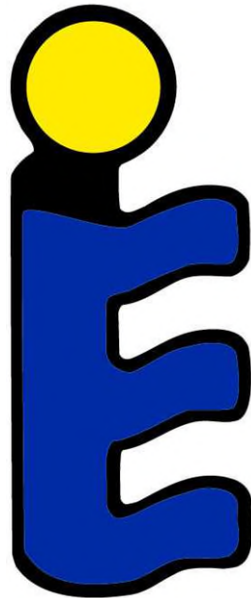


**CEN KEYMARK Scheme Rules
for
Thermostatic Radiator Valves**

5th Edition 2023-05-10



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Foreword

These CEN KEYMARK Scheme Rules for Thermostatic Radiator Valves (TRV) have been developed by a group of representatives from industry, testing laboratories, and certification bodies, the KEYMARK Scheme Group (SG) for TRVs.

The reason for the update of the 4th version of the TRV Scheme Rules was to make them clearer for all involved parties and to ensure a common understanding of all elements of the KEYMARK certification (e.g. the definitions).

Significant technical and editorial changes between the 4th and 5th edition of the Scheme Rules are as follows:

- modifications in Foreword
- updates of standards in clause 2
- modifications in clause 3: added the definition of sublicensee, type and sub-type
- extension of product information in chapter 4
- introduction of chapter 5 and more detailed specification in clause 5.3 c).

Start of validity

These Scheme Rules are valid from 2023-11-15. All KEYMARK certified TRVs must demonstrate conformity with the new version of the Scheme Rules at the latest by the time the certificates are renewed. Optionally, this can also be done before.

1 Scope

These CEN KEYMARK Scheme Rules (referred to as the Scheme Rules), together with the CEN/CENELEC Internal Regulations – Part 4 [1] (referred to as the Internal Regulations), describe the basis for the operation of the voluntary KEYMARK certification for Thermostatic Radiator Valves (TRV) based on EN 215.

The Scheme Rules are applicable to products within the scope of EN 215.

2 References

The following referenced documents form the basis for inspection, testing, certification, and proof of competence for involved third parties. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- EN 215:2019 *Thermostatic radiator valves – Requirements and test methods*
- EN ISO 9001 *Quality management systems – Requirements*
- EN ISO/IEC 17025 *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*
- EN ISO/IEC 17065 *Conformity assessment - Requirements for bodies certifying products, processes and services (ISO/IEC 17065)*

- [1] CEN/CENELEC Internal Regulations – Part 4: Certification – The KEYMARK System
<https://keymark.eu/en/documents/general/3-cen-cenelec-internal-regulations-part-4>
- [2] CCC3/KEYMARK-Website: www.trv.keymark.eu
- [3] CCC3-KEYMARK „Thermostatic Radiator Valves – TRV” Requirements for Authorization and Monitoring of Testing Laboratories” (please visit www.trv.keymark.eu)

3 Terms and definitions

For the purpose of this document, the following definitions apply.

3.1

Applicant

Company, which submits an application for certification, with the view of becoming a licensee.

3.2

Licensee

Manufacturer’s certificate for a company, responsible for ensuring that its produced products meet and continue to meet the requirements on which the certification is based.

3.3

Sublicensee

Supplier’s certificate for a company, appearing as manufacturer of TRVs, but does not itself manufacture the products. The company sells the products of a licensee under his own label and certificate.

3.4

Subcontractor

Company, acting on behalf of the licensee for outsourced processes

3.5**Empowered Certification Body (CB)**

A certification body, which is accredited according to EN ISO/IEC 17065 and empowered by KMO (KEYMARK Management Organization) to operate a KEYMARK scheme based on a specific European Standard (EN). For these Scheme Rules, EN 215 is applicable.

