tested in accordance with B.6, B.7, B.8 and B.9.

One unit shall be tested in accordance with B.10 and than B.11.

Two units shall be tested in accordance with B.12 or B.13.

One unit shall be tested in accordance with EN ISO 1182.

### 8.3 Production acceptance tests

Thermal link tests, check valve test and main valve closure test shall be performed on a sample of not less than 0,5 % of any given batch; each batch shall have at least one sample tested. These tests shall be in accordance with Table 3.

## 8.4 Routine tests

Routine tests shall be performed on each finished shear valve.

**Table 4 — Tests**

Property	Type test Clause reference	Production acceptance test Clause reference	Routine test Clause reference
Physical property			
Fuel compatibility test	B.5	–	–
Fire resistance test	EN ISO 1182	–	–
Operational requirements			
Pressure test	B.6	–	B.2
Main valve test	B.7	–	B.3
Check valve test	B.8	–	–
Pressure relief valve test	B.9	–	B.4
Thermal link test 1	B.10	B.10	–
Thermal link test 2	B.11	B.11	–
Main valve closure test (shear valve for liquids)	B.12	B.12	–
Main valve closure test (shear valve for vapour recovery)	B.13	B.13	–
Fire resistance test	EN ISO 1182	–	–

## 9 Information for use

### 9.1 General

Information for use shall be according to Annex A and EN 13617-1.

### 9.2 Marking and instruction

If the size of the shear valves is not large enough for the marking, only the name of the manufacturer and the class of the shear valve shall be marked. All further details of the marking may be included in the declaration form.

Shear valves shall be marked legibly and indelibly during the manufacturing process; where necessary this marking may be made visible for inspection by the easy removal of plastic covers. Marking shall include at least the following information:

- manufacturer's name or identification,
- EN number,
- the ambient temperature range if it is outside the temperature range of -20 °C to +40 °C,
- class – as defined by this document,
- manufacturer's type indication,