SLOVENSKI STANDARD

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Oskrba z vodo ï Specifikacija za posredno ogrevane neprezraļevane (zaprte) akumulacijske grelnike vode

Water supply - Specification for indirectly heated unvented (closed) storage water heaters

Wasserversorgung - Bestimmung für mittelbar beheizte, unbelüftete (geschlossene) Speicher-Wassererwärmer

Alimentation en eau - Prescriptions pour réservoirs de stockage d'eau chaude a chauffage indirect sans mise a l'air libre (fermés)

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91.140.65 Oprema za ogrevanje vode Water heating equipment

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This European Standard was approved by CEN on 13 April 2006.

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Foreword

This document (EN 12897:2006) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2007, and conflicting national standards shall be withdrawn at the latest by January 2007.

NOTE Products intended for use in water supply systems should comply, when existing, with national regulations and testing arrangements that ensure fitness for contact with drinking water. The Member states relevant regulators and the EC Commission agreed on the principle of a future unique European Acceptance Scheme (EAS), which would provide a common testing and approval arrangement at European level. If and when the EAS is adopted, European Product Standards will be amended by the addition of an Annex Z/EAS under Mandate M136 which will contain formal references to the testing, certification and product marking requirements of the EAS. Until EAS comes into force, the current national regulations remain applicable.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this standard:

1) This standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA.

2) It should be noted that, while awaiting the adoption of the verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard specifies the performance requirements and methods of test for indirectly heated, unvented (closed) storage water heaters of up to 1000 l capacity suitable for connection to a water supply at a pressure between 0,05 Mpa and 1,0 Mpa (0,5 and 10 bar), and fitted with control and safety devices designed to prevent the operating temperature of the stored drinking water from exceeding 100 °C.

Whilst storage water heaters intended primarily for direct heating are not covered by this standard, it does allow the provision of electric heating elements for auxiliary use.

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 1487, *Building valves — Hydraulic safety groups — Tests and requirements*

EN 1488, *Building valves — Expansion groups — Tests and requirements*

EN 1489, *Building valves — Pressure safety valves — Tests and requirements*

EN 1490, *Building valves - Combined temperature and pressure relief valves - Tests and requirements.*

EN 1491, *Building valves - Expansion valves - Tests and requirements*

EN 1567, *Building valves - Water pressure reducing valves and combination of water pressure reducing valves - Requirements and tests*

EN 1717, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN 60379, *Methods for measuring the performance of electric storage water-heaters for household purposes (IEC 60379:1987, modified)*

EN 60730-2-9 *Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2000, modified)*

3 Terms and definitions

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

3.1
indirectly heated unvented (closed) storage water heater
vessel complete with heat exchanger (primary heater) for heating and storage of drinking water where the contents are not vented to atmosphere

3.2
total capacity
total capacity of the water storage vessel in litre as specified by the manufacturer

3.3
actual capacity
measured capacity of the drinking water storage vessel in litre

3.4
water side
part of the storage water heater directly in contact with drinking water

3.5
heat source side
parts of the storage water heater which contain the heating medium

3.6
maximum design pressure (rated pressure)
maximum pressure to which the unvented storage water heater is subjected in normal use

3.7
operating pressure
specified inlet pressure for the water heater

3.8
operating temperature
temperature at which the water is stored

3.9
primary heater
heat exchanger system fitted to the hot water storage vessel through which a heating medium (such as water from a boiler) flows to heat the stored drinking water

3.10
double-walled primary heater
primary heater with concentric walls such that any leak through one wall will not allow the heating fluid to contaminate the drinking water

4 Requirements

4.1 Effect of material on water quality and hygiene of drinking water

All materials used in water heaters in contact with drinking water shall fulfil the requirements for Construction Products In Contact With Drinking Water (CPDW).

NOTE Until the adoption of the European Assessment Scheme, national regulations concerning the hygiene of drinking water may be applicable.

4.2 Constructional requirements

4.2.1 Inspection access

Unvented storage water heaters shall be provided with means for internal inspection.

NOTE This can be achieved by using a connection intended and dimensioned for another purpose where the use of a suitable inspection instrument such as an endoscope is acceptable.

4.2.2 Draining

Unvented storage water heaters shall permit in-situ draining. The method of draining shall be given in the manufacturer's instructions.

4.3 Temperature control

The temperature of the stored water shall be regulated either by control of the heat source or sources or by control of the water heater.

4.4 Mechanical resistance and stability

4.4.1 Pressure resistance of water storage vessel

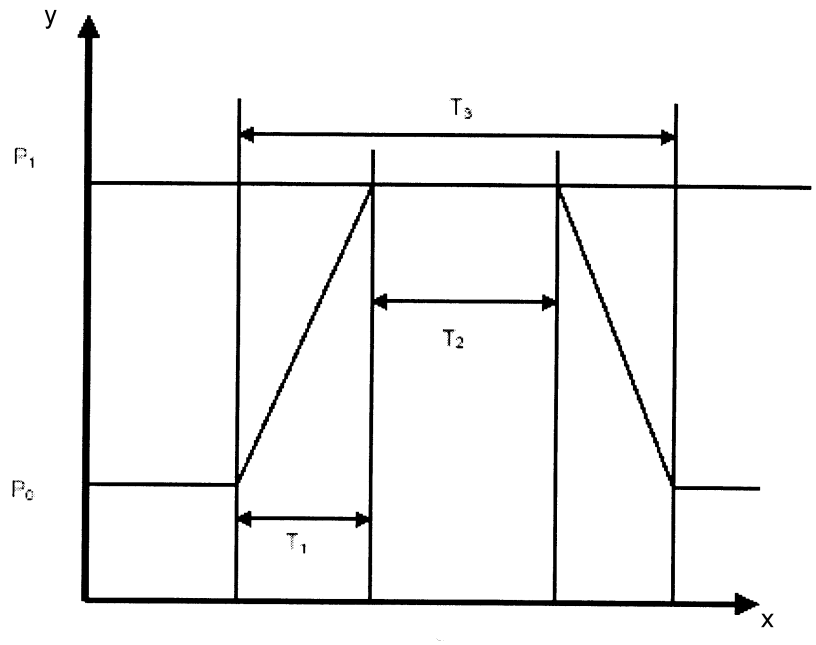
All water heaters, when tested in accordance with 6.2.1, shall withstand a pressure of 2,0 times the maximum design pressure (as specified by the manufacturer) for a period of not less than 10 min without showing any leakage or cracking.

4.4.2 Pressure resistance of primary heater

The primary heater (the coil), when tested in accordance with 6.2.1, shall withstand a pressure of 2,0 times the maximum design pressure, as specified by the manufacturer, for a period of not less than 10 min without showing any leakage or cracking.

4.4.3 Durability

The water heater shall be subjected to either 20,000 periodic cycles at 1,5 x operating pressure or 100 000 periodic cycles at 1,3 x operating pressure as shown in Figure 1, there shall be no leakage or visible signs of distress. This test shall be carried our after complete fabrication (and lining) but before insulation is applied.



Key

$T_1 \geq 15 \leq 30s$

$T_2 \geq 15 \leq 20s$

$T_3 \geq 45 \leq 60s$

P_0 = Atmospheric pressure

P_1 = 1,5 x operating pressure for 20 000 cycles or 1,3 x operating pressure for 100 000 cycles

x Time

y Pressure

Figure 1 — Cycle of pressure variations

4.4.4 Leakage test on double-walled primary heater

When a water heater is provided with a doubled-walled primary heater it shall be constructed such that any leakage from the heating side shall be routed to outside the heat exchanger without coming into contact with the stored drinking water.