SLOVENSKI STANDARD
oSIST prEN 13012:2018

01-november-2018

Bencinski servisi - Izdelava in lastnosti avtomatskih točilnih ventilov, vgrajenih v napravah za točenje goriva

Petrol filling stations - Construction and performance of automatic nozzles for use on fuel dispensers

Tankstellen - Anforderungen an Bau und Arbeitsweise von automatischen Zapfventilen für die Benutzung an Zapfsäulen

Stations-service - Construction et performances des pistolets automatiques de remplissage utilisés sur les distributeurs de carburant

Ta slovenski standard je istoveten z: **prEN 13012**

ICS:

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

oSIST prEN 13012:2018 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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prEN 13012

October 2018

ICS 75.200

Will supersede EN 13012:2012

English Version

Petrol filling stations - Construction and performance of automatic nozzles for use on fuel dispensers

Stations-service - Construction et performances des pistolets automatiques de remplissage utilisés sur les distributeurs de carburant

Tankstellen - Anforderungen an Bau und Arbeitsweise von automatischen Zapfventilen für die Benutzung an Zapfsäulen

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

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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

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European foreword

This document (prEN 13012:2018) 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 13012:2012.

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.

In comparison with the 2012 edition, the following fundamental changes were made:

— nozzles for aqueous urea solution added;

— Table 2 corrected to ensure compatibility between components according to EN 13012, EN 13617-2, EN 13617-4 and EN 1360.

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.

1 Scope

This document specifies safety and environmental requirements for the construction and performance of nozzles to be fitted to metering pumps and dispensers installed at filling stations and which are used to dispense liquid fuels and aqueous urea solution into the tanks of motor vehicles, boats and light aircraft and into portable containers, at flow rates up to 200 $l \cdot min^{-1}$.

This document applies to fuels of Explosion Group IIA and also aqueous urea solution according to ISO 22241-1.

NOTE Fuels other than of Explosion Group IIA are excluded from this document.

The requirements apply to automatic nozzles dispensing flammable liquid fuels at ambient temperatures from –20 °C to +40 °C with the possibility for an extended temperature range.

This document does not apply to equipment dispensing compressed or liquefied gases.

This document does not include any requirements for metering performance, such as might be specified under the Measuring Instruments Directive, nor those requirements specified under the Electromagnetic Compatibility Directive.

Vapour recovery efficiency rates are not covered in this document.

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 976-1:1997, *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 1360, *Rubber and plastic hoses and hose assemblies for measured fuel dispensing systems — Specification*

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

EN 60079-0:2012, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2011, modified)*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

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 80079-36:2016, *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements (ISO 80079-36:2016)*

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 9158, *Road vehicles — Nozzle spouts for unleaded gasoline*

ISO 9159, *Road vehicles — Nozzle spouts for leaded gasoline and diesel fuel*

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

ISO 22241-1, *Diesel engines — NOx reduction agent AUS 32 — Part 1: Quality requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
nozzle
manually operated device that controls the flow of liquid medium during a dispensing operation and includes a spout and an automatic shut-off mechanism

3.2
vapour recovery nozzle
nozzle that additionally includes a path through which vapour can be recovered

3.3
automatic shut-off
function that automatically stops the fluid flow to prevent overfilling

3.4
attitude device
means to prevent delivery unless the spout is pointing down

3.5
automatic de-activating mechanism
means to prevent flow if the system is re-energized while the operating lever is in an open position

3.6
operating device
mechanism by which the main valve is controlled by the user

3.7
main valve
device controlling the fluid flow

3.8
latch
mechanism to hold the operating lever in an open position

3.9
guard
structure to protect the operating lever

3.10
spout
device to guide the flow of fluid into a tank of a motor vehicle, boat and light aircraft or portable container

3.11
check valve
device to restrict the hose draining through the nozzle

3.12
flow rate
flow of fluid obtained under normal working conditions

Note 1 to entry: In $l \cdot min^{-1}$ or $m^3 \cdot h^{-1}$.

3.13
line shock
peak pressure developed when fluid flow is stopped from full flow by the nozzle

3.14
spout axis angle
angle of the spout axis to horizontal above which no flow through the nozzle is allowed

3.15
maximum flow rate
upper limit of flow rate range, specified by the manufacturer

4 Construction

4.1 General

Materials used in the construction of nozzles shall be chemically and dimensionally stable under known service conditions. Materials likely to come into contact with fuels, both in liquid and vapour phases, shall be resistant to attack by these fuels. Conformity shall be demonstrated by manufacturers' declarations and by the tests detailed in Annex B.

The nozzle shall be explosion-protected and shall be Category 2, Group II, EPL Gb in accordance with EN ISO 80079-36. Components fitted to the spout and within the vapour recovery path shall be Category 1, Group II, EPL Ga in accordance with EN ISO 80079-36. The nozzle shall fulfil the requirements for temperature class T3 and group IIA according to EN 60079-0 or EN ISO 80079-36. The nozzle shall have a manually controlled operating device, which may incorporate an integral latch, to control the liquid flow. Where a latch is provided, it shall be possible to disable the latching function.

