

Thermostatic radiator valves - Requirements and test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 215:2019 sisaldab Euroopa standardi EN 215:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 215:2019 consists of the English text of the European standard EN 215:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.09.2019.	Date of Availability of the European standard is 18.09.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 91.140.10

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Thermostatic radiator valves - Requirements and test methods

Robinets thermostatiques d'équipement du corps de chauffe - Exigences et méthodes d'essai

Thermostatische Heizkörperventile - Anforderungen und Prüfung

This European Standard was approved by CEN on 29 July 2019.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Symbols and abbreviations	14
5 Requirements.....	14
5.1 Dimensions.....	14
5.2 Mechanical properties.....	14
5.2.1 Resistance to pressure, leak-tightness of the valve body assembly.....	14
5.2.2 Leak-tightness of the stem seal.....	14
5.2.3 Resistance of the valve body assembly to a bending moment.....	14
5.2.4 Resistance of the temperature selector to a torque	15
5.2.5 Resistance of the temperature selector to a bending moment.....	15
5.2.6 Exchange of the stem seal.....	15
5.3 Operating characteristics.....	15
5.3.1 Nominal flow rate and flow rate at S-1 K.....	15
5.3.2 Characteristic flow rate at the minimum and maximum setting of the temperature selector	15
5.3.3 Characteristic flow rate for thermostatic valves having a pre-setting facility.....	15
5.3.4 Sensor temperature at the minimum and maximum setting of the temperature selector	15
5.3.5 Hysteresis at the nominal flow rate.....	15
5.3.6 Differential pressure influence.....	15
5.3.7 Influence of the static pressure.....	16
5.3.8 Temperature difference between temperature point S and the closing and opening temperature respectively	16
5.3.9 Influence of ambient temperature on thermostatic valves with transmission elements	16
5.3.10 Water temperature effect.....	16
5.3.11 Response time	16
5.4 Endurance and temperature resistance	16
5.4.1 Mechanical endurance	16
5.4.2 Thermal endurance.....	16
5.4.3 Temperature resistance	16
6 Test apparatus and methods	17
6.1 Test apparatus.....	17
6.1.1 Apparatus to obtain the hydraulic data	17
6.1.2 Apparatus for testing the thermostatic valve and the integrated thermostatic valve in the water bath	18
6.1.3 Apparatus for testing the thermostatic valve in the air stream.....	19
6.2 Characteristic curves of thermostatic valves.....	20
6.2.1 Determination of the characteristic curves.....	20
6.2.2 Plotting of the theoretical curve	23
6.3 Testing of mechanical properties.....	24
6.3.1 Resistance to pressure, leak-tightness of the valve body assembly	24

6.3.2	Leak-tightness of the valve closed mechanically by means of the protection cap	24
6.3.3	Leak-tightness of the stem seal	25
6.3.4	Resistance of the valve body assembly to a bending moment	25
6.3.5	Resistance of the temperature selector to a torque	26
6.3.6	Resistance of the temperature selector to a bending moment	27
6.4	Testing of operating characteristics	28
6.4.1	Characteristic data	28
6.4.2	Endurance tests and temperature resistance test	31
6.5	Test schedule	32
7	Technical information to be published by the manufacturer	33
Annex A (normative) Thermostatic Radiator Valves — Dimensions and details on connection		36
A.1	General	36
A.2	Dimensions	36
A.3	Connection details	39
A.4	Materials for body, tailpiece and nut	40
A.5	Designation	40
A.6	Marking	40
A.7	Calculation of Control Accuracy — CA value	40
Annex B (informative) Degree of turbulence of the air current in a room		42
Annex C (informative) Test block for thermostatic integrated valves		43
Bibliography		44

European foreword

This document (EN 215:2019) 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 March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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

This document supersedes EN 215:2004/A1:2006.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies definitions, requirements and test methods for thermostatic radiator valves referred to hereafter as thermostatic valves.

This standard applies to two port thermostatic valves with or without pre-setting facility and thermostatic integrated valves with or without pre-setting facility for fitting to radiators in wet central heating installations up to a water temperature of 120 °C and a nominal pressure of PN 10.

This standard further specifies the dimensions, the materials and the connection details of four series of straight and angle pattern thermostatic radiator valves of nominal pressure $\leq$ PN 10.

This standard can be used as reference in a CEN/CENELEC Certification Mark System on thermostatic radiator valves.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1982, *Copper and copper alloys — Ingots and castings*

EN 12164, *Copper and copper alloys — Rod for free machining purposes*

EN 12168, *Copper and copper alloys — Hollow rod for free machining purposes*

EN 12420, *Copper and copper alloys — Forgings*

EN 12449, *Copper and copper alloys — Seamless, round tubes for general purposes*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1)*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 965-1, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

thermostatic valve to control the room temperature

thermostatic head assembly and thermostatic valve assembly or the thermostatic integrated valve assembly

Note 1 to entry: See Figure 1 for components of the thermostatic radiator valve.