SLOVENSKI STANDARD
oSIST prEN 12514-3:2009

01-julij-2009

Sestavni deli sistemov za dovod tekoļ ega goriva oljnim aparatom - 3. del: Varnostne zahteve in preskuġanje - Ventili in ġtevci

Parts for supply systems for consuming units with liquid fuels - Part 3: Safety requirements and tests - Valves and meters

Bauelemente für Versorgungsanlagen für Verbrauchsstellen mit flüssigen Brennstoffen - Teil 3: Sicherheitstechnische Anforderungen und Prüfungen - Armaturen und Zähler

Appareils et éléments de construction pour le transfert au consommateur de liquide combustible - Partie 3: Prescriptions de sécurité et essais - Armatures et compteurs

Ta slovenski standard je istoveten z: **prEN 12514-3 rev**

ICS:

27.060.10	Gorilniki na tekoļ e in trdo gorivo	Liquid and solid fuel burners

oSIST prEN 12514-3:2009 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 12514-3

June 2009

ICS 27.060.10

Will supersede EN 12514-1:2000, EN 12514-2:2000

English Version

Parts for supply systems for consuming units with liquid fuels - Part 3: Safety requirements and tests - Valves and meters

Appareils et éléments de construction pour le transfert au consommateur de liquide combustible - Partie 3: Prescriptions de sécurité et essais - Armatures et compteurs

Bauelemente für Versorgungsanlagen für Verbrauchsstellen mit flüssigen Brennstoffen - Teil 3: Sicherheitstechnische Anforderungen und Prüfungen - Armaturen und Zähler

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 47.

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.

This draft European Standard was established by CEN 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (prEN 12514-3:2009) has been prepared by Technical Committee CEN/TC 47 “Atomizing oil burners and their components – Function – Safety – Testing”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12514-1:2000, EN 12514-2:2000.

According to edition 2000 the following fundamental changes are given:

— standards new structured;

— new parts for supply systems included;

— technical requirements revised;

— number of cycles for the fitness-for-use test added;

— requirements for flood proof parts included;

— marking, packing and instructions revised;

— harmonization of the standard to Measuring Instruments Directive (MID) 2004/22/EC.

This standard consists of 4 Parts:

Parts for supply systems for consuming units with liquid fuels

Part 1: Safety requirements and tests — Terminology, general requirements

Part 2: Safety requirements and tests — Feed pumps, control and safety devices, service vessels

Part 3: Safety requirements and tests — Valves and meters

Part 4: Safety requirements and tests — Pipings and parts within pipelines

1 Scope

This European Standard applies to the following parts of supply systems for the automatic liquid fuel supply of consuming units from one or more tanks:

a) isolating valve;

b) quick-acting valve;

c) switch-over valve;

d) forced switch-over valve;

e) check valve;

f) pressure compensating device;

g) discharge valve;

h) pressure reducer;

i) filter;

j) meter;

k) de-aerator;

l) anti-siphon safety device;

m) pressure retaining device;

n) isolation device;

o) pressure gauge;

p) vapour/air separator;

q) pressure control path;

r) combined part

s) other part.

2 Normative references

The following referenced documents are indispensable for the application 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 293, *Oil pressure atomizing nozzles — Minimum requirements — Testing*

EN 837-1, *Pressure gauges — Part 1: Bourdon hose pressure gauges; dimensions, metrology, requirements and testing*

EN 837-2, *Pressure gauges — Part 2: Selection and installation recommendations for pressure gauges*

EN 837-3, *Pressure gauges — Part 3: Diaphragm and capsule pressure gauges; dimensions, metrology, requirements and testing*

EN 1267, *Valves — Test of flow resistance using water as test fluid*

EN 12266-1:2003, *Industrial valves — Testing of valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

EN 12266-2:2002, *Industrial valves — Testing of valves — Part 2: Tests, test procedures and acceptance criteria; Supplementary requirements*

prEN 12514-1:2009, *Parts for supply systems for consuming units with liquid fuel — Part 1: Safety requirements and tests — Terminology, general requirements*

prEN 12514-4, *Parts for supply systems for consuming units with liquid fuel — Part 4: Safety requirements and tests — Pipework and parts within pipes*

EN 13636, *Cathodic protection of buried metallic tanks and related piping*

EN 14505, *Cathodic protection of complex structures*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006)*

ISO 23553-1:2007, *Safety and control devices for oil burners and oil-burning appliances — Particular requirements — Part 1: Shut-off devices for oil burners*

OIML R 117-1:2007, *Dynamic measuring systems for liquids other than water — Part 1: Metrological and technical requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 12514-1 apply.