3.6**KEYMARK Scheme Group (SG)**

For the purpose of this KEYMARK Scheme, it is CCC3/KEYMARK

3.7**Recognized Testing Laboratories (RTL)**

An organization, which is accredited according to EN ISO/IEC 17025 and recognized by the SG according to CCC3-KEYMARK „Thermostatic Radiator Valves – TRV Requirements for Authorization and Monitoring of Testing Laboratories” (CCC3 N 415) to carry out tests for TRVs according to the requirements of EN 215 and taking part in periodical Round Robin Tests supported by the Monitoring Group and knows and follows the KEYMARK Rules for TRVs

3.8**Factory Production Control (FPC)**

Permanent internal control of production exercised by the product manufacturer

3.9**Quality Management System (QMS)**

Management System to direct and control an organization with regard to quality

3.10**TRV Model**

A combination of a valve (V) with a head (H) such that if a single head is issued with a number of different valve bodies or integrated valves; or a valve body or an integrated valve may be fitted with a number of different heads, they each represent a different model.

Examples for TRV models: H+V1, H+V2, H+Vn or V+H1, V+H2, V+Hn

3.11**TRV Type**

For the required tests, all TRVs within the test series A, B, C or D (see Table 1 of clause 6.2) are considered to be one type. For the calculation of the KEYMARK license fees, see type definition as shown in Annex C.

3.12**TRV Subtype**

See definitions as shown in Annex C for the calculation of the KEYMARK license fees.

3.13**Initial Type Test (ITT)**

The test as described in clause 6 of these Scheme Rules.

3.14**Repeat Type Test (RTT)**

The test as described in clause 8.1 of these Scheme Rules.

3.15**Control Test (CT)**

The test as described in clause 8.2 of these Scheme Rules

3.16**Inspection Bodies Working Group (IBWG)**

Group within the SG with the task to train CBs and/or inspectors to carry out inspections.

4 Application and product information

The application shall be made on a separate form. An example of this form is given in Annex A. The applicant shall submit the following information for each TRV model for which he wishes to apply the KEYMARK:

- Description of the sensor system
- Identification of the materials used for the valve body
- Cross-sectional drawings allowing full identification of the model, and the type series to which it belongs
- Mounting and using instructions
- The location on the sensor of the production date (by code or otherwise) if applicable
- The head setting position that represents a nominal sensor temperature of 20 °C
- Nominal flow rate (EN 215, clause 3.4.2)
- Hysteresis (EN 215, clause 3.4.4)
- Response time (EN 215, clause 3.4.9)
- Differential pressure influence (EN 215, clause 3.4.5)
- Water temperature effect (EN 215, clause 3.4.7)
- Control Accuracy CA (EN 215, clause A.7)

The application must be sent to CB on a separate form for each type series, duly filled in. The information entered in the form must meet the requirements of EN 215.

The CB shall evaluate the file of application and shall verify its wholeness.

5 Quality requirements

5.1 Information and procedures

The applicant has to provide during the inspection the following information/procedures for assuring conformity with the EN 215 standard.

- a) The QMS, at least of the level of the ISO 9001 standard.
- b) Name of person responsible for the applicant's QMS.
- c) Description of the FPC in respect of the following critical properties of the TRV models for which the KEYMARK is requested:
 - temperature setting and adjustment
 - nominal flow rate (EN 215, clause 3.4.2)
 - hysteresis (EN 215, clause 3.4.4)
 - leak tightness of the body assembly and stem seal

- d) Description of the inspection of incoming materials relevant for the above-mentioned critical properties.
- e) Description of the procedures for the identification and segregation of non-conforming products.
- f) Description of the procedures for introducing any modification to the TRV models for which certification is requested, and the control of the associated changes to internal documentation.
- g) Description of the calibration methods and program for the test equipment.
- h) Product information according to clause 4.

5.2 Test equipment

The applicant must be capable of testing the TRV models for which he requests certification to the appropriate requirements of EN 215 in respect of the critical properties identified in clause 5.1. If his test equipment does not conform in all aspects to what is described in EN 215, he must be capable of providing equivalent results.

Records of calibration of test equipment shall be retained.

The applicant shall provide a description of his test equipment and the justification for any claim that his equipment is equivalent to EN 215 although different from the standard.

