

CONTROL AND SAFETY VALVES

Technical document

079-08

Temperature limiters ECS

Technical document 079-08 Rev01
17/08/2023

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MODIFICATION HISTORY

Revision no	Date of application	Modifications
00	15/03/2019	<p>Update of the document presentation and reference.</p> <p>Substantive changes :</p> <p>Part 1 Application rules</p> <ul style="list-style-type: none"> - Article 2 Normative references: updated references - Article 7.2 Copper alloys: reference to the list of 4MS; - Article 8: Dimensional characteristics: addition of a note concerning the monitoring of dimensional deviations on connections; - Article 10: Hydraulic operating characteristics: addition of a tolerance on test instructions. <p>Transfer of Parts 2 and 3 to a technical management appendix (Inspection procedures) and</p> <p>Update of the "In-process inspection" and "Finished product inspection" tables</p>
01	17/08/2023	Complete revision of the document based on the mixing valve standard NF EN 15092

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PARTIE 1. RULES FOR APPLICATION OF THE STANDARD NF EN 15092 AND ADDITIONAL TECHNICAL SPECIFICATIONS

Object (added)

The purpose of this document is to specify the design and performance requirements for temperature limiters based on standard NF EN 15092 for mixing valves.

The document follows the numbering of the standard. Completed, modified and added clauses are marked in the heading.

NOTE :

In this document, any reference to the term "mixing valve" in standard EN 15092 is replaced by "temperature limiter".

1 Scope of application (Amended)

The document deals with a safety device that delivers mixed water to prevent scalding.

The article is completed and modified as follows:

This document applies to products from DN15 to DN25.

These devices are intended primarily for domestic use (see EN 1717).

Table 1 : Conditions of use

Limits Conditions	Limites of use	Recommended operating limits
Dynamic pressure	0,1 MPa (1 bar) min.	1 bar \leq P \leq 5 bar, en pression équilibrée EC et EF
Static pressure (PN10)	10 bar maxi	10 bar maxi
EC inlet temperature	T \leq 90°C	60°C \leq T \leq 80°C
EC inlet temperature	T \leq 25°C	T \leq 25°C
Distribution temperature (EM en outlet)	T \leq 65°C (*)	T \leq 50°C

EC: Hot water

EF : Cold water

EM : Mitigated water

(*) The 65°C temperature can only be used by a professional (device unlocked)

2 Standard references (completed)

The following reference documents are essential for the application of this document.

NF EN 1717 : 2001	Protection against pollution of drinking water in internal networks and general requirements for backflow prevention devices
NF EN ISO 228-1 : 2003	Pipe threads for threadless connections - Part 1: Dimensions, tolerances and designation
NF EN ISO 3822-1 : 1999	Acoustics - Laboratory measurement of noise emitted by valves and fittings used in water installations - Part 1: Measurement method.
NF EN ISO 3822-3 : 2018	Acoustics - Laboratory measurement of the noise emitted by valves and hydraulic equipment used in water distribution installations - Part 3: Installation and operating conditions of in-line valves and hydraulic equipment.
NF EN 15092 : 2008	Fittings for buildings In-line mixing valves for hot water supply Tests and requirements

3 Terms and definitions

Temperature limiter (modified)

A water temperature operated device which mixes hot and cold water to produce water at a preset outlet temperature and which is installed between the hot water production, the cold water distribution and the point of use in order to regulate the distribution temperature to the values given in Table 1 of this document.

Maximum distribution temperature (completed)

The article is completed as follows:

French regulations set a lower value for the distribution temperature of domestic hot water (DHW) in the bathroom (Circulaire interministérielle, n° DGS/SD/7A/DSC/DGHUC/DGE/DPPR/126 of 3 April 2007)

Temperature minimale de distribution (modified)

The article is amended as follows:

No minimum temperature is required.

Preset temperature

Set point temperature (modified)

The article is amended to read as follows:

Distribution temperature below 50°C.

NB: The set temperature is assimilated to the initial temperature for the tests

.

Adjustable limiter

overtemperature function (modified)

Possibility of temporarily using a distribution temperature higher than the preset value in the hot water distribution system, for thermal disinfection to control the proliferation of bacteria.

Type 2 temperature limiter (completed)

NOTE: The acronym NR used here refers to temperature limiters that cannot be set by the user.

