

SOOJUSARVESTID. OSA 5: ESMATAATLUSKATSED

Thermal energy meters - Part 5: Initial verification tests

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 1434-5:2022 sisaldab Euroopa standardi EN 1434-5:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 1434-5:2022 consists of the English text of the European standard EN 1434-5:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.09.2022.	Date of Availability of the European standard is 07.09.2022.
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English Version

## Thermal energy meters - Part 5: Initial verification tests

Compteurs d'énergie thermique - Partie 5 : Essais de  
vérification primitive

Thermische Energiemessgeräte - Teil 5: Tests für  
Konformitätsuntersuchungen und Eichungen

This European Standard was approved by CEN on 17 July 2022.

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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-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 1434-5:2022) has been prepared by Technical Committee CEN/TC 176 “Thermal energy meters”, the secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by March 2023, and conflicting national standards shall be withdrawn at the latest by March 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1434-5:2015+A1:2019.

EN 1434, *Thermal energy meters*, consists of the following parts:

- *Part 1: General requirements;*
- *Part 2: Constructional requirements;*
- *Part 3: Data exchange and interfaces<sup>1</sup>;*
- *Part 4: Pattern approval tests;*
- *Part 5: Initial verification tests;*
- *Part 6: Installation, commissioning, operational monitoring and maintenance.*

In comparison with EN 1434-5:2015+A1:2019, the following changes have been made:

- the third calibration temperature  $\theta_3$  for extrapolation error of sensor pairs has been changed in Table 1;
- new subclause 6.8 has been added.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

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

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of

<sup>1</sup> EN 1434-3 is maintained by CEN/TC 294.

North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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## 1 Scope

This document specifies initial verification tests for thermal energy meters. Thermal energy meters are instruments intended for measuring the energy which in a heat-exchange circuit is absorbed (cooling) or given up (heating) by a liquid called the heat-conveying liquid. The thermal energy meter indicates the quantity of thermal energy in legal units.

This document covers meters for closed systems only, where the differential pressure over the thermal load is limited.

This document is not applicable to:

- electrical safety requirements;
- pressure safety requirements; and
- surface mounted temperature sensors.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1434-1:2022, *Thermal energy meters — Part 1: General*

EN 60751:2008, *Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751:2008)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1434-1:2022 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

## 4 General

Initial verification of a measuring instrument is a series of tests and visual examinations carried out to determine whether an instrument manufactured to replicate a given pattern conforms to that pattern and to regulations, and that its metrological characteristics lie within the limits of the maximum permissible errors. If the instrument passes all tests and examinations, it is given legal character by its acceptance as evidenced by stamping and/or issuance of a certificate of verification.

**NOTE** The provisions of this document may also apply to the re-verification of thermal energy meters under national law.

The instrument shall be tested under rated operating conditions at the extremes and midpoints of its ranges.

Initial verification is divided into metrological, technical and administrative phases.

In tests of a thermal energy meter as a combined instrument, the flow sensor, the temperature sensors and the calculator shall each be tested separately.