SIKKERHEDSSTYRELSEN

TYPE APPROVAL CERTIFICATE

This document is a translation of the Danish type approval certificate. In case of any differences in meaning between the Danish and the English version, the Danish version is valid.

J.no: 573-03-00034

Edition: 3
(replaces edition 2 plus all supplements)

Date: 20 February 2016

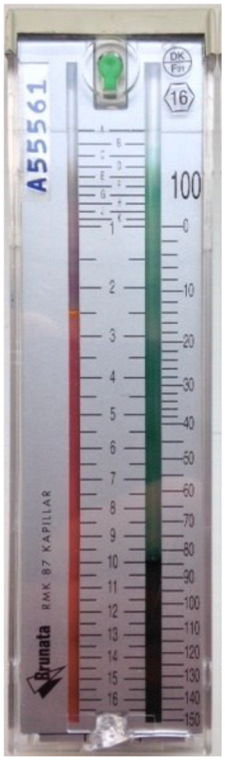
Valid until: 20 February 2026

System name: TS 27.21 003

Type approval certificate issued pursuant to article 10 of Statutory Order of the Danish Safety Technology Authority No. 70 of 28 January 1997 on the control of heat cost allocators used as the basis for allocation of heat consumption, as amended.

This validity extension of the approval (edition 3 of 20 February 2016) is issued pursuant to article 6, section 1 of Statutory Order 1166 of the Danish Safety Technology Authority of 3 November 2014 on heat cost allocators used as the basis for allocating heating costs.

HEAT COST ALLOCATOR



RMK 87 Kapillar

Applicant: Brunata A/S, Vesterlundvej 14, DK-2730 Herlev
Manufacturer: Brunata A/S, Vesterlundvej 14, DK-2730 Herlev
Device: Heat cost allocator without electrical power supply, based on the evaporation principle
Type: RMK 87 Kapillar
Use: Registration of the heat consumption of radiators for the purpose of allocating heating costs

Type tested according to DS/EN 835:1995

Note: Measuring devices not completely identical with the approved device can only be used if a separate approval and revision of this certificate has been undertaken.

1 LEGAL DATA

DEVICE
Heat cost allocator

MEASURING PRINCIPLE
Evaporation principle

BASIC STATE
Average radiator water temperature, t_m = 50 °C
Reference atmospheric temperature, t_l = 20 °C
Installation at 75 per cent of radiator height

LIMITS FOR USE
t_{max} = 88 °C (1-hexanol), 90 °C (cyclohexanol), 120 °C (methyl benzoate)
t_{min} = 52.5 °C (1-hexanol and cyclohexanol), 60 °C (methyl benzoate)
t_{min} = 52.5 °C is a deviation from DS/EN 835:1995

SCALE
Product and unit scale

2 PROVISIONS FOR CONTROL

2.1 CONTROL UNDER OPERATION
According to DS/EN 834:2013 and the manufacturer guidelines

2.2 MARKING ON THE DEVICE
The type designation is printed on the device scale. The serial number is printed on the back piece of the device and visible from the front. The TS number is printed on the top of the device. Verification mark and year mark are shown on the front of the device by applying a label in connection with installation.

The year of the first installation or installation as a result of removal, repair or other interference with the meter, as well as the meter installer's identification information, are printed on label and meter.

2.3 SEALING
The housing is sealed by applying a plastic seal.

3 CONSTRUCTION

3.1 CONSTRUCTION

The meter comprises a back piece of aluminium, a transparent cover of polycarbonate, a grey top part of polyphenolenoxyd, a silver-grey scale plate with transparent polycarbonate panes and a polycarbonate seal, coloured for year indication.

A liquid ampoule for registration of the current consumption period is placed on the right side of the device and is the same colour as the seal. The ampoule from the previous consumption period is placed sealed on the left side of the device for control of the accuracy of the most recent reading. Both ampoules are embedded in two symmetrically placed grooves in the aluminium back piece and the liquid level is read through the two vertical panes in the scale plate behind the transparent cover.

Patented capillary ampoules for device installation with vertical, oblique or horizontal position of the device's longitudinal axis are used.

The scale system is designed to be used for operation control, as the unit scale, together with product scale and scale number, is used for control of the accuracy of the reading. Each scale plate in the system carries identification of the meter installer.

The device serial number, which indicates the back piece's profile type according to a patented system, serves to control the prescribed device installation on the basis of the relevant radiator type.

3.2 INSTALLATION

The meter is installed pursuant to DS/EN 835:1995 according to very detailed meter and radiator specific installation methods. These installation methods must be very carefully observed to ensure reproducible heat transfer between radiator and heat cost allocator and thereby correct registration of heating consumption.

4 DOCUMENTATION

(1) Case no. 270-73105/60, Danish Technological Institute, DTI Energy
(2) Test reports from accredited laboratory WTP, accreditation no. DAP-P-03. 118-00-97-00 pursuant to DIN/EN 45001

Edition/supplement	Issue date	Remarks
Edition 1, j.no. 1997-4163-1009	20 February 1998	Original certificate
Supplement 1, j.no. 1998-7053-1212	13 November 1998	Meter approval to t_{min} = 52.5 °C
Supplement 2, j.no. 2000-7053-1443	11 February 2000	Validity extension
Edition 2, j.no. 1997-4163-1009	5 April 2000	Replaces edition 1 and supplement 1 and supplement 2
Supplement 3, j. no. 08-3752	21 April 2008	Validity extension
Edition 3, j.no. 573-03-00034	20 February 2016	Validity extension as replacement of edition 2 and all supplements

Karen Rud Michaelsen
Danish Safety Technology Authority
Nørregade 63, DK-6700 Esbjerg
Tel. +45 33 73 20 00
Email: sik@sik.dk
www.sik.dk