

Thermal solar systems and components - Custom built systems - Part 4: Performance test methods for solar combistores

EESTI STANDARDI EESSÕNA

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English Version

**Thermal solar systems and components - Custom built systems
- Part 4: Performance test methods for solar combistores**

Installations solaires thermiques et leurs composants -
Installations assemblées à façon - Partie 4: Méthodes
d'essai por chauffe-eau solaires et installations solaires
combinés

Thermische Solaranlagen und ihre Bauteile -
Kundenspezifisch gefertigte Anlagen - Teil 4:
Leistungsprüfung von Warmwasserspeichern für
Solaranlagen zur Trinkwassererwärmung und
Raumheizung (Kombispeicher)

This European Standard was approved by CEN on 19 February 2012.

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Foreword

This document (EN 12977-4:2012) has been prepared by Technical Committee CEN/TC 312 "Thermal solar systems and components", the secretariat of which is held by ELOT.

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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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Introduction

The test methods for stores of solar heating systems as described in this document are required for the determination of the thermal performance of small custom built systems for combined domestic hot water preparation and space heating, so-called solar combisystems, as specified in EN 12977-1.

These test methods deliver parameters, which are needed for the simulation of the thermal behaviour of a store being part of a small custom built system.

NOTE 1 With the test methods for stores given in EN 12897 only a few parameters are determined in order to characterise the thermal behaviour of a store. These few parameters are not sufficient for the determination of the thermal performance of small custom built systems as described in EN 12977-2.

NOTE 2 The already existing test methods for stores of conventional heating systems are not sufficient with regard to thermal solar systems. This is due to the fact that the performance of thermal solar systems depends much more on the thermal behaviour of the store (e.g. stratification, heat losses), as conventional systems do. Hence, this separate document for the performance characterisation of stores for solar heating systems is needed.

NOTE 3 For additional information about the test methods for the performance characterisation of stores see EN 12977-3 and [1] in Bibliography.

1 Scope

This European Standard specifies test methods for the performance characterization of stores which are intended for use in small custom built systems as specified in EN 12977-1.

Stores tested according to this document are commonly used in solar combisystems. However, the thermal performance of all other thermal stores with water as a storage medium (e.g. for heat pump systems) can be also assessed according to the test methods specified in this document.

This document applies to combistores with a nominal volume up to 3 000 l and without integrated burner.

NOTE This document is extensively based on references to EN 12977-3:2012.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12828, *Heating systems in buildings — Design for water-based heating systems*

EN 12977-3:2012, *Thermal solar systems and components — Custom built systems — Part 3: Performance test methods for solar water heater stores*

EN ISO 9488:1999, *Solar energy — Vocabulary (ISO 9488:1999)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12977-3:2012 and EN ISO 9488:1999 apply.

4 Symbols and abbreviations

For symbols and abbreviations, refer to EN 12977-3:2012.

5 Store classification

Solar combistores are classified by distinction between different charge and discharge modes. Five groups are defined as shown in Table 1.