SLOVENSKI STANDARD
oSIST prEN 12514-1:2009

01-julij-2009

Sestavni deli sistemov za dovod tekoļ ega goriva oljnim aparatom - 1. del: Varnostne zahteve in preskuġanje - Terminologija, sploġne zahteve

Parts for supply systems for consuming units with liquid fuels - Part 1: Safety requirements and tests - Terminology, general requirements

Bauelemente für Versorgungsanlagen für Verbrauchsstellen mit flüssigen Brennstoffen - Teil 1: Sicherheitstechnische Anforderungen und Prüfungen - Terminologie, Allgemeine Anforderungen

Appareils et éléments de construction pour le transfert au consommateur de liquide combustible - Partie 1: Prescriptions de sécurité et essais - Terminologie, prescritions générales

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

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English Version

Parts for supply systems for consuming units with liquid fuels - Part 1: Safety requirements and tests - Terminology, general requirements

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

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Foreword

This document (prEN 12514-1:2009) 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 editions 2000 the following fundamental changes are given:

— standards new structured;

— new parts for supply systems included;

— technical requirements revised;

— updating of the terms and definitions;

— merging of parts to series;

— fuels classified and new fuels added;

— nominal life time defined;

— requirements for flood proof parts included;

— selections of materials;

— marking, packing and instructions revised;

— harmonization of the standard to the Construction Product Directive (CPD) 89/106/EEC, Measuring Instruments Directive (MID) 2004/22/EC and Machinery Directive (MD) 2006/42/EC.

This document has been prepared under mandate M/131 "Pipes, tanks and ancillaries not in contact with water intended for human consumption" given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directives.

For relationship with the Construction Products Directive (89/106/EEC), see informative Annex ZA, which is an integral part of this document.

For relationship with other EC Directives, see informative Annex ZB and ZC, which is an integral part of this document.

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 all parts of supply systems for the automatic supply of liquid fuel to one or more consuming units from one or more tanks. It applies to all parts from the tank connection(s) to the connection to the burner or the consuming units, respectively, including the direct series-connected shut-off devices.

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 472, *Pressure gauges — Vocabulary*

EN 590:2004, *Automotive fuels — Diesel — Requirements and test methods*

EN 682, *Elastomeric seals — Material requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids*

EN 736-1, *Valves - Terminology - Part 1: Definition of types of valves*

EN 837-1, *Pressure gauges - Part 1: Bourdon tube pressure gauges - Dimensions, metrology, requirements and testing*

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

EN 1503-1, *Valves — Materials for bodies, bonnets and covers — Part 1: Steels specified in European standards*

EN 1503-2, *Valves — Materials for bodies, bonnets and covers — Part 2: Steels other than those specified in European standards*

EN 1503-3, *Valves — Materials for bodies, bonnets and covers — Part 3: Cast irons specified in European standards*

EN 1503-4, *Valves — Materials for bodies, bonnets and covers — Part 4: Copper alloys specified in European Standards*

EN 10079, *Definition of steel products*

EN 10151, *Stainless steel strip for springs — Technical delivery conditions*

EN 10204, *Metallic products - Types of inspection documents*

EN 10270-3, *Steel wire for mechanical springs — Part 3: Stainless spring steel wire*

EN 12170, *Heating systems in buildings — Procedure for the preparation of documents for operation, maintenance and use — Heating systems requiring a trained operator*

EN 12171, *Heating systems in buildings — Procedure for the preparation of documents for operation, maintenance and use — Heating systems not requiring a trained operator*

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 12514-2:2009, *Installations for oil supply systems for oil burners — Part 2: Safety requirements and tests — Parts, valves, pipes, filters, oil de-aerators, meters*

prEN 12514-3:2009, *Parts for supply systems for consuming units with liquid fuel — Part 3: Safety requirements and tests — Valves and meters*

prEN 12514-4:2009, *Parts for supply systems for consuming units with liquid fuel — Part 4: Safety requirements and tests — Pipework and parts within pipes*

EN 12639, *Liquid pumps and pump units - Noise test code - Grade 2 and grade 3 of accuracy*

EN 12954, *Cathodic protection of buried or immersed metallic structures — General principles and application for pipelines*

EN 13160-1, *Leak detection systems - Part 1: General principles*

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

EN 13906-1, *Cylindrical helical springs made from round wire and bar — Calculation and design — Part 1: Compression springs*

EN 13906-2, *Cylindrical helical springs made from round wire and bar — Calculation and design — Part 2: Extension springs*

