



SLOVENSKI STANDARD

SIST EN 13617-4:2012

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Nadomešča:
SIST EN 13617-4:2005

Bencinski servisi - 4. del: Varnostne zahteve za izdelavo in lastnosti vrtljivih delov na tlačnih in sesalnih napravah za točenje goriva

Petrol filling stations - Part 4: Safety requirements for construction and performance of swivels for use on metering pumps and dispensers

Tankstellen - Teil 4: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Drehgelenken für Zapfsäulen und druckversorgte Zapfsäulen

Stations-service - Partie 4: Exigences relatives à la construction et aux performances de sécurité des raccords tournants utilisés sur les distributeurs de carburants

Ta slovenski standard je istoveten z: EN 13617-4:2012

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

EN 13617-4

NORME EUROPÉENNE

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Supersedes EN 13617-4:2004

English Version

Petrol filling stations - Part 4: Safety requirements for construction and performance of swivels for use on metering pumps and dispensers

Stations-service - Partie 4: Exigences relatives à la construction et aux performances de sécurité des raccords tournants utilisés sur les distributeurs de carburants

Tankstellen - Teil 4: Sicherheitstechnische Anforderungen an Bau- und Arbeitsweise von Drehgelenken 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.

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Foreword

This document (EN 13617-4:2012) 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 13617-4:2004.

According to edition EN 13617-4:2004 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 B concerning environmental aspects added.

This European Standard 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 Directives.

For relationship with EU Directives, see informative Annex ZA, which is an integral part of this standard.

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 13617-4:2012 (E)**1 Scope**

This European Standard specifies safety requirements for the construction and performance of swivels to be fitted to delivery hose assemblies on 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. It pays particular attention to electrical, mechanical and hydraulic characteristics of swivels.

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

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 of swivels.

This European Standard is not applicable to swivels for the dispensing of any compressed gas.

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*

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

EN 13012:2001, *Petrol filling stations — Construction and performance of automatic nozzles for use on fuel dispensers*

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 construction and performance of metering pumps, dispensers and remote pumping units*

EN 13617-2:2012, *Petrol filling stations — Part 2: Safety requirements for construction and performance of safe breaks for use on metering pumps and dispensers*

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 EN 13012:2001, prEN 13617-1:2010 and EN 13617-2:2012 and the following apply:

3.1

swivel

device fitted between nozzle and metering pump or dispenser to allow rotational movement

3.2

single plane swivel

swivel with one plane of rotation

3.3

dual plane swivel

swivel with two planes of rotation

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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.

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

5 Construction

5.1 General

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.

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 manufacturer's declaration and by the tests detailed in Annex A.

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 than the more stringent requirement shall apply.

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

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

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

The sealing surfaces of the connection threads shall be designed such that they are suitable for use with an enclosed O-ring or flat gasket.

5.2 Connection threads

Connection threads shall be one of the following styles:

Style 1

Swivels without a vapour recovery path shall use parallel threads in accordance with EN ISO 228–1.

The connection thread dimensions shall be in accordance with Table 1

Table 1 — Thread specifications

Nominal connection size Inch	Female threads	Male threads
	Maximum thread depth ^a mm	Minimum thread length ^b 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, measured from the outer fore-part to the metallic inner sealing face.

^b The stated minimum length only applies if the female thread of the connection fitting includes an inner flat gasket. When no inner flat gasket is used the minimum thread length depends on the tightness requirements of the threaded connection.

Style 2:

Swivels with a vapour recovery path shall use M 34 x 1,5 male outlet threads according to ISO 261 and ISO 965-2.

The total thread length shall be maximum 15,0 mm.

The inlet end shall be machined to a diameter of $(35,0 \pm 0,05)$ mm for a length $(6,0 \pm 0,1)$ mm.

5.3 Safe breaks

If a swivel has an integral safe break it shall fulfil the requirements of EN 13617–2.

6 Physical properties

The physical properties of the swivel shall conform to the requirements given in Table 2 when tested by the methods indicated.

Table 2 — Physical properties of swivel

Property	Requirement	Test method
Electrical resistance between inlet and outlet when assembled.	$< 10^5 \Omega$	A.4
Electrostatic properties	6.7 EN 13463-1:2009	EN 13463-1
Fuel compatibility	5.1	A.2 followed by A.6, A.7 and A.5
Endurance	Clause 6 and electrical resistance test $< 10^5 \Omega$ after endurance test	A.3
Ignitability of composites on the swivel. Ignition source C; Effect time 20 s; Surface flame impingement	The material tested shall not flame	ISO 11925-3
Characteristics of swivel component's and/or covers to prevent dangerous, mechanically generated, sparks (resistance to sparking).	6.4.4.2 EN 13463-1:2009	EN 13463-1

7 Functional requirements

The swivel shall comply with the operational requirements of Table 3 when tested by the indicated methods; and with a frequency of testing as specified in Clause 8 and Table 4.

Table 3 — Operational requirements

Test	Test method	Requirement
Burst test	A.5	No catastrophic damage.
Drop test	A.6	No permanent deformation of the swivel leading to malfunction.
Leak test	A.7	No quantifiable sign of leakage visible to an eye with normal visual acuity.

8 Frequency of testing

Testing shall be performed in accordance with the schedule given in Table 4.

A total of five swivels shall be subjected to the type tests.

One swivel for type test shall be tested according to A.3 followed by functional requirements under Clause 7.

Four swivels for type test shall be pre-conditioned according to A.2. The drop test according to A.6 shall be done immediately after removal from saturated atmosphere and shall be commenced within 30 min of removal from saturated atmosphere, followed by the leak test according to A.7. Then the burst test shall be performed according to A.5.

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 swivel.