

SLOVENSKI STANDARD

SIST EN 13617-2:2012

01-maj-2012

Nadomešča:
SIST EN 13617-2:2004

Bencinski servisi - 2. del: Varnostne zahteve za izdelavo in lastnosti varnostnih zapor za tlačne in sesalne naprave za točenje goriva

Petrol filling stations - Part 2: Safety requirements for construction and performance of safe breaks for use on metering pumps and dispensers

Tankstellen - Teil 2: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Abreißkupplungen für Zapfsäulen und druckversorgte Zapfsäulen

Stations-service - Partie 2: Exigences de sécurité relatives à la construction et aux performances des raccords cassants utilisés pour distributeurs de carburants

Ta slovenski standard je istoveten z: **EN 13617-2:2012**

ICS:

75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment
--------	---	---

SIST EN 13617-2:2012

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13617-2:2012

<https://standards.iteh.ai/catalog/standards/sist/ec7a3e32-a38f-41ed-95f4-dfac7e95b7f2/sist-en-13617-2-2012>

EUROPEAN STANDARD

EN 13617-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2012

ICS 75.200

Supersedes EN 13617-2:2004

English Version

Petrol filling stations - Part 2: Safety requirements for construction and performance of safe breaks for use on metering pumps and dispensers

Stations-service - Partie 2: Exigences de sécurité relatives à la construction et aux performances des raccords cassants utilisés pour les distributeurs de carburant

Tankstellen - Teil 2: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Abreißkupplungen für Zapfsäulen und druckversorgte Zapfsäulen

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

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/cc7a5e92-a58f-41ed-95f4-dfac7e95b7f2/sist-en-13617-2-2012>



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	5
4 Explosion protection measures	5
5 Construction.....	5
5.1 General.....	5
5.2 Hose breaks.....	6
5.3 Inlet threads.....	6
5.3.1 Safe break type 1	6
5.3.2 Safe break type 2	6
6 Physical properties.....	7
7 Operational requirements	8
8 Overview of tests	9
9 Information for use	10
9.1 General.....	10
9.2 Marking and instruction	10
Annex A (normative) General requirements of test.....	11
A.1 General.....	11
A.2 Tightness test 1.....	11
A.3 Pressure separation test 1.....	11
Annex B (normative) Tests.....	12
B.1 Test liquid	12
B.2 Fuel compatibility pre-conditioning.....	12
B.3 Pre-conditioning mechanical impact test of re-usable safe breaks	12
B.4 Tightness test 2.....	12
B.5 Pressure separation test 2.....	13
B.6 Pressure test	13
B.7 Axial separation force test 1	13
B.8 Axial separation force test 2 to nozzle breaks and pump breaks.....	13
B.9 Non-axial separation force test 1 to nozzle breaks and pump breaks	14
B.10 Non-axial separation force test 2 to nozzle breaks and pump breaks	14
B.11 Axial separation force test 3.....	14
B.12 Axial separation force test 4.....	14
B.13 Liquid release test	14
B.14 Re-connection test 1	15
B.15 Re-connection test 2	15
B.16 Electrical resistance test.....	15
Annex C (informative) Environmental aspects.....	16
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC	18
Bibliography	19

Foreword

This document (EN 13617-2:2012) 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 13617-2:2004.

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 13617-2:2004 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.

EN 13617-2:2012 (E)**1 Scope**

This European Standard specifies safety requirements for the construction and performance of safe breaks to be fitted to metering pumps and dispensers installed at 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⁻¹.

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

It pays particular attention to electrical, mechanical and hydraulic characteristics of, and electrical apparatus incorporated within or mounted on, the safe break.

This European Standard applies mainly to hazards related to the ignition of liquid fuels being dispensed or their vapour. This European Standard also addresses electrical and mechanical hazards.

