

Fettavskiljare –

Del 1: Principer för utformning, prestanda och provning, märkning och kvalitetskontroll

Grease separators –

Part 1: Principles of design, performance and testing, marking and quality control

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Foreword

This document (EN 1825-1:2004) has been prepared by Technical Committee CEN/TC 165 "Waste water engineering", 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of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

This is the first part of the two part standard for grease separators. Part 2 gives guidelines for selection, installation, operation and maintenance of grease separators.

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 the relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This standard specifies definitions, nominal sizes, principles of design, performance requirements, marking, testing and quality control for grease separators.

This standard applies to separators for the separation of greases and oils of vegetable and animal origin from wastewater by means of gravity and without any external energy.

This standard does not cover grease separators intended to treat domestic wastewater from kitchen areas of single family dwellings, where the separator has a nominal size less than 1.

The standard is not applicable for the separation of light liquids, e.g. petrol, fuel and heating oil, and does not cover the treatment of wastewater exclusively containing stable emulsions of greases and oils.

The standard does not cover the use of biological means (bacteria and enzymes).

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 124:1994, *Gully tops and manhole tops for vehicular and pedestrian areas – Design requirements, type testing, marking, quality control.*

EN 206-1, *Concrete – Part 1: Specification, performance, production and conformity.*

EN 288-2, *Specification and approval of welding procedures for metallic materials – Part 2: Welding procedure specification for arc welding.*

EN 295-3, *Vitrified clay pipes and fittings and pipe joints for drains and sewers – Part 3: Test methods.*

EN 476, *General requirements for components used in discharge pipes, drains and sewers for gravity systems.*

EN 681-1, *Elastomeric seals – Material requirements for pipe joint seals used in water and drainage applications – Part 1: Vulcanised rubber.*

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 978, *Underground tanks of glass-reinforced plastics (GRP) – Determination of factor α and factor β .*

EN 1253-4, *Gullies for buildings – Part 4: Access covers.*

EN 10088-1, *Stainless steels – Part 1: List of stainless steels.*

EN 10088-2, *Stainless steels – Part 2: Technical delivery conditions for sheet/plate and strip for general purposes.*

EN 10088-3, *Stainless steels – Part 3: Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes.*

EN 12350-1, *Testing fresh concrete - Part 1: Sampling.*

EN 12390-2, *Testing hardened concrete - Part 2: Making and curing specimens for strength tests.*

EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests.*

EN ISO 178, *Plastics – Determination of flexural properties (ISO 178:2001)*

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EN ISO 180, *Plastic – Determination of Izod impact strength (ISO 180:2000).*

EN ISO 291, *Plastics - Standard atmospheres for conditioning and testing.*

EN ISO 527-2, *Plastics – Determination of tensile properties – Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994).*

EN ISO 527-4, *Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites (ISO 527-4:1997).*

EN ISO 1172, *Textile–glass–reinforced plastics – Prepregs, moulding compounds and laminates – Determination of the textile – glass and mineral – filler content – Calcination methods (ISO 1172:1996).*

EN ISO 1514, *Paints and varnishes – Standard panels for testing (ISO 1514:1993).*

EN ISO 1518, *Paints and varnishes – Scratch test (ISO 1518:1992).*

EN ISO 2409, *Paints and varnishes – Cross-cut test (ISO 2409:1992).*

EN ISO 2808, *Paints and varnishes – Determination of film thickness (ISO 2808:1997).*

EN ISO 2812-1, *Paints and varnishes – Determination of resistance to liquids – Part 1: General methods (ISO 2812-1:1993).*

EN ISO 2815, *Paints and varnishes – Buchholz indentation test (ISO 2815:2003).*

EN ISO 4624, *Paints and varnishes – Pull-off test for adhesion (ISO 4624:2002).*

EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2:2003).*

EN ISO 4628-3, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO 4628-3:2003).*

EN ISO 7253, *Paints and varnishes - Determination of resistance to neutral salt spray (fog) (ISO 7253:1996)*

EN ISO 8501-1, *Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1:1988).*

EN ISO 9377-2, *Water quality – Determination of hydrocarbon oil index – Part 2: Method using solvent extraction and gas chromatography (ISO 9377-2:2000).*