User adjustable temperature limiter

NOTE: The acronym RU used here refers to temperature limiters that cannot be set by the user.

Temperature limiter adjustable by a professional operator – installer

NOTE: The acronym RO is used hereafter to designate professionally adjustable temperature limiters.

Temperature limiter adjustable by the installer using tools for a temperature above 50°C.

These devices must be fitted with a system to ensure that the factory setting of 50°C is not tampered with (setting stop, seal, etc.).

Nominal diameter (DN)

class (added)

La classe correspond à une performance de débit du limiteur de température.

Two classes are defined:

- Class 12: temperature limiters delivering 12 L/min under the test conditions in Table 5 of this document.
- Class 20: temperature limiters delivering 20 L/min under the test conditions in Table 5 of this document.

4 Materials and surface finish

4.1 General

4.2 Nature of materials (modified)

The Order of 25 June 2020 (SSAP2012895A) for production, distribution and packaging installations that come into contact with water intended for human consumption applies.

In view of the scope of application, paragraph d/ is amended as follows:

d/, the materials used shall not deteriorate when exposed to a temperature of 85°C for one hour and shall be suitable for use at the temperatures specified in the tests in this document.

5 Design and dimensional requirements

5.1 Non-return devices (completed)

The section is completed as follows:

The appliance must be fitted with a non-return device in accordance with the specifications of standard NF EN 1717.

The non-return valves used must hold NF "Antipollution des installations d'eau" certification.

5.2 Dimensional characteristics

NOTE (added) :

Dimensional deviations on connections, observed during checks at the CSTB, will be monitored during audits of manufacturing sites. This follow-up will be recorded in the audit reports and will be reported to the committee

5.2.1 General (modified et completed)

The nominal size DN corresponds to the end fittings used to connect the temperature limiter to the pipework.

For maintenance of the device without intervention on the pipe:

- the body of the temperature limiter must be removable without intervention in the pipework;
- or
- the control element must be interchangeable in the form of a cartridge.

In this case, the outlet temperature setting (EM) must be checked at the point of use.

5.2.2 End fittings (completed)

The pipe connection must not, under any circumstances, be able to interfere with the operation of the device (pipe stoppage, etc.).

Connections screwed onto the pipe must comply with the specifications in technical document 079-10.

5.2.3 Other connections (union) (modified)

All other connections must comply with current standards.

5.2.4 Sealing surface (added)

The joint span of the male spigots must be sufficient to prevent the joint from being cut during installation in the system and must comply with the requirements of Table 2.

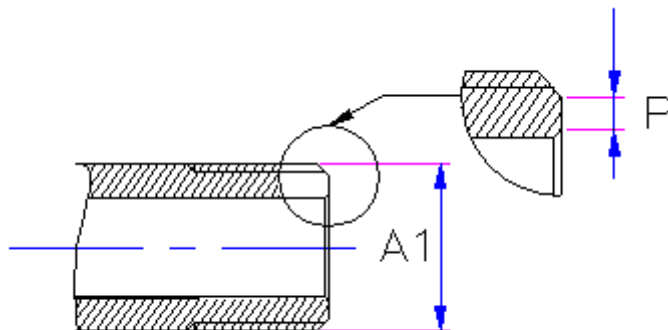


Figure 1 : Joint span

A1 : Thread designation

P : sealing surface

Table 2 : Joint span dimensions

DN	A1	P mini (mm)
DN15	G 1/2 B	1,7
DN20	G 3/4 B	2
DN25	G 1 B	2,2

5.2.5 Locking swivel nuts (added)

The dimensional characteristics of captive swivel nuts are defined in Table 3.