4 Safety requirements

4.1 General requirements

4.1.1 Materials

According to prEN 12514-1.

Test according to annex D.3 of prEN 12514-1:2009.

4.1.2 Construction requirements

According to prEN 12514-1.

Test according to annex D.3 of prEN 12514-1:2009.

4.1.3 Pressure strength

According to prEN 12514-1.

Test according to annex D.1 of prEN 12514-1:2009.

Additional testing for thermoplastic materials according to annex C of prEN 12514-1:2009.

4.1.4 Temperature range

According to prEN 12514-1.

Test according to annex D.3 of prEN 12514-1:2009.

Additional testing for parts designed for $t_{s,min}$ = -20 °C according to annex F of prEN 12514-1:2009.

Additional testing for thermoplastic materials according to annex C of prEN 12514-1:2009.

4.1.5 Pipeline connections

According to prEN 12514-4.

Test according to annex D.3 of prEN 12514-1:2009 and prEN 12514-4.

4.1.6 Flow resistance

The differential pressure of the part shall be declared by the manufacturer as a function of the flow rate of the intended liquid fuel at a temperature of (20 ± 5) °C, preferably as flow rate coefficient, K_V, according to EN 1267.

Type testing according to EN 1267.

4.1.7 Function

The part related functions according to 4.2 shall be demonstrated according to clause 5:

— during the type testing, prior and after the fitness-for-use test according to 4.1.8;

— during the factory production control.

4.1.8 Fitness for use

The fitness-for-use test shall be conducted during type testing.

For the part related number of cycles, refer to 4.2.

The fitness-for-use test shall be carried out at a test temperature t_t = (20 ± 5) °C.

Test according to 5.1.

4.1.9 External leak-tightness

The external leak-tightness test shall be carried out:

— During the type testing, after the fitness-for-use test;

— during the factory production control.

No visible leakage.

Test according to annex D.2 of prEN 12514-1:2009.

4.1.10 Internal leak-tightness

The internal leak-tightness needs to be demonstrated for parts with shut-off function only.

The internal leak-tightness test shall be carried out:

— during the type testing, after the fitness-for-use test;

— during the factory production control.

The leakage rate for parts with shut-off function shall not exceed leakage rate B of EN 12266-1 when in the closed position.

Seat tightness test, test P12 – EN 12266-1:2003.

NOTE As the allowable differential pressure according to EN 12266-1, the maximum allowable pressure p_s shall be used.

4.1.11 Corrosion resistance

Parts intended for use outside buildings shall be resistant to or protected against corrosion.

The suitability of the corrosion protection shall be demonstrated by a test carried out as part of the type testing: neutral salt spray test (NSS) according to EN ISO 9227 with a test duration of 96 h.

After this test, it shall be demonstrated by visual inspection that the parts required for operation according to the specifications do not show any signs of corrosion; salt residues due to the test shall be neglected. Following this, the part related functions according to 4.2 shall be verified.

4.1.12 Fireproof part

According to 4.6 of prEN 12514-1:2009.

Type testing according to annex D.4 of prEN 12514-1:2009.

4.1.13 Flood proof part

According to 4.7 of prEN 12514-1:2009.

Type testing according to annex D.5 of prEN 12514-1:2009.

4.1.14 Vacuum test

The vacuum test shall be carried out as part of the type testing of parts which may be subject to vacuum, in order to demonstrate their pressure strength and external leak-tightness.

Type testing according to annex D.6 of prEN 12514-1:2009.

4.2 Part related requirements

4.2.1 Isolating valve

An isolating valve directly exposed to the operating cycles of the consuming unit shall withstand 250 000 cycles.

A manually operated isolating valve shall withstand 1 000 cycles.

Fitness-for-use test according to 5.1.2.

4.2.2 Quick-acting valve

The quick-acting valve shall only allow a completely opened or closed position, but no throttle position.

The open or closed position shall be visible.

Quick-acting valves for remote controlled mechanical operation shall, at the operating element, be provided with a drilled hole of at least 2 mm.

