

Soojusarvestid. Osa 1: Üldnõuded

Heat meters - Part 1: General requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1434-1:2007 sisaldab Euroopa standardi EN 1434-1:2007 ingliskeelset teksti. Käesolev dokument on jõustatud 30.03.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1434-1:2007 consists of the English text of the European standard EN 1434-1:2007. This document is endorsed on 30.03.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
--	---

Käsitlusala: See Euroopa standard kehtib soojusarvestite kohta; nende seadmetega mõõdetakse seda soojushulka, mida soojusvahetustsükli neelab või annab ära soojust edasikandev vedelik. Soojusarvesti näitab soojuse kogust ametlikult kehtivates ühikutes. See standard ei käsitlenud elektriõhtuse nõudeid. Standardisse ei ole veel lülitatud pindmise temperatuurisensoriga arvesteid. Osa 1 määrab kindlaks üldnõuded.	Scope: This European Standard specifies the general requirements and applies to heat meters, that is to instruments intended for measuring the heat which, in a heat-exchange circuit, is absorbed or given up by a liquid called the heat-conveying liquid. The heat meter indicates the quantity of heat in legal units. Electrical safety requirements are not covered by this European Standard. Pressure safety requirements are not covered by this European Standard. Surface mounted temperature sensors are not covered by this European Standard.
--	---

ICS 17.200.10

Võtmesõnad: arvutused, jõudluse hindamine, kasutusnõuded, liigitused, metroloogia, mõõteriistad, määratlused, parameetrid, seadmete eristuskiri, soojusenergia arvestid, tähised, usaldatavus

English Version

Heat meters - Part 1: General requirements

Compteurs d'énergie thermique - Partie 1: Prescriptions
générales

Wärmezähler - Teil 1: Allgemeine Anforderungen

This European Standard was approved by CEN on 7 January 2007.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	4
1 Scope	5
2 Normative references	5
3 Types of instrument.....	5
3.1 General.....	5
3.2 Complete instrument	5
3.3 Combined instrument.....	5
3.4 Hybrid instrument (often called a "compact" instrument)	5
3.5 Sub-assemblies of a heat meter, which is a combined instrument.....	5
3.5.1 General.....	5
3.5.2 Flow sensor	6
3.5.3 Temperature sensor pair.....	6
3.5.4 Calculator	6
3.6 Equipment under test (EUT)	6
4 Terms, definitions and symbols.....	6
5 Rated operating conditions	9
5.1 Limits of temperature range	9
5.2 Limits of temperature differences	9
5.3 Limits of flow-rate	9
5.4 Limit of thermal power	9
5.5 Maximum admissible working pressure; PS	9
5.6 Nominal pressure; PN	10
5.7 Limits in ambient temperature	10
5.8 Limits in deviations in supply voltage.....	10
5.9 Maximum pressure loss.....	10
6 Technical characteristics.....	10
6.1 Materials and construction	10
6.2 Requirements outside the limiting values of the flow rate.....	10
6.3 Display	11
6.4 Protection against fraud	11
6.5 Supply voltage	11
6.6 Qualifying immersion depth of a temperature sensor	12
6.7 The influence on a temperature sensor pair caused by mounting in pockets.....	12
6.8 Reproducibility.....	12
6.9 Repeatability.....	12
6.10 Software.....	12
7 Specified working range	13
7.1 General.....	13
7.2 Temperature difference	13
7.3 Flow rate	13
8 Heat transmission formula	13
9 Metrological characteristics (Maximum Permissible Error, MPE)	14
9.1 General.....	14
9.2 Values of maximum permissible errors	14
9.2.1 Maximum permissible relative errors of complete heat meters	14
9.2.2 Maximum permissible relative error of sub-assemblies	15
9.3 Application of maximum permissible errors	15

10	Environmental classification.....	15
10.1	General	15
10.2	Environmental class A (Domestic use, indoor installations).....	15
10.3	Environmental class B (Domestic use, outdoor installations)	16
10.4	Environmental class C (Industrial installations)	16
11	Heat meter specification	16
11.1	General	16
11.2	Flow sensor.....	16
11.3	Temperature sensor pair	17
11.4	Calculator	18
11.5	Complete meters	19
12	Information to be delivered with the meter or sub-assemblies	20
Annex A	(normative) Heat coefficient equations.....	22
Annex B	(normative) Flow conditioner package	24
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2004/22/EC, MID	26
Bibliography		27

Foreword

This document (EN 1434-1:2007) has been prepared by Technical Committee CEN/TC 176 "Heat meters", the secretariat of which is held by DS.

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 August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

This document supersedes EN 1434-1:1997.

The other parts are:

Part 2 - Constructional requirements

Part 3 - Data exchange and interfaces

Part 4 - Pattern approval tests

Part 5 - Initial verification tests

Part 6 - Installation, commissioning, operational monitoring and maintenance

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

1 Scope

This European Standard specifies the general requirements and applies to heat meters, that is to instruments intended for measuring the heat which, in a heat-exchange circuit, is absorbed (cooling) or given up (heating) by a liquid called the heat-conveying liquid. The heat meter indicates the quantity of heat in legal units.

Electrical safety requirements are not covered by this European Standard.

Pressure safety requirements are not covered by this European Standard.

Surface mounted temperature sensors are not covered by this European Standard.

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 60751, *Industrial platinum resistance thermometer sensors (IEC 60751:1983 + A1:1986)*

EN 61010-1, *Safety requirements for electrical equipment for measurement, control and laboratory use — Part 1: General requirements (IEC 61010-1:2001)*

3 Types of instrument

3.1 General

For the purposes of this European Standard, heat meters are defined either as complete instruments or as combined instruments.

3.2 Complete instrument

A heat meter, which does not have separable sub-assemblies as defined in 3.5.

3.3 Combined instrument

A heat meter, which has separable sub-assemblies as defined in 3.5.

3.4 Hybrid instrument (often called a "compact" instrument)

A heat meter, which for the purpose of pattern approval and verification can be treated as a combined instrument as defined in 3.3. However, after verification, its sub-assemblies shall be treated as inseparable.

3.5 Sub-assemblies of a heat meter, which is a combined instrument

3.5.1 General

The flow sensor, the temperature sensor pair and the calculator or a combination of these.