5.3 Frequency of conformity testing

The applicant shall undertake to test his production of TRVs for which the KEYMARK is requested as follows:

- a) Each head must be tested for accuracy of temperature setting and adjusted accordingly.
- b) Each valve body assembly must be tested in an appropriate manner for leak tightness and of the stem seal and rejected if not conforming. For thermostatic integrated valves only the leak tightness of the stem seal must be applied.
- c) The quality elements affecting the hysteresis and flow rate performance of each TRV model shall be identified and controlled.
 - Hysteresis: surface finish quality of the spindle, spindle lubricate, quality of O-Rings, diameter of spindle
 - Flow rate: tolerance of valve seat, material of valve disc, construction of valve seat, valve dimensions
 - Hysteresis and flow rate: sensor element, spring

The effectiveness of this control shall be verified by testing the hysteresis and nominal flow rate at a minimum frequency of:

- 1 sample for 5000 produced
- 2 samples maximum from one week's production

The verification shall ensure that all types currently manufactured and covered by the application will be tested within 6 months.

In case of non-compliance, the applicant shall immediately determine the cause and shall take the necessary actions to correct the affected products and to avoid re-occurrence of the non-compliance in the future.

5.4 Records

The applicant shall undertake to maintain for 4 years the records necessary to confirm that he continually operates his QMS to the requirements of this scheme.

6 Initial Type Tests (ITT)

6.1 Choice of the recognized testing laboratory (RTL)

The ITT shall be carried out by RTL.

The applicant shall be provided with a list of RTL and can choose at which of these RTL he wishes to carry out the ITT of the models for which he requests certification (see www.trv.keymark.eu).

6.2 Test series

For each model, the applicant shall provide a minimum number of identical TRVs from which the CB, or its appointed inspector, will select samples for testing of all the relevant requirements of EN 215 by the RTL.

The appointed inspector may be the RTL, or an inspector recognized under this scheme and acceptable to the applicant.

The minimum number of identical TRVs to be provided for the selection is given in table 1:

Table 1 Test series according to EN 215, table 5 and clause 6.5

Test series	A	B	C	D
minimum number	1000	50	500	50

These minimum numbers of identical TRVs to be provided is mandatory for the ITT.

For repeat type tests the minimum number of identical TRVs to be provided can be reduced with a factor 10.

The location where the sampling is to take place will be notified by the applicant to the CB.

All TRVs within the above test series A, B, C or D are considered to be one type.

The dimensions of the TRVs must be verified for conformity with EN 215, Annex A before testing commences.

For test series D, only KEYMARK-certified thermostatic heads shall be used.

6.3 Failure of the test sample

If a test sample does not comply with one or more of the requirements in EN 215, the test sample has failed the ITT.

After correction of the deviations by the applicant a complete new ITT must be run on a new sample.

If a non-conformity is regarded as not critical, it may be sufficient to repeat the test for which the requirements were not satisfactory. This decision shall be made by the RTL and confirmed by the CB.

6.4 Validity of the test report

The validity of the ITT report is 1 year, unless certification is granted within that time.

7 Checks by the empowered certification body (CB)

The CB shall visit the production site, or shall appoint an inspector to carry out the following actions:

- a) Verify that the QMS as described by the applicant is in place and functioning correctly, and that the required records are being kept.
- b) Verify that the test equipment is as described and functioning correctly, and that it is properly calibrated.
- c) Verify that the TRVs in production, or produced for sampling for the ITT (clause 6.2) are as specified by the applicant under clause 4.
- d) Carry out the sampling for the ITT under clause 6.2, if the applicant has notified the production site as the place of sampling.
- e) Verify that the technical specifications published by the applicant meet the requirements of EN 215, clause 7.

A CB shall appoint an inspector who is a member of the Inspection Bodies Working Group.

The CB shall immediately inform the webmaster of the CCC3/KEYMARK website (www.trv.keymark.eu) and the CCC3/KEYMARK Secretariat of any new or revised licenses, either by sending a copy of the certificate or a letter informing of the certification.

8 Surveillance

The surveillance system for this scheme has the following elements described in 8.1, 8.2, 8.3 and 8.4.

8.1 Repeat type test (RTT)

A RTT of each TRV model in the 4th year after it is certified, and at 4-yearly intervals thereafter.

The same conditions apply as for the ITT.

In the event of non-compliance, clause 10 and the relevant clauses of the Internal Regulations come into effect.