EN 14213, *Heating fuels — Fatty acid methyl esters (FAME) — Requirements and test methods*

EN 14291, *Foam producing solutions for leak detection on gas installations*

EN 14585-1, *Corrugated metal hose assemblies for pressure applications — Part 1: Requirements*

EN 50156-1, *Electrical equipment for furnaces and ancillary equipment — Part 1: Requirements for application design and installation*

EN 60335-1, Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified + Corrigendum 1 (ed. 4.0):2002 + A1:2004 + Corrigendum 1 (ed. 4.1):2005 + A2:2006 + Corrigendum 1 (A2):2006)

EN 60335-2-102, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solide-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989 + A1:1999)*

EN 60730-1:2005, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1:1999, modified + A1:2003, modified);*

EN 62079, *Preparation of instructions — Structuring, content and presentation (IEC 62079:2001)*

EN ISO 2719, *Determination of flash point — Pensky-Martens closed cup method (ISO 2719:2002)*

EN ISO 6806, *Rubber hoses and hose assemblies for use in oil burners — Specification (ISO 6806:1992)*

EN ISO 9606-2, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys (ISO 9606-2:2004)*

EN ISO 9606-3, *Approval testing of welders — Fusion welding — Part 3: Copper and copper alloys (ISO 9606-3:1999)*

EN ISO 9606-4, *Approval testing of welders — Fusion welding — Part 4: Nickel and nickel alloys (ISO 9606-4:1999)*

EN ISO 9606-5, *Approval testing of welders — Fusion welding — Part 5: Titanium and titanium alloys, zirconium and zirconium alloys (ISO 9606-5:2000)*

EN ISO 10497, *Testing of valves — Fire type testing requirements (ISO 10497:2004)*

EN ISO 14731, *Welding coordination — Tasks and responsibilities (ISO 14731:2006)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15609-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding (ISO 15609-2:2001)*

EN ISO 15609-3, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 3: Electron beam welding (ISO 15609-3:2004)*

EN ISO 15609-4, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 4: Laser beam welding (ISO 15609-4:2004)*

EN ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding (ISO 15609-5:2004)*

EN ISO 15612, *Specification and qualification of welding procedures for metallic materials — Qualification by adoption of a standard welding procedure (ISO 15612:2004)*

EN ISO 15614-7, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 7: Overlay welding (ISO 15614-7:2007)*

EN ISO 15614-11, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 11: Electron and laser beam welding (ISO 15614-11:2002)*

EN ISO 19879:2005, Metallic tube connections for fluid power and general use - Test methods for hydraulic fluid power connections (ISO 19879:2005)

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 2859-2, *Sampling procedures for inspection by attributes — Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection*

ISO 2859-3, *Sampling procedures for inspection by attributes — Part 3: Skip-lot sampling procedures*

ISO 2859-4, *Sampling procedures for inspection by attributes — Part 4: Procedures for assessment of declared quality levels*

ISO 2859-5, *Sampling procedures for inspection by attributes — Part 5: System of sequential sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 2859-10, *Sampling procedures for inspection by attributes — Part 10: Introduction to the ISO 2859 series of standards for sampling for inspection by attributes*

ISO 23551-1, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements — Part 1: Automatic valves*

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

ISO 3864-1, *Graphical symbols - Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*

CLC/TR 50404, *Electrostatics — Code of practice for the avoidance of hazards due to static electricity*

OIML R 117-1:2007, *Dynamic measuring systems for liquids other than water*

3 Terms and definitions

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

3.1 General terms and definitions

3.1.1
part
component of a supply system

3.1.2
part with shut-off function
part which shuts off the flow in pipelines

3.1.3
supply system
installation for the processing and supply of liquid fuels from the tank to the consuming unit

3.1.4
consuming unit
device in which liquid fuels are converted into thermal and/or mechanical energy

NOTE Consuming units, for instance, are specified by the following standards EN 1, EN 267, EN 13842, EN 15034, EN 15035.

3.1.5
liquid fuel
according to 4.4

3.1.6
tank
a hollow body (container) for the storage of liquid fuels subject only to the fluid hydrostatic head and freely vented to atmosphere, including branches up to the first pipeline connection [EN 13121-3]

3.1.7
vessel
closed hollow body (container) subject to applied pressure or vacuum, with or without hydrostatic head, including branches up to the first flanged connection [EN 13121-3]

3.1.8
piping
pipes and fasteners for the conveyance of fluids through pipelines

NOTE For the purposes of this standard, the used fluid is liquid fuel, see 4.4.