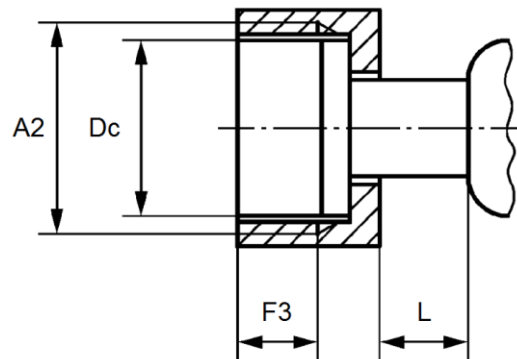


Figure 2 : Rotating nut

A2 : ISO 228-1 thread

Dc : flange diameter

F3 : Useful tapping depth of the nut

L : Length of rotating nut clearance

Table 3 : Dimensions of swivel nuts

DN	A2	Dc mini	F3 mini	F3 maxi	L
DN15	G 1/2	18	8	9,8	Must allow release of the union nut
DN20	G 3/4	23,5	8,5	11,3	
DN25	G 1	29,4	10	12,8	

Dimensions in mm

5.3 Setpoint temperature adjustmant (modified)

Point c) is completed as follows

c) Limit the possibility of access to the setting by the user and incorporate a system to check that the factory setting has not been tampered with to a maximum of 50°C.

5.4 Overtemperature function

6 Mechanical tests and requirements

6.1 Body strength test

6.1.1 Procedure

6.1.2 Requirements (modified)

The requirement is modified as follows:

The body of the temperature limiter shall show no visible signs of permanent deformation or visible cracks.

The duration of the test is set at 5 (0/+2) minutes.

6.2 Bending mement test for temperature limiters (modified)

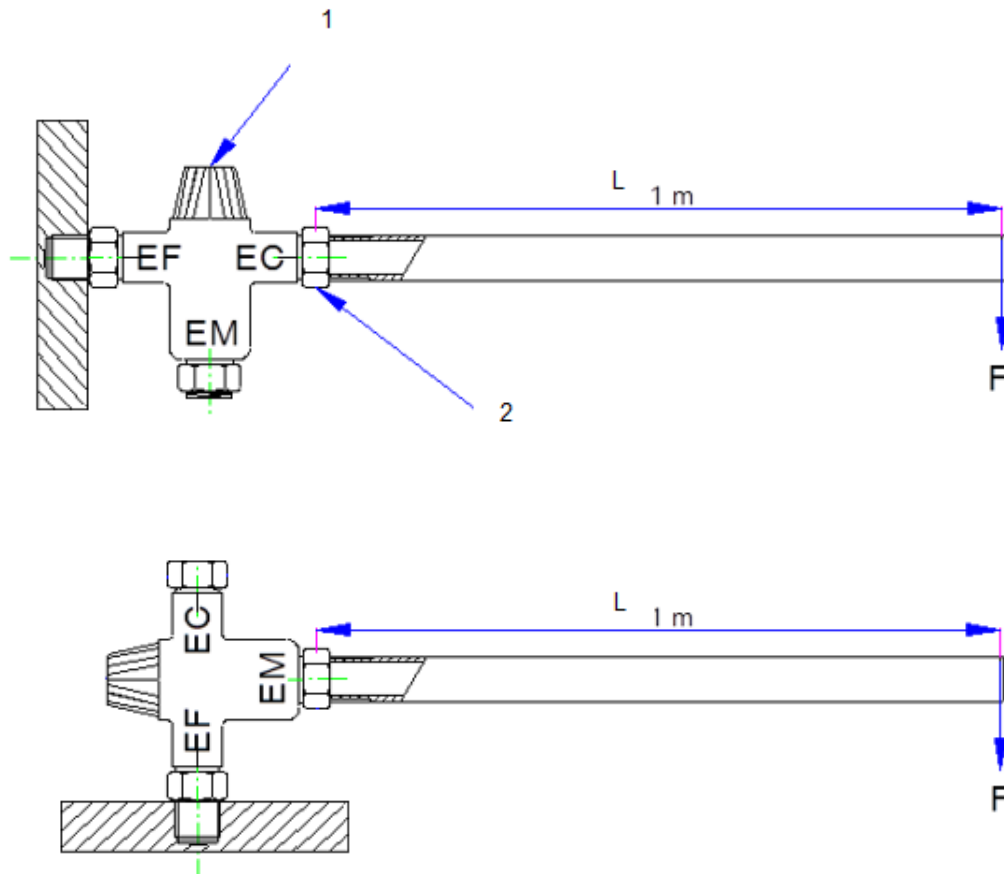
The test is carried out with the end fittings (complete product: sleeve/nut/sleeve).

In Table 4, the DN is replaced by the thread size designation of the connection.

