



# SLOVENSKI STANDARD

## SIST EN 16430-1:2015

01-marec-2015

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### Radiatorji z ventilatorjem, konvektorji in talni konvektorji - 1. del: Tehnične specifikacije in zahteve

Fan assisted radiators, convectors and trench convectors - Part 1: Technical specifications and requirements

Gebälseunterstützte Heizkörper, Konvektoren und Unterflurkonvektoren - Teil 1: Technische Spezifikationen und Anforderungen

Radiateurs avec ventilateur, convecteurs et convecteurs de caniveaux - Partie 1: Spécifications techniques et exigences

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Ta slovenski standard je istoveten z: EN 16430-1:2014

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#### ICS:

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
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**SIST EN 16430-1:2015**

**en,fr,de**

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EUROPEAN STANDARD

EN 16430-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2014

ICS 91.140.10

English Version

## Fan assisted radiators, convectors and trench convectors - Part 1: Technical specifications and requirements

Radiateurs assistés par ventilateur, convecteurs et convecteurs de caniveaux - Partie 1 : Spécifications techniques et exigences

Gebälseunterstützte Heizkörper, Konvektoren und Unterflurkonvektoren - Teil 1: Technische Spezifikationen und Anforderungen

This European Standard was approved by CEN on 9 November 2014.

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

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	5
4 Pretreatment and coating .....	5
5 Dimensional tolerances and pressure tightness.....	5
5.1 General.....	5
5.2 Material specification and wall thickness of wet heating surfaces .....	6
5.2.1 General.....	6
5.2.2 Finned tube convectors .....	6
5.2.3 Other materials.....	6
5.3 Leak testing .....	6
5.4 Pressure strength testing .....	6
5.5 Surface defects .....	7
6 Electrical and mechanical safety for fan assisted radiators .....	7
7 Noise emission.....	7
8 Thermal outputs and cooling capacity.....	7
8.1 Test method and laboratory .....	7
8.1.1 Thermal outputs .....	7
8.1.2 Cooling capacity .....	8
8.2 Aim of the test programme .....	8
8.3 Test data .....	8
8.4 Test report .....	8
9 Catalogue data .....	9
9.1 General.....	9
9.2 Identification code of the heating appliance.....	9
9.3 Thermal output.....	9
9.4 Cooling capacity .....	9
9.5 Noise emission.....	10
9.6 Dimensions.....	10
9.6.1 Radiators .....	10
9.6.2 Convectors .....	10
9.6.3 Fan assisted radiators and convectors .....	11
9.6.4 Ventilation radiators and convectors .....	11
9.7 Maximum operating pressure.....	11
9.8 Maximum operating temperature .....	11
9.9 Electrical connections.....	11
9.10 Catalogue reference data .....	12
10 Marking and labelling .....	12

## Foreword

This document (EN 16430-1:2014) has been prepared by Technical Committee CEN/TC 130 "Space heating appliances without integral heat sources", the secretariat of which is held by UNI.

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 June 2015 and conflicting national standards shall be withdrawn at the latest by June 2015.

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.

The European Standard "Fan assisted radiators, convectors and trench convectors" consists of the following parts:

- Part 1: Technical specifications and requirements
- Part 2: Test method and rating for thermal output
- Part 3: Test method and rating for cooling capacity

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, 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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**EN 16430-1:2014 (E)****1 Scope**

This European Standard defines the technical specifications and requirements of fan assisted radiators, convectors and trench convectors for permanent installation in central heating systems which are factory assembled or kits.

This European Standard covers fan assisted radiators and convectors fed with water at temperatures below 120 °C, supplied by a remote heating source.

This European Standard also applies for radiators and convectors according to EN 442-1 to determine their dry cooling capacity.

This European Standard does not apply to discrete heating appliances.

This European Standard also defines the additional common data that the manufacturer is to provide to the trade in order to ensure the correct application of the products.

This European Standard applies to the testing for the determination of thermal output and dry cooling capacity of

- fan assisted radiators and convectors, provided the heater/cooler has a dedicated fan or fans;
- trench convectors with and without fan(s), provided the fan(s) are dedicated;
- ventilation radiators and convectors (only heating);
- not fan assisted radiators and convectors (only cooling).

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**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 442-1, *Radiators and convectors — Part 1: Technical specifications and requirements*

EN 442-2, *Radiators and convectors — Part 2: Test methods and rating*

EN 16430-2, *Fan assisted radiators, convectors and trench convectors — Part 2: Test method and rating for thermal output*

EN 16430-3, *Fan assisted radiators, convectors and trench convectors — Part 3: Test method and rating for cooling capacity*

EN 60335-2-80, *Household and similar electrical appliances — Safety — Part 2-80: Particular requirements for fans*

EN ISO 2409:2013, *Paints and varnishes — Cross-cut test (ISO 2409:2013)*

EN ISO 3741, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for reverberation test rooms (ISO 3741)*

EN ISO 3743-1, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for small movable sources in reverberant fields — Part 1: Comparison method for a hard-walled test room (ISO 3743-1)*

EN ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744)*

EN ISO 3745, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for anechoic rooms and hemi-anechoic rooms (ISO 3745)*

EN ISO 9614-1, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points (ISO 9614-1)*

EN ISO 9614-2, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning (ISO 9614-2)*

EN ISO 12499, *Industrial fans — Mechanical safety of fans — Guarding (ISO 12499)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

IEC 62301, *Household electrical appliances — Measurement of standby power*

### 3 Terms and definitions **STANDARD PREVIEW**

For the purposes of this document, the terms and definitions given in EN 442-2, EN 16430-2 and EN 16430-3 apply.