3.1.9
series
parts with the same types of constructional and functional characteristics distinguished by

— different nominal sizes and/or

— different components.

NOTE 1 The assignment of nominal sizes to a series is specified by the manufacturer. Within one series, the maximum allowable pressures (PS) may vary with the nominal sizes. The parts of one series may have different pipeline connections or consist of different components.

NOTE 2 The term "series" complies with for instance the term "basic type" in EN 736-1.

NOTE 3 For assessment see annex E.

3.1.10
nominal lifetime
duration for which the part will very likely remain operational. This indication of the nominal lifetime is based on the assumption that the part is used according to the manufacturer's instructions for installation, maintenance and operation.

NOTE The parts may have to be submitted to regular service and maintenance procedures carried out by authorised personnel according to the manufacturer's instructions.

3.1.11
safety ancillaries
in the senses of mandate M/131 "Pipes, tanks and ancillaries not in contact with water intended for human consumption", annex 2 these are:

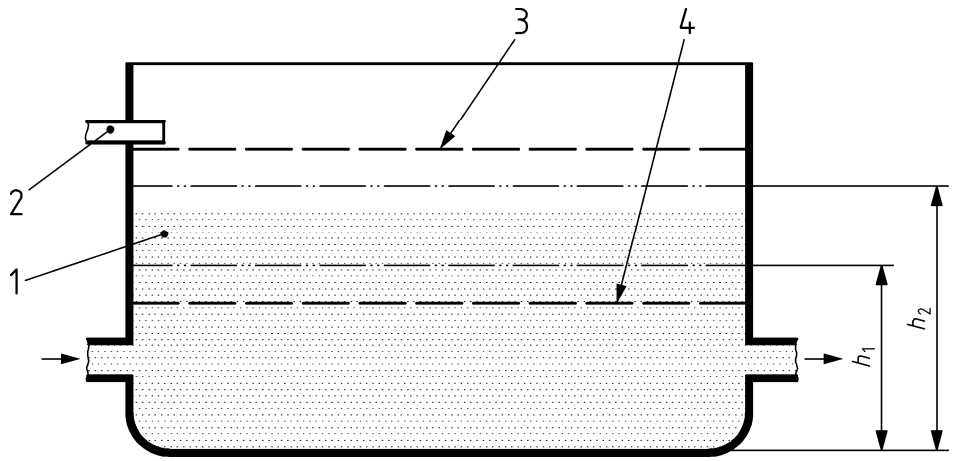
— safety shut-off device, pressure compensating device, discharge valve, pressure reducer, filter, anti-siphon safety device and insulation device; as well as

— feed pump control devices

3.2 Parts

3.2.1
feed pump
device for feeding liquid fuels from the tank or vessel to other tanks, vessels or consuming units connected to the supply system

3.2.2
service tank
tank with control and safety device(s), see Figure 1

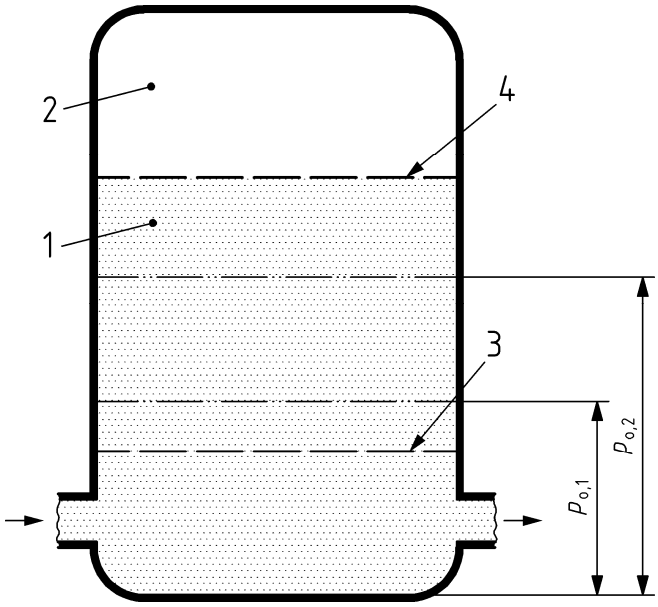


Key

1 liquid fuel
2 overflow pipeline
3 high limit controller
4 low limit controller
h_1 filling height (level) at opening of fuel supply
h_2 filling height (level) at closing of fuel supply

Figure 1 — Example of service tank

3.2.3
service vessel
vessel within a supply system with or without control device and high and/or low limit controller for the intermediate storage of liquid fuel, see Figure 2



Key

1 liquid fuel
2 gas (e. g. nitrogen, air)
3 low limit controller
4 low limit controller or high limit controller
$p_{o,1}$ operating pressure at opening of liquid fuel supply
$p_{o,2}$ operating pressure at closing of liquid fuel supply

Figure 2 — Example of service vessel

3.2.4
isolating valve
device for shut-off and re-opening of flow in pipelines

NOTE 1 For basic types and examples, see EN 736-1.