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 228, *Automotive fuels — Unleaded petrol — Requirements and test methods*

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

EN 1360, *Rubber and plastic hoses and hose assemblies for measured fuel dispensing systems — Specification*

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

EN 13483, *Rubber and plastic hoses and hose assemblies with internal vapour recovery for measured fuel dispensing systems — Specification*

prEN 13617-1:2010, *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 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 1825, *Rubber hoses and hose assemblies for aircraft ground fuelling and defuelling — Specification (ISO 1825)*

EN ISO 8031:2009, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance and conductivity (ISO 8031:2009)*

ISO 261, *ISO general-purpose metric screw threads — General plan*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 11925-3, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 3: Multi-source test*

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

safe break

device to minimize fuel spillage and to stop fuel flow achieved by separation between nozzle and metering pump or dispenser within a defined range of forces

3.2

safe break type 1

safe break constructed for liquid lines only

3.3

safe break type 2

safe break constructed for liquid lines combined with vapour recovery lines

3.4

nozzle break

safe break fitted directly into the nozzle inlet, or integral with the nozzle

3.5

hose break

safe break fitted within the delivery hose circuit

3.6

pump break

safe break fitted directly to the fixed hydraulics

3.7

re-usable safe break

safe break that, once operated, may be re-assembled for further use

3.8

non re-usable safe break

safe break that, once operated, cannot be re-assembled for further use

4 Explosion protection measures

4.1 Explosion protection measures shall be taken in accordance with EN 1127-1 and Annex B of prEN 13617-1:2010.

4.2 The safe break shall be explosion protected and shall be Category 2 in accordance with EN 13463-1. The vapour path of a vapour recovery safe break shall be Category 1 in accordance with EN 13463-1. The safe break shall fulfil the requirements for temperature class T3 and Group IIA to EN 60079-0 or EN 13463-1.

5 Construction

5.1 General

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. Compliance shall be demonstrated by manufacturer's declaration and compliance with the tests B.1 to B.16 inclusive.

EN 13617-2:2012 (E)

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

5.1.5 If protective covers are fitted they shall be constructed such that they allow ventilation and evaporation of fuel even if some shrinkage occurs. They shall not affect the performance of the safe break.

5.1.6 Safe breaks Type 1 and Type 2, except nozzle breaks, when operated shall close liquid lines both up stream and down stream of the break.

5.1.7 For safe breaks Type 2 it is not required to close vapour lines either side of the break. A means to close off vapour lines may be included.

5.1.8 On re-usable safe breaks, the sections that break away shall be constructed so that the means of reconnection cannot be damaged by impacts suffered as a result of separation.

5.1.9 The construction shall be such that on reconnection of a re-usable device, or attempted reconnection of a non re-usable device, fluid shall not be sprayed out during the reconnection action.

5.2 Hose breaks

Hose breaks which incorporate hose shall use hose conforming to EN 1360, EN ISO 1825 or EN 13483.

5.3 Inlet threads**5.3.1 Safe break type 1**

Form 1 threads for the hose connection shall be parallel threads according to EN ISO 228–1 according to Table 1. The sealing surfaces of the internal and external threads shall be designed such that they are suitable for use with an appropriate seal.

Table 1 — Form 1 Thread specifications

Nominal inlet size inch	FEMALE THREADS ^a	MALE THREADS ^b
	Maximum thread depth mm	Minimum thread length mm
3/4"	12,5	11,0
1"	15,5	14,0
1 1/4"	15,5	17,5
1 1/2"	15,5	18,0
^a The thread depth is measured from the outer to the metallic inner sealing face. ^b The stated minimum lengths does only apply if the female thread of the hose fitting includes an inner flat gasket. In case of using an outer flat gasket, the male threads may be shorter as stated.		

5.3.2 Safe break type 2

Threads shall comply with Form 2:

- Form 2.
- M 34 × 1,5 female or male according to ISO 261 and ISO 965–2.

The total thread depth shall be not less than 15,0 mm. The inlet end shall be controlled to a diameter of (35,0 ± 0,05) mm for a length (6,0 ± 0,1) mm.

6 Physical properties

The physical properties of the safe break shall be according to Table 2.

Table 2 — Physical properties of safe break

PROPERTY	REQUIREMENT	TEST METHOD
Electrical resistance of inlet thread to outlet thread when fully assembled.	All readings to be $< 10^5 \Omega$	B.16
Electrostatic properties	6.7 of EN 13463-1:2009	EN 13463-1
Fuel compatibility	Clause 7	B.2
Ignitability of composites on safe break, Ignition source C; Effect time 20 s; Surface flame impingement	The material tested shall not afterflame	ISO 11925-3
Characteristics of safe break body and/or cover to prevent dangerous, mechanically generated, sparks (resistance to sparking).	6.4.4.2 of EN 13463-1:2009	EN 13463-1

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 13617-2:2012

<https://standards.iteh.ai/catalog/standards/sist/ec7a3e32-a38f-41ed-95f4-dfac7e95b7f2/sist-en-13617-2-2012>

7 Operational requirements

The safe break shall comply with the operational requirements of Table 3 when tested by the indicated methods; and with a frequency of tests as specified in Clause 8.