If a licensee has more than one production site where the certified products are being manufactured, the repeat type test shall be carried out with samples selected from all these production sites.

8.2 Control test (CT)

One CT of each TRV model during each 12 months period after it is certified, except during the period when the TRV model is subject to RTT.

The CT is due one year after certification and is carried out annually on a test sample according to test series A of EN 215, table 5.

The tests according to EN 215, clauses 6.2.1.3, 6.2.1.4, 6.2.1.6, 6.3.5 and 6.3.6 must be performed.

The mechanical properties in accordance with EN 215, figure 18 and figure 19 shall be carried out, and the characteristics no. 3, 4 and 6 shall be plotted in accordance with EN 215, figure 13.

For this testing, two undamaged TRVs must be obtained at the choice of the CB, or its appointed inspector, from an appropriate trade or retail outlet or in the production site.

The appointed inspector may be the RTL, or an inspector recognized under this scheme and acceptable to the applicant. The CT is passed if:

- No damage or permanent deformation is visible after the tests according to EN 215, clause 6.3.5 and 6.3.6.
- The measured nominal flow rate does not show a greater difference to the indication of the licensee than required by EN 215, clause 5.3.1.
- The hysteresis measured, the influence of the differential pressure, and the temperature difference between temperature point S and the closing resp. the opening temperature, comply with EN 215, clause 5.3.5, 5.3.6 and 5.3.8.

If one of these requirements is not met, a sampling of 3 TRVs from the stock of the licensee must take place as for the ITT or the RTT, and the parameter which did not meet the requirements must be re-measured on all 3 TRV's. As an alternative, the licensee can change the technical specification according to the measured values.

If, again, the requirement is not met, clause 10 and the relevant clauses of the Internal Regulations come into effect.

If a licensee has more than one production site where the certified products are being manufactured, the CT should be carried out with samples selected from all these production sites.

8.3 Inspection

At least one repeat inspection of the licensee's QMS (according to the clause 5) during each 12 month period after the award of the License.

If a licensee has more than one production site, the inspection should be carried out by the same inspection body in all production sites (no obligation).

If a licensee has more than one production site where the certified products are being manufactured, the inspection should be carried out by the same inspection body in all these production sites.

Where a licensee chooses to outsource any process that affects product conformity with the requirements, the licensee shall ensure control over such processes. Control of such outsourced processes shall be identified within the QMS.

The CB reserves the right to assess the outsourced process. Licensees shall arrange access to such premises for the purposes of inspection.

The CB shall appoint an inspector to carry out this inspection, provided that this inspector will participate in the Inspection Bodies Working Group.

If the QMS of the licensee does not meet the requirements, clause 10 and the relevant clauses of the Internal Regulations come into effect.

This system can be illustrated as given in table 2.

Table 2 — Timetable for inspections

	Award of license	Years									
		1	2	3	4	5	6	7	8	9	10
ITT	X										
RTT					X				X		
CT		X	X	X		X	X	X		X	X
Inspection	X	X	X	X	X	X	X	X	X	X	X

The CB may carry out RTT if a TRV with the KEYMARK is subject to doubts as to its conformity to the standard.

These RTT can be carried out as an ITT, or as part thereof, and if these doubts are confirmed, the licensee is informed and samples are taken in accordance with clause 6.2 and the relevant tests are run.

If conformity with the standard is still not confirmed, clause 10 and the relevant clauses of the Internal Regulations come into effect.

NOTE When a TRV has been obtained from a source other than the licensee (e.g. from an installer or a user), the CB shall give consideration to the possible adverse effects of age, installation conditions, etc., when deciding on the tests to be performed and the significance to be attached to the results of those tests.

8.4 Participation of CB to the meetings of IBWG

Each CB shall appoint at least one of its inspectors carrying out inspections to participate to the annual meetings of the IBWG.

9 Marking

9.1 Marking of the KEYMARK and other information

A TRV for which the right to use the KEYMARK has been granted, shall be marked on both the thermostatic head assembly and the valve body assembly.

The KEYMARK (without the CB's identification code) shall be used together with at least one of the following:

- the name
- or the logo
- or the identity number of the licensee

See note 1 below.