NOTE 2 Designation of the valve components according to EN 736-2.

3.2.5
quick-acting valve
device for opening and closing the flow in pipelines operated manually or automatically by short travel or a rotating movement of maximum 90 °

NOTE 1 For basic types and examples, see EN 736-1.

NOTE 2 Designation of the valve components according to EN 736-2.

3.2.6
safety shut-off device
according to ISO 23553-1

3.2.7
switch-over valve
device in pipelines for the single shut-off or re-opening of several flow inlets to one flow outlet

NOTE 1 For basic types and examples, see EN 736-1.

NOTE 2 Designation of the valve components according to EN 736-2.

3.2.8
forced switch-over valve
device in pipelines with several feed inlets and associated return outlets and with one or more feed outlets and associated return inlets

NOTE Designation of the valve components according to EN 736-2.

3.2.9
check valve
device which releases the flow in pipelines in the feed direction and shuts off automatically in the opposite direction

NOTE 1 For basic types and examples, see EN 736-1.

NOTE 2 Designation of the valve components according to EN 736-2.

3.2.10
pressure compensating device
device for the limitation of pressure build-up in closed sections of pipelines due to temperature related volume changes of the liquid fuel

NOTE Designation of the valve components according to EN 736-2.

3.2.11
discharge valve
device for maintaining the upper pressure limit

NOTE Designation of the valve components according to EN 736-2.

3.2.12
pressure reducer
device for maintaining the outlet pressure constant irrespective of inlet pressure variations and/or changes of flow and/or temperature within specified limits

NOTE 1 A difference is made between the basic types of pre-set pressure reducers and adjustable pressure reducers.

NOTE 2 The nominal outlet pressure of a pre-set pressure reducer is set inadjustably by the manufacturer.

NOTE 3 The outlet pressure of an adjustable pressure reducer can be varied by the user between minimum and maximum nominal outlet pressure.

3.2.13
filter
device which retains solid matter exceeding a specified particle size from the liquid fuel

3.2.14
meter
device for the continuous measurement, recording and indication of the volumetric flow rate of liquid fuel in a closed, completely filled piping

NOTE 1 This term corresponds to the term "meter" according to Annex MI-005 in Directive 2004/22/EC.

NOTE 2 Meters may be part of measurement systems according to Annex MI-005 in Directive 2004/22/EC.

3.2.15
de-aerator
device in pipelines for the automatic venting of gas and air

3.2.16
anti-siphon safety device
device which in the pipeline prevents siphoning of a tank or service tank

NOTE 1 Siphoning designates a condition when the maximum filling level in the tank or service tank lies above the lowest point of the suction pipeline, which could lead to leakage of liquid fuel due to the weight pressure of the liquid column.

NOTE 2 For basic types and examples, see EN 736-1.

NOTE 3 Designation of the valve components according to EN 736-2.

3.2.17
pressure retaining device
valve for maintaining the pressure in a pressure pipeline approximately constant

NOTE Designation of the valve components according to EN 736-2.

3.2.18
insulation device
insulating parts, isolating flanges according to EN 12954 and EN 13636

3.2.19
pressure gauge
according to EN 472

NOTE For basic types and examples, see EN 837-1 and EN 837-3.

3.2.20
vapour/air separator
device used for continuously separating or removing of air or gases contained in the fuel

[EN 13617-1]

3.2.21
pressure control path
device consisting of several parts which controls the operating pressure in the pressure pipeline within limits specified for the consuming unit (e. g. see Figure 9)

3.2.22
fastener
device with integrated pipeline connections for connecting pipes and/or parts

NOTE The fastener can be of different designs and be provided with other pipeline connections.

3.2.23
combined part
part consisting of several parts

3.2.24
other part
part falling into the scope of clause 1 and not covered by 3.2

3.3 Pipelines

3.3.1
suction pipeline
pipeline subject to vacuum under operating conditions