6.2.1 Principle (completed)

The mechanical strength of the body and connection devices is verified by the bending moment test

6.2.2 Procedure (completed)



1 : Temperature limiter

2 : Connecting sleeve (EM, EC, EF)

L : lever arm

F: Force

Figure 3 – Assembly for bending test

Note: If the two power supplies are not on the same axis, the test will be carried out on each.

6.2.3 Requirements (completed)

There must be no visible breakage, leakage, deterioration or permanent deformation of the temperature limiter and connection devices.

The bending moment is the same for all types of connection.

Table 4 of the standard is amended as follows:

Table no4 : Bending moment

Thread size designation	1/2	3/4	1
Bending moment (Nm)	80	150	300

Note 1: The bending moment tolerance is set at +/- 5 %.

Note 2: In the case of a rotating nut, the bending test is carried out at the value of the diameter immediately below the thread size.

6.3 Torque tests for temperature stops

This test is considered not applicable for the following reasons:

- The temperature is set only when the limiter is installed.
- The lever fitted to the limiter is not to be considered as a control knob but as an adjustment knob.

6.4 Tightness characteristics (added)

6.4.1 Checking the tightness of the temperature limiter

6.4.1.1 Principle

The test consists of checking the tightness of the temperature limiter under cold water pressure.

6.4.1.2 Equipment

A hydraulic test circuit capable of delivering the required static pressures and maintaining them for the duration of the test.

6.4.1.3 Procedure

- connect the two temperature limiter inlets to the test circuit;
- purge the appliance and the test circuit;

With the outlet orifice closed, apply a water pressure of (0.2 ± 0.05) bar to the temperature limiter for (60 ± 5) seconds.

Repeat the test with a water pressure of (16 ± 0.2) bar for (60 ± 5) seconds

6.4.1.4 Requirements

There must be no visible leakage throughout the test.

6.4.2 Checking the tightness of the non-return device : Interconnection between hot and cold water

6.4.2.1 Principle

The test consists of checking that there is no passage between the two EF / EC supplies.

6.4.2.2 Procedure

The test is carried out on the complete appliance fitted with sockets.

- connect a temperature limiter inlet to the test circuit;
- purge the appliance and the test circuit;

With the outlet orifice closed, apply a water pressure of (16 ± 0.2) bar for (60 ± 5) seconds.

- Repeat the test by reversing the water inlet connection.

6.4.2.3 Requirements

Throughout the test, there must be no visible leakage on the unconnected inlet.

6.5 Checking the actuator torque (added)

6.5.1 Principle

The test consists of checking the torque required to handle the actuator.

6.5.2 Procedure

The test consists of checking the torque required to handle the actuator.

6.5.3 Requirements

The torque to be applied to change the temperature setting must be < 2.5 Nm.

7 Tests and performance requirements

7.1 General (modified)

The section is amended as follows:

All performance tests must be carried out with the non-return devices, which must be supplied with the product.

All performance tests may be carried out in the sequence defined in Article 14

7.2 Standard test conditions

7.2.1 General (modified)

For type 2 devices (RU and RO), the tests are carried out with the temperature control device at the hot water stop.

7.2.2 Expression of results (modified)

The article is amended as follows:

The test is carried out once only.

7.2.3 Conducting temperature tests by type of limiter

- Connect the two temperature limiter power supplies to the test circuit,
- Make the initial settings

Table 5 of the standard is amended as follows, to reflect usage.

DN	15	20		25
Connection thread designation	1/2	3/4		1
Class	12	12	20	20
Normal test flow rate (l/min) (initial setting)	12	12	20	20
Reduced test flow (l/min)	6	6	6	6
Volume of mixed water for test 7.7 (ml)	100	100	100	100
Parameters	Test conditions			
	Hydraulic tests		Endurance test	
Pec (bar)	3 ± 0,2		/	
Pef (bar)	3 ± 0,2		/	
Tec (°C)	60 / 65		55 / 65	
Tef (°C)	10 / 15		15 / 25	
ΔT(ec-ef) (K)	50 ± 2		/	
ΔT(ec-em) (K)	T ≥ 15		/	
Tem (°C) (température de consigne ou initiale)	T° maxi		/	

Table 5 : Tests conditions

P: Pressure, T: Temperature, EC: Hot water, EF: Cold water, EM: Mixed water.

The flow rate tolerance is ± 0.5 l/min or ± 5%, whichever