In order to avoid any confusion with the identification code of the CB, the identity number of the licensee (see 9.3) shall not be placed directly below the KEYMARK as well as no other marks or logos.

The marking shall be visible without disassembling during sampling.

For marking of integrated valve see note 2 below.

The licensee's packaging, technical information for the certified values (e.g. product catalogue, brochures), and website shall show the KEYMARK, accompanied by the identification code of the CB and at least one of the following:

- the name
- or the logo
- or the identity number of the licensee.

The licensee shall clearly identify in his catalogue information and on advertising material the products for which a right of use has been granted and is valid by the use of the KEYMARK and the identification code of the CB.

A graphic representation of the KEYMARK logo is shown in Annex B.

NOTE 1 The CEN/CENELEC Internal Regulations – Part 4 require that the KEYMARK shall be accompanied by the identification code of the CB, instead of the name, logo or identity number of the licensee.

For TRVs an exemption from these KEYMARK rules has been accepted for the product itself; not for the licensee's packaging and literature.

NOTE 2 Only integrated valves may not be marked with the KEYMARK nor with the name, logo or identity number of the licensee, if it is not possible or practical.

This shall be agreed between the CB and the licensee; traceability of the product back to the licensee shall be assured.

9.2 Modifications to certified TRV models

For these Scheme Rules, the following interpretations are applied:

- a) The production process should be limited to those activities related to conformity of the product and mainly concerned with the licensee's QMS.
- b) Only those tests are conducted where the values may change as a result of the modifications to the TRV. The CB shall decide which tests are to be carried out after consultation between the licensee and the RTL. The term CB in this case can also mean: RTL or inspection body delegated by the CB for that purpose.

For the sampling for test purposes the method as described in clause 6.2 applies.

Subject to agreement with the CB, the licensee may have a CT (see clause 8.2) if one is due, included with modification testing.

However, if that sample fails, samples of unmodified TRVs are selected and tested, as for a CT failure (see clause 8.2).

To obtain approval for the modification, it will be necessary for the licensee to make a separate application.

9.3 Identification of licensee

Each licensee will be assigned an identity number, unique within this scheme, which enables the CB to identify the licensee, who is responsible for the fulfilment of all the requirements of clause 8. The CB shall provide such information to the SG Secretariat for publication on the internet website.

[2] www.trv.keymark.eu

10 Specific actions in cases of failure to comply

In the event that surveillance actions fail to confirm, either that certified TRVs continue to comply with the EN Standard, or that the required assurance is being maintained during production, the CB will take immediate action requiring the Licensee to remedy the deviations within a specified period fixed by the CB normally not exceeding 3 months after which the right of use shall be suspended or cancelled.

Exceptionally, the CB may extend from 3 to 6 months the period in which to remedy deviations, in cases where the conformity with EN 215 in respect of the critical properties identified in clause 5.2 is not adversely affected.

Where the compliance failure is in respect of tests according to clause 8, at the end of the period for remedying the deviations, further samples are selected in accordance with clause 6.2 and the relevant tests repeated. If the requirements of EN 215 are not met, the right to use the KEYMARK will be suspended.

If the compliance failure is in respect of deviations in the licensee's QMS at the end of the period for remedying the deviations, an inspection will be carried out. If the failures are found to persist, the right to use the KEYMARK will be suspended.

The withdrawal of the right to use the KEYMARK have to be declared by the CB, either when previous actions have had no effect on the deviation(s) recorded, or immediately in more serious cases. The CB cancels a right of use on receipt of notification by the Licensee that he no longer requires it.

Suspension and withdrawal shall be in accordance with the Internal Regulations, clause 10.4.

Annex A (informative)

Application Form

Figure A.1 shows an example of the basic content of an application form for granting the right to use the KEYMARK.

