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BS EN 1434-5:2015



BSI Standards Publication

Heat meters

Part 5: Initial verification tests

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This British Standard is the UK implementation of EN 1434-5:2015. It supersedes BS EN 1434-5:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CPI/30, Measurement of fluid flow in closed conduits.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Heat meters - Part 5: Initial verification tests

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

Wärmezähler - Teil 5: Ersteinrichtung

This European Standard was approved by CEN on 5 September 2015.

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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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European foreword

This document (EN 1434-5:2015) has been prepared by Technical Committee CEN/TC 176 "Heat 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of an identical text or by endorsement, at the latest by May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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

This document supersedes EN 1434-5:2007.

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

EN 1434, *Heat meters* consists of the following parts:

- *Part 1: General requirements*
- *Part 2: Constructional requirements*
- *Part 3: Data exchange and interfaces¹⁾*
- *Part 4: Pattern approval tests*
- *Part 5: Initial verification tests*
- *Part 6: Installation, commissioning, operational monitoring and maintenance*

In comparison to EN 1434-5:2007, the following changes have been made:

- metrological requirements for smart metering applications are added;
- additional functionalities for smart metering applications are added;
- bath constructions are added;
- tests for cooling applications are added;
- single temperature sensor for smart metering are added;
- test for bi-functional meters for change-over between heating and cooling are added.

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,

¹⁾ EN 1434-3 is maintained by CEN/TC 294.

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Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This European Standard specifies initial verification tests for heat meters. Heat 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 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.

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

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 1434-1:2015, *Heat meters — Part 1: General*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1434-1:2015 apply.

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.

The provisions of this standard also apply to the re-verification of heat meters.

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 heat meter as a combined instrument, the flow sensor, the temperature sensors and the calculator shall each be tested separately.

Unless otherwise stated in the certificate of pattern approval, the verification shall be carried out in accordance with this standard.

NOTE Modern heat meters are mainly equipped with CMOS microprocessors with a very low power consumption, allowing battery operation. Testing and adjusting of this type of meter needs a completely different approach. Until now, almost every meter type needed its own test equipment to handle the manufacturer's specific requirements. This is a very complicated and expensive way for users of several types of meters and for initial verification institutes. The more different types of heat meters a user has installed, the more testing equipment he may need. An economical testing of several meters should be possible and an easy adaptation to the existing test bench is of great interest.