EN ISO 14125, *Fibre-reinforced plastic composites - Determination of flexural properties (ISO 14125:1998).*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2003)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004).*

ENV 10080, *Steel for reinforcement of concrete weldable ribbed reinforcing steel B 500 – Technical delivery conditions for bars, coils and welded fabric.*

ISO 48, *Rubber vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD).*

ISO 185, *Grey cast iron – Classification.*

ISO 630, *Structural steels – Plates, wide flats, bars, sections and profiles.*

ISO 877, *Plastics – Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors.*

ISO 1083, *Spheroidal graphite cast irons – Classification.*

ISO 1133, *Plastics – Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.*

ISO 1183-1:2004 *Plastics -- Methods for determining the density of non-cellular plastics -- Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 1183-2:2004 *Plastics -- Methods for determining the density of non-cellular plastics -- Part 2: Density gradient column method (available in English only)*

ISO 1521, *Paints and varnishes – Determination of resistance to water – Water immersion method.*

ISO 1817, *Rubber vulcanized – Determination of the effect of liquids.*

ISO 1920, *Concrete tests – Dimensions tolerances and applicability of test specimens.*

ISO 3755, *Cast carbon steels for general engineering purposes.*

ISO 4012, *Concrete – Determination of compressive strength of test specimens.*

ISO 6272, *Paints and varnishes – Falling-weight test.*

ISO 8217, *Petroleum products – Fuels (class F) – Specifications of marine fuels.*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. See also Figures 1 and 2.

3.1

grease

substances of vegetable and/or animal origin, of a density less than $0,95 \text{ g/cm}^3$, which are partially or totally insoluble in water and saponifiable

3.2

influent

wastewater, containing grease, with the exception of wastewater containing faeces (sanitary wastewater) which enters the grease separator

3.3

grease separator

a unit or assembly of units to separate grease from wastewater and retain the separated grease within the unit, normally comprising a sludge trap, a grease separation chamber and, if necessary, a sampling point

3.4

grease separation chamber

part of a grease separator for the separation of grease from influent, in such a way that, due to the difference in density between the substance to be separated and the carrying liquid, and the reduction in flow velocity, the grease particles are separated from the wastewater by flotation

3.5

grease separation zone

part of the grease separation chamber, in which the grease is separated, comprising the effective filled volume and the grease collection chamber

3.6

grease collection area

top part of the grease separation chamber, where the separated grease is retained

3.7

sludge trap

part of the grease separator where material settles, i.e. sludge, silt and grit, and which can be a separate unit or constructed with the grease separation chamber as a combined unit

3.8

extension shaft

component used to extend an opening in the separator system to finished level thereby permitting access for inspection and maintenance purposes

3.9

sampling point

part of the grease separator situated downstream of the separation process where samples can be taken of the wastewater discharged from the separator

3.10

nominal size (NS)

number, without units, approximately equivalent to the maximum effluent flow rate in litres per second from the separator when tested in accordance with 8.5.1

3.11

maximum operational liquid level

highest level of liquid and grease at the flow, corresponding to the nominal size, with the grease collection area filled

3.12

automatic warning device

device to warn of excessive depth of grease or wastewater or low level condition

3.13

coating/lining

a protective layer on a separator component

4 Nominal sizes

The preferred nominal sizes of grease separators are: 1, 2, 4, 7, 10, 15, 20 and 25.

Other nominal sizes are permissible.

5 Requirements

5.1 General

Grease separators and their separate components shall be in accordance with material requirements specified in 5.2.

5.2 Materials

5.2.1 General

Grease separators may be constructed from:

- unreinforced concrete, fibre-reinforced concrete, reinforced concrete;
- metallic materials: cast iron, stainless steel, steel;
- plastics materials: glass fibre reinforced plastics, polyethylene;
- vitrified clay.

Any other materials used in the construction of a grease separator shall meet all the relevant requirements of this standard.

5.2.2 Concrete

The concrete shall comply with the minimum compressive strength class C 35/45 in accordance with EN 206-1.