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### 4 Pretreatment and coating **STANDARD PREVIEW**

The pretreatment, paint processes and other surface finishing (chrome, polish etc.) used, shall provide a protective coating to all external surfaces in contact with the air which shall as a minimum requirement:

- give protection against corrosion in normal storage and installation conditions, as demonstrated by absence of surface corrosion after 100 h humidity test according to EN 442-2;
- for paint only, be resistant to minor impact damage according to EN ISO 2409. The test result shall be within the first three steps (0-1-2) of EN ISO 2409:2013, Table 1.

The surface treatments shall not contain any chemical substances whose use is prohibited in building products<sup>1</sup>. The compliance shall be declared by the manufacturer of the radiator/convector.

## 5 Dimensional tolerances and pressure tightness

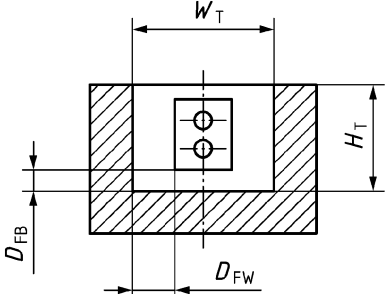
### 5.1 General

The dimensional tolerances shall not be greater than those in the manufacturer's drawings. In any case they shall not be greater than those given in EN 442-2. For trench convectors the dimensional tolerances of finned tube convectors apply. The dimensional tolerance of the trench shall not be greater than those given in Table 1.

<sup>1</sup> Also in relation to Regulation (EC) No 1907/2006 (REACH)

Table 1 — Additional dimensional tolerances of the trench convectors

Dimensional tolerances dimensions in millimetres	
trench (width $W_T$ and height $H_T$ )	$\pm 5$
distances convector to trench (fins to wall $D_{FW}$ and fins to bottom $D_{FB}$ )	$\pm 5$



The diagram shows a cross-section of a trench convector. It consists of a central rectangular section with two circular fans, flanked by hatched side walls. Dimension lines indicate:  $W_T$  (width of the trench),  $H_T$  (height of the trench),  $D_{FB}$  (distance from the bottom of the trench to the center of the fans), and  $D_{FW}$  (distance from the side wall to the center of the fans).

For fan assisted radiators and convectors the location of the fans shall be to the specifications of the manufacturers technical drawings within a tolerance of  $\pm 10$  mm.

The manufacturer shall implement a quality control system to ensure that products comply with the tolerances.

## 5.2 Material specification and wall thickness of wet heating surfaces

### 5.2.1 General

The requirements of EN 442-1 for material and wall thickness for steel, cast-iron, cast aluminium or extruded aluminium radiators shall be fulfilled.

Compliance with this requirement shall be verified by measurement.

### 5.2.2 Finned tube convectors

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The wall thickness for the steel tubes in the finished product shall not be less than 0,8 mm. The wall thickness for copper tubes in the finished product shall not be less than 0,25 mm. For other materials 5.2.3 applies.

Compliance with this requirement shall be verified by measurement.

### 5.2.3 Other materials

Materials (grade and thickness) other than those specified in EN 442-1 may be used provided that they have been demonstrated by appropriate tests and/or data to:

- meet the requirements of 5.3 and 5.4;
- ensure at least equivalent performance in terms of reaction to fire, strength and stability of the product.

Compliance with this requirement shall be verified by measurement.

## 5.3 Leak testing

Before leaving the manufacturer's all heating appliances shall be tested for leaks to a test pressure equal to at least 1,3 times the quoted maximum operating pressure. The test pressure shall not be less than 520 kPa.

## 5.4 Pressure strength testing

Sample heating appliances shall be subjected to a burst test at a pressure 1,3 times the leak testing pressure, as specified in 5.3.



- The sample under test may deform but shall not rupture;
- The sample radiators/convectors shall not be less than 500 mm long. They shall not be sold after testing.

### 5.5 Surface defects

The heating appliance shall be free from burrs likely to cause handling injuries.

## 6 Electrical and mechanical safety for fan assisted radiators

The electrical components and the fan shall meet the requirements for electrical and mechanical safety.

Electrical components of the fan assisted radiators shall comply with EN 60335-2-80. The fan shall comply with EN ISO 12499 for mechanical safety.

## 7 Noise emission

The noise emission (sound power) shall be measured according to one of the following standards:

- EN ISO 3741;
- EN ISO 3745;
- EN ISO 3743-1;
- EN ISO 3744;
- EN ISO 9614-1; <https://standards.iteh.ai/catalog/standards/sist/c78e21f5-6204-4d8d-b94b-b51e0d1e57fe/sist-en-16430-1-2015>
- EN ISO 9614-2.

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A measurement according to class 2 is sufficient.

The sound power shall be measured for the fixed rotation speed of the fan respectively for the highest, the lowest and the nominal speed in case of continuous or multi stage variable fan speeds.

In addition to the sound power level, the manufacturer may specify the sound pressure level with a room absorption of 8 dB (A). This corresponds to a distance of 2 m from the sample, a room volume of 100 m<sup>3</sup> and a reverberation time of 0,5 s.

## 8 Thermal outputs and cooling capacity

### 8.1 Test method and laboratory

#### 8.1.1 Thermal outputs

The thermal outputs shall be determined with the method and test programme specified by EN 16430-2 in a laboratory, also taking into account the laboratory specific requirements and harmonization methods as specified by EN 442-2.