The surfaces and mechanisms of the nozzle which, in normal operation, come into contact with the operator shall be such that they present no risk of injury. Conformity to this requirement is demonstrated by visual inspection of a nozzle.

Nozzles shall be classified as Type I or Type II according to the delivery characteristics given in Table 1.

Table 1 — Types of construction

Value	Type I	Type II
Maximum flow rate	≤ 80 l · min^{-1}	> 80 l · min^{-1} ≤ 200 l · min^{-1}
Dimension of the spout	According to ISO 9158 or ISO 9159	Not specified
Position of the sensor	According to ISO 9158 or ISO 9159	≤ 50 mm from plane of spout tip
Spout axis angle	0°	+ 2°

4.2 Guard

A guard shall be provided to prevent accidental misuse of the operating device.

4.3 Inlet threads

Inlet threads shall be of one of the following two styles.

a) Style 1 – for nozzles without a vapour recovery path.

For nozzles without a vapour recovery path, using parallel threads for the hose connection in accordance with EN ISO 228-1, the sealing surfaces of the internal and external threads shall be designed such that they are suitable for use with flat gaskets.

b) Style 2 – for nozzles with a vapour recovery path.

M 34 × 1,5 Female, in accordance with ISO 261 and ISO 965-2.

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

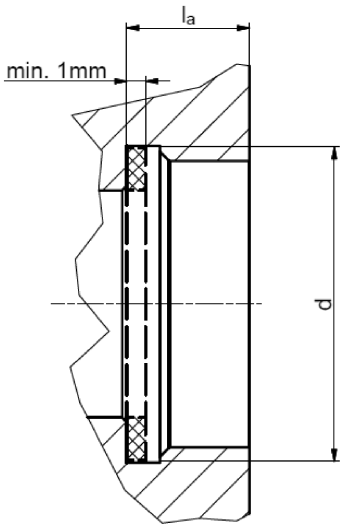
Inlet thread dimensions shall be in accordance with Table 2.

Table 2 — Thread specification for style 1

Nominal inlet size ***d***	Female threads	Male threads
	Thread depth [a] l_a mm See Figure 1	Minimum engagement [b] l_b mm See Figure 2
3/4”	12,0 $^{-0.5}$	12,0
1”	13,0 $^{-0.5}$	13,0
1 1/4”	15,0 $^{-0.5}$,	15,0
1 1/2”	18,0 $^{-0.5}$	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 hose fitting includes an inner flat gasket. In case of using an outer flat gasket, the male threads may be shorter than the dimensions in this table.

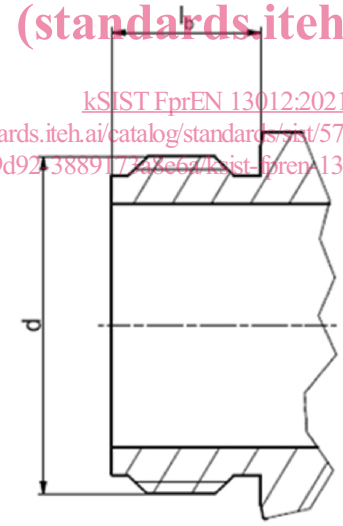


Key

l_a female thread depth

d nominal inlet size

Figure 1 — Female inlet thread



Key

*l*b male thread minimum engagement

d nominal inlet size

Figure 2 — Male inlet thread

4.4 Safe break

Where a nozzle is provided with a safe break this shall fulfil the requirements according to EN 13617-2.

4.5 Latch

Where a latch is provided and in use, it shall be capable of being normally disarmed by the user.

4.6 Automatic de-activating mechanism

If an automatic de-activating mechanism exists entirely in the nozzle, it shall fulfil the requirements specified in Clause 6.

5 Physical properties

The physical properties of the nozzle shall conform to the requirements given in Table 3 when tested in accordance with the methods indicated.

Table 3 — Physical properties of nozzle

Property	Requirement	Test method
Electrical resistance of any point on the spout to hose coupling	≤ 100 kΩ for each measurement	B.1
Electrostatic properties	EN ISO 80079-36:2016, 6.7	–
Ignitability of composite materials on nozzle body Ignition source C Effect time 20 s Surface flame impingement	The material tested shall not afterflame.	According to ISO 11925-3
Bending moment	Clause 6	Annex A
Fuel compatibility for fuel nozzles	Clause 6	Annex A
Characteristics of nozzle body and/or cover to prevent dangerous, mechanically generated sparks (resistance to sparking)	Metallic enclosure requirements of EN 60079-0:2012, 8.3	–

6 Functional requirements

The nozzle shall conform to the operational requirements given in Table 4 and Table 5 when tested according to the schedule given in Table 6.

Where a test liquid is required for the testing of fuel nozzles, it shall be an odourless kerosene except where noted otherwise. Water, or a mixture of water and glycol up to 15 % by volume, shall be used for the testing of aqueous urea solution nozzles, except where noted otherwise.