Den Danske Akkrediterings- og Metrologifond

METROLOGY
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TYPE APPROVAL CERTIFICATE	No.: 1997-4163-1009
	Issue: 2
	Date: 2000.04.05
Expiry date: 2008.08.20	System designation: TS 27.21 003

Type approval and checking provisions issued in accordance with cl. 10 of the Danish Agency for Trade and Industry regulation no. 70 of 28 January 1997 concerning checks of heat cost allocators used as the means of allocating heat consumption.

HEAT COST ALLOCATOR

Manufacturer	Brunata a/s, Vibevej 26, DK-2400 Copenhagen NV
Applicant	Brunata a/s, Vibevej 26, DK-2400 Copenhagen NV
Item	Heat cost allocator without electrical energy supply, based on the evaporation principle
Type	RMK 87 KAPILLAR

NOTE: Meters which are not completely identical with that described in this certificate can only be verified subject to a separate approval by a supplement to this certificate.

This approval is available in several languages. In the event of differences in meaning between the various languages, the Danish text shall apply.

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Field of application

Recording heat consumed by room heating radiators for the purpose of allocating heating costs

Type tested in accordance with DS/EN 835:1994.

1. LEGAL METERING DATA

Equipment

Heat Cost Allocator (Compact meter)

Method of measurement

Evaporation principle

Reference conditions

Average heating medium temperature t_m = 55°C
Reference room temperature t_L = 20°C
Location at 75% of the height of the radiator.

Measuring fluid

1-hexanol
Cyclohexanol
Methyl benzoate

Range

t_{max} = 88°C (1-hexanol), 95°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)

Scale

Product and unit scale

2. CHECKING PROVISIONS

2.1 Declaration of conformity

A declaration of conformity with the type approval shall be made by an authorised meter supplier, who has a quality assurance system which complies with of DS/EN ISO 9002.

The void label shall state the year of the declaration and the registration number of the meter supplier.

2.2 Operational checks

In accordance with DS/EN 835 and the manufacturer's instructions.

2.3 Marking

The type of the heat cost allocator is printed on the scale of the meter. Serial no. is printed on the rear part of the meter and is visible from the front. The TS number is printed on the top of the meter. A verification symbol and year are visible from the front of the meter.

2.4 Sealing

The casing is sealed by affixing a plastic seal. When the meter is first sealed, the identification of the authorised meter supplier is shown. On re-sealing to change the ampoule, the identity of the meter supplier or heat supplier is shown.

3. CONSTRUCTION

3.1 Manufacture

Component parts: Aluminium rear part, transparent polycarbonate cover, grey polyphenylene oxide top, silver-grey scale plate with transparent polycarbonate panels, plus polypropylene seal, colour coded for year.

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A fluid ampoule to record the current metering period is located on the upper right hand side of the meter, and is the same colour as the seal. The ampoule from the previous metering period is placed, stoppered, on the left hand side of the meter to check the accuracy of the current reading. Both ampoules are set in two symmetrically-located grooves in the aluminium rear part, as the liquid level is read through the two vertical windows in the scale plate behind the transparent cover.

Use of patented capillary ampoules to fit the meter with its longitudinal axis in a vertical, inclined or horizontal direction.

The scale system is made for use in functional checks, as the unit scale together with the product scale and scaling number are used to check the correctness of the reading. Each scale plate in the system bears the identification of the authorised meter supplier.

The serial number of the meter, which gives the profile type of the rear part according to a patented system, serves to check the installation of the meter in accordance with instructions based on the type of radiator concerned.

3.2 Installation

Installation of the meter is carried out in accordance with DS/EN 835 and instructions issued by the manufacturer specific to the meter and radiator. These fitting instructions must be closely complied with to ensure reproducible heat transmission between the radiator and allocator and thus correct recording of heat consumption.

4. DOCUMENTATION

Project no. 270-73105/60
Danish Technological Institute, DTI Energy

Test report from the accredited laboratory WTP, accreditation number DAP-P-03, 118-00-97-00 in accordance with DIN/EN 45001.

Issue no. 2 incorporates issue no. 1 of 20.02.1998 and supplement 1 of 13.11.1998.

Keld Palner Jacobsen 349b