



SLOVENSKI STANDARD
SIST EN 1434-6:2007

01-maj-2007

BUXca Yý U
SIST EN 1434-6:1997
SIST EN 1434-6:1997/A1:2002

Toplotni števcí - 6. del: Vgradnja, zagon, nadzor in vzdrževanje

Heat meters - Part 6: Installation, commissioning, operational monitoring and maintenance

Wärmezähler - Teil 6: Einbau, Inbetriebnahme, Überwachung und Wartung

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Compteurs d'énergie thermique - Partie 6: Installation, mise en service, surveillance et maintenance

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Ta slovenski standard je istoveten z: EN 1434-6:2007

ICS:

17.200.10 Toplota. Kalorimetrija Heat. Calorimetry

SIST EN 1434-6:2007 **en**

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English Version

Heat meters - Part 6: Installation, commissioning, operational monitoring and maintenance

Compteurs d'énergie thermique - Partie 6: Installation, mise en service, surveillance et maintenance

Wärmezähler - Teil 6: Einbau, Inbetriebnahme, Überwachung und Wartung

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 1434-6:2007) 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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.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 1434-6:1997.

The other parts are:

Part 1 - General requirements

Part 2 - Constructional requirements

Part 3 - Data exchange and interfaces

Part 4 - Pattern approval tests

Part 5 - Initial verification tests

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.

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1 Scope

This European Standard specifies installation, commissioning, operational monitoring and maintenance 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 1434-1:2007, *Heat meters — Part 1: General requirements*

3 Terms and definitions

STANDARD PREVIEW

For the purpose of this document, the terms, definitions and symbols given in Clause 4 of EN 1434-1:2007 and the following apply.

3.1 heating system

heating installation of the dwelling or premises, including the exchange circuit, the heat meter, the associated fittings and the electrical equipment

NOTE The heating system typically commences and finishes at the two connections to the heat mains.

3.2 heat mains

heat suppliers distribution pipes to which the consumer's installation is connected

3.3 flow and return limbs

pipes connecting the heating system to the heat mains

3.4 primary circuit

circuit hydraulically connected to the heat mains

3.5 secondary circuit

circuit hydraulically separated from the primary circuit.

3.6 competent authority

persons or organizations charged with the responsibility for the heat meter and/or its installation

4 Requirements

4.1 Design requirements

When designing the heating system, the heat meter supplier's installation instructions shall be followed.

NOTE For DN 25 and smaller, it is possible to use short probes. To achieve good temperature sensitivity, probes should be installed without temperature pockets. Temperature pockets should only be used when required for safety reasons.

4.2 Installation requirements

The heat meter shall be installed in accordance with the supplier's instructions.

Before installation, the circuit into which the flow sensor is to be installed shall be thoroughly flushed to remove debris. The strainer, where fitted, shall be cleaned.

The heat meter shall be protected from the risk of damage by shock and vibration induced by the surroundings at the place of installation.

The heat meter shall not be subjected to undue stresses caused by pipes and fittings.

The pipe lines of the heating system up and downstream of the heat meter shall be adequately anchored.

Heat meters designed to operate from an AC mains supply shall be wired in accordance with wiring regulations applicable.

The AC-mains power supply shall be secured against accidental interruption. However, circuit protection shall be incorporated according to the state of the art, to safely disconnect the device when electrical problems occur.

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Measurement signal leads shall not be laid directly alongside other leads such as mains supply cables, low voltage supply cables and data communication cables and shall be independently supported. The separation between those groups shall not be less than 50 mm.

Mains and external signal cables longer than 10 m shall in areas where lightning is frequent be protected with an external lightning surge protection at the cable entrance to the building.

Each signal lead between temperature sensors and calculator shall be one continuous length without joints.

Signal circuits between parts of a heat meter shall be so installed as to deter unauthorized interference and disconnection.

Precautions shall be taken to prevent damage to the heat meter by unfavourable hydraulic conditions (cavitation, surging, water hammer).

When the installation of the heat meters is complete, it shall be inspected and approved by representatives of the competent authority in accordance with established procedures.

4.3 Heat meter commissioning

4.3.1 General

The responsibility for the carrying out of each of the inspection phases is not necessarily restricted to one person or one authority, but however arranged, the following points shall be addressed and responsibilities defined.

4.3.2 Certification check

Before commissioning commences it shall be ascertained firstly, that the correct heat meter has been installed by comparing the heat meter supplier's type and size designation against the system specification. Secondly, it shall be checked that the heat meter, if a complete instrument, bears the correct pattern approval mark and, if a combined instrument, that each of the meters sub-assemblies bear the pattern approval marks stipulated in the pattern approval document for the heat meter installed.

4.3.3 Installation check

The following points shall be checked:

- Is the flow sensor mounted in the correct position and with the correct flow direction?
- Does the temperature sensor fit correctly into the pocket (pockets shorter than 140 mm shall be marked "EN 1434" or dimensions checked)?
- Are the temperature sensors correctly installed?
- Is the heat meter installed at a safe distance from sources of electromagnetic interference (switchgear, electric motors, fluorescent lights)?
- Where called for, has the heat meter been correctly earthed?
- Are the accessories correctly installed according to the installation instructions of the supplier and operator?
- Is the heat meter seen to be functioning when the heating system starts operating?

4.3.4 Heat meter security

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At the completion of commissioning, the heat meter's protective devices shall be sealed by representatives of the competent authority. For any subsequent adjustment of the meter or for replacement of sub-assemblies, batteries etc., it will thus be necessary to break one or more seals.

Seals shall be renewed in accordance with appropriate regulations.

Annex A (informative)

Heat meter installation

A.1 Introduction

This annex gives recommendations for the installation of heat meters into the heating system of which they form a component.

It includes reference to the quality of the heat conveying liquid and contains recommendations of direct concern to the distributor of heat, the building owner and the final consumer.

A.2 Criteria for the selection of a heat meter

The type, size, accuracy and environmental class of a heat meter is determined according to the operating and environmental conditions of the installation, taking into account particularly the following:

- a) pressure of the heat conveying liquid;
- b) physical and chemical characteristics of the heat conveying liquid;
- c) acceptable pressure loss across the heat meter;
- d) accuracy requirements;
- e) temperature ranges in flow and return limbs to the heating system and the system temperature difference;
- f) expected maximum and minimum flow rate of the heat conveying liquid;
- g) required thermal power of the heating system;
- h) nature of the flow rate through the heat meter, whether constant, variable or intermittent;
- i) requirements concerning the electrical supply to the heat meter;
- j) special requirements of the space around the heat meter for ease of reading, security installation and servicing of the meter;
- k) requirements for connections, i.e. flanges, fittings and meter dimensions.

A.3 Quality of the heat conveying liquid

A.3.1 General

Heat meters in general are constructed to withstand variations in the chemical constituents and the acidity or alkalinity of the heat conveying liquid. However, the presence of solids in suspension and their deposition onto the surfaces of the passages of the heat meter or their effect on the moving parts of a mechanical flow sensor causes degradation of the performance with time.