A quick-acting valve directly exposed to the operating cycles of the consuming unit shall withstand 250 000 cycles.

A manually operated quick-acting valve shall withstand 1 000 cycles.

Fitness-for-use test according to 5.1.2.

4.2.3 Switch-over valve

The outlet of a switch-over valve shall be connected only with one inlet and shall be leak tight against the other inlet.

The respective adjusted position shall be visible.

A manually operated switch-over valve shall withstand 1 000 cycles.

Fitness-for-use test according to 5.1.2.

4.2.4 Forced switch-over valve

The forced switch-over valve shall be adjustable only in a way where on the inlet side only one adjoined outlet connection (e. g. return flow) is opened for the flow from each adjustable inlet connection (e. g. forward flow).

The respective position shall be visible and be protected against unintentional adjustment (e. g. by engaging).

A manually operated forced switch-over valve shall withstand 1 000 cycles.

Fitness-for-use test according to 5.1.2.

4.2.5 Check valve

The check valve shall prevent decrease of the fuel column.

The leakage rate shall not exceed leakage rate B of EN 12266-2.

Testing of the backseal, test P21 – EN 12266-2:2002.

A test pressure of 0,1 bar according to EN 12266-2 shall be used.

The check valve shall withstand 250 000 cycles.

Fitness-for-use test according to 5.1.3.

4.2.6 Pressure compensating device

A pressure compensating device shall, by providing additional volume, limit the pressure build-up in defined closed pipeline sections due to temperature related volume changes of the liquid fuel, without a draining-off of fuel from the closed pipelines.

NOTE Reference to a method for the calculation of the pressure build-up in defined closed pipe sections can be found in the bibliography.

The manufacturer of the pressure compensating device shall give the following information:

— minimum operating pressure $p_{\text{o,min}}$ at which the pressure compensating device responds;

— maximum allowable operating pressure $p_{\text{o,max}}(\leq p_{\text{s}})$;

— volume $V_{\text{p,o}}$ which can be compensated between the minimum operating pressure $p_{\text{o,min}}$ and the maximum operating pressure $p_{\text{o,max}}$.

A pressure compensating device shall be able to indicate the range between the minimum operating pressure $p_{\text{o,min}}$ and the maximum operating pressure $p_{\text{o,max}}$.

A pressure compensating device shall withstand 1 000 cycles between the minimum operating pressure and the maximum allowable operating pressure.

Fitness-for-use test according to 5.1.4 and functional test according to 5.2.

4.2.7 Discharge valve

The discharge valve shall prevent an excess of the maximum allowable pressure p_{s} or a specified operating pressure $p_{\text{o,max}}$. It shall open at a specified pressure and remain in the open position when a pressure to be declared is reached. If the pressure required for the opening of the discharge valve is not reached, it shall close again to a tight seal.

Adjustable discharge valves shall be combined with a pressure gauge for the indication of the set response pressure $p_{\text{o,r}}$. The pressure gauge is not necessary if the set response pressure $p_{\text{o,r}}$ is represented by a marking with numbers. Its adjustment shall not change automatically and shall only be possible by means of tools. Unauthorized adjustment shall be visible (e. g. by a lacquer layer or a lead seal).

The manufacturer shall give the following information:

— nominal flow rate $\dot{V}_{\text{n}}$ at nominal response pressure $p_{\text{o,r,n}}$ in the open position;

— response pressure $p_{\text{o,r}}$ at which the discharge valve opens;

— nominal response pressure $p_{\text{o,r,n}}$ at which the discharge valve is in the fully open position;

— lock-up pressure $p_{\text{o,l}}$ at which the discharge valve closes to a tight seal.

For a safe draining-off of the liquid fuel, a pipeline connection for a return pipeline shall be provided. The diameter of the pipeline connection at the outlet shall not be smaller than the one at the inlet.

An discharge valve shall withstand 250 000 cycles between the pressure $p_{\text{o,max}}$ and the pressure $p_{\text{o,l}}$.

Fitness-for-use test according to 5.1.5 and functional test according to 5.3.

4.2.8 Pressure reducer

4.2.8.1 Design requirements for pressure reducers

4.2.8.1.1 General design of a mechanical pressure reducer

The general design of a mechanical pressure reducer is shown in Figure 1.

The schematic illustration represents an example; other construction properties are possible.