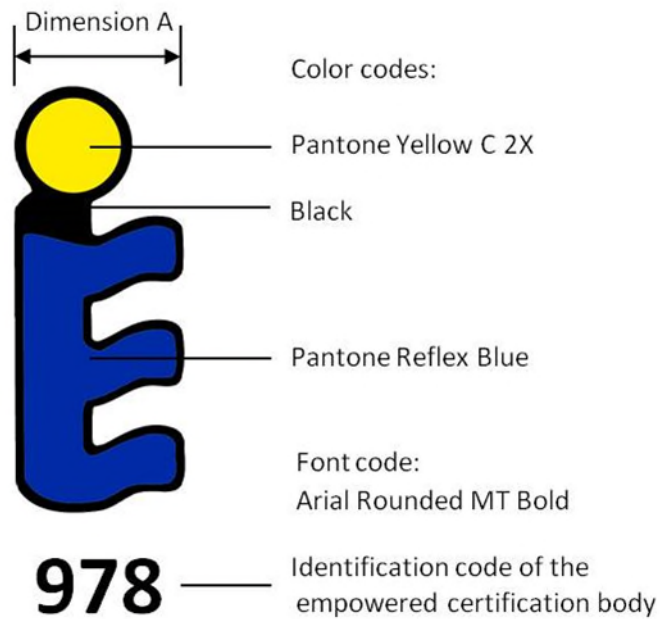
Application		
Manufacturer's name:		
Company address:		
Telephone:	Fax:	E-mail:
Specification of the product for which the right to use the KEYMARK is requested (in case of an extension, make reference to the existing right to use):		
Production site(s):		
Name and function of the person responsible for the application, address, telephone, fax and e-mail:		
<u>DECLARATION</u>		
We hereby agree to pay all of the relevant costs associated with this application.		
<u>DECLARATION</u>		
We hereby agree to comply with the:		
CEN/CENELEC Internal Regulations – Part 4 CEN KEYMARK Scheme Rules for Thermostatic Radiator Valves		
and would like to enter into a contract for the certification of the products mentioned above.		
Date of the application:		
Name and signature of the manufacturer:		

Figure A.1 — Example of an application form

Annex B (normative)

Design of The KEYMARK

Figure B.1 shows the graphic representation of the KEYMARK logo.



NOTE 1 The drawing of this annex is indicative. For the purpose of the representation of the KEYMARK, the definitive artwork can be obtained from the KEYMARK Management Organization (KMO) or from the empowered certification bodies.

NOTE 2 Dimension A should not be less than 2 mm. The readability shall be ensured.

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Figure B.1 — Representation of the KEYMARK logo

Annex C (informative)

KEYMARK License Fee System For TRV

For the KEYMARK License Fee System for TRV the definition of product type and subtype is as follows:

A thermostatic **head** with integral sensor is a product type.

The following thermostatic heads are regarded to be subtypes:

- Thermostatic head with integral temperature selector with remote sensor
- Thermostatic head with remote sensor incorporating the selector
- Thermostatic head with remote sensor and with remote selector
- Thermostatic head chrome plated

A thermostatic **valve** with or without pre- setting facility and complying with or not with one dimension series of EN 215, Annex A is a product type. If a licensee has a series of certified valves with **and** a series of certified valves without pre- setting facilities one series of them are regarded to be a product type and the other one is regarded to be a subtype.

The following thermostatic valves are regarded to be **further** subtypes:

- Valve with dimensions, material and details on connection to EN 215, Annex A, Series D, if not included in product type
- Valve with dimensions, material and details on connection to EN 215, Annex A, Series F, if not included in product type
- Valve with dimensions, material and details on connection to EN 215, Annex A, Series S, if not included in product type
- Valve with dimensions, material and details on connection to EN 215, Annex A, Series GB, if not included in product type
- Valve with dimensions, material and details on connections not complying to series D, F, S, GB, if not included in product type
- Integrated valves.

Examples:

A Licensee has one or more certified thermostatic head(s) with integral sensor(s) and one or more certified thermostatic head(s) with integral temperature selector(s) with remote sensor(s). The thermostatic head(s) with integral sensor(s) is (are) a product type, the other(s) is a (are) subtype(s).

Valve series under 1) is (are) product type(s), all the others are subtypes each.

A licensee has the following certified valves:

- 1) Valve series with pre-setting and complying with Series F
- 2) One valve without pre-setting and complying with Series D
- 3) Valve series without pre-setting and complying with Series GB
- 4) Two valves with pre-setting and dimensions not complying with series D, F, S or GB