Table 3 — Operational requirements

OPERATIONAL REQUIREMENT	REQUIREMENT	TEST METHOD
Tightness test 1	No quantifiable sign of leakage visible to an eye with normal visual acuity.	A.2
Pressure separation test 1	There shall be no separation of the safe break and no continuous flow of liquid	A.3
Pre-conditioning mechanical impact test	There shall be no increase in the volume of fuel released from the input section. There shall not be sufficient mechanical damage to prevent the re-assembly of the safe break when applying maximum re-assembly forces specified by the manufacturer.	B.3
Tightness test 2	No quantifiable sign of leakage visible to an eye with normal visual acuity.	B.4
Pressure separation test 2	There shall be no separation of the safe break and no continuous release of liquid	B.5
Pressure test	There shall be no catastrophic damage	B.6
Axial separation force test 1	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.7
Axial separation force test 2	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.8
Non-axial separation force test 1	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.9
Non-axial separation force test 2	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.10
Axial separation force test 3	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.11
Axial separation force test 4	Separation shall occur for an applied force F such that $800 \text{ N} \leq F \leq 1500 \text{ N}$	B.12
Liquid release test	Liquid release $\leq 10 \text{ ml}$ (for maximum flow rate $\leq 80 \text{ l}\cdot\text{min}^{-1}$), Liquid release $\leq 25 \text{ ml}$ (for maximum flow rate $> 80 \text{ l}\cdot\text{min}^{-1}$; $\leq 200 \text{ l}\cdot\text{min}^{-1}$), For nozzle breaks, liquid release $\leq 120 \text{ ml}$ for the nozzle itself	B.13
Re-connection test 1	Liquid release $\leq 120 \text{ ml}$	B.14
Re-connection test 2	Liquid release $\leq 120 \text{ ml}$	B.15
Electrical resistance of inlet thread to outlet thread when fully assembled.	All readings to be $< 10^5 \Omega$	B.16

8 Overview of tests

Tests shall be performed in accordance with Table 4.

NOTE Pneumatic testing is potentially a much more dangerous operation than hydraulic testing, in that, irrespective of size, any failure during test is likely to be of a highly explosive nature.

Type tests are those tests required to evaluate conformity. Each of four safe breaks shall be subjected to the type tests as set out below.

All safe breaks for type test shall be pre-conditioned according to B.2 and B.3.

The preconditioning mechanical impact test according to B.3 shall be done immediately after removal from saturated atmosphere and shall be commenced within 30 min of removal from saturated atmosphere. Tests B.4, B.5, B.7 to B.16 shall then be performed and shall be completed within 2 h of the commencement of the pressure test and finally in accordance with B.6.

Production acceptance tests shall be carried out on the first unit produced on a production run, the last unit manufactured on a production run and at least every one hundredth unit during the production run.

Routine tests shall be carried out on each finished safe break.

Table 4 — Tests

PROPERTY/REQUIREMENT	TYPE TESTS	PRODUCTION ACCEPTANCE TESTS	ROUTINE TESTS
Physical property		–	
Electrostatic properties	Declaration	Declaration	Declaration
Resistance to sparking	Manufacturers declaration according to Table 2		
Operational requirement		–	
Pre-conditioning mechanical impact test	B.3	–	–
Tightness test 1	–	–	A.2
Tightness test 2	B.4	B.4	–
Pressure separation test 1	–	–	A.3
Pressure separation test 2	B.5	B.5	–
Pressure test	B.6	–	–
Axial separation force test 1	B.7	B.7	–
Axial separation force test 2	B.8	–	–
Non-axial separation force test 1	B.9	B.9	–
Non-axial separation force test 2	B.10	–	–
Axial separation force test 3	B.11	B.11	–
Axial separation force test 4	B.12	–	–
Liquid release test	B.13	B.13	–
Re-connection test 1	B.14	B.14	–
Re-connection test 2	B.15	–	–
Electrical resistance	B.16	B.16	B.16 ^a

^a Where there is low resistance material from inlet thread, across the break to the output then this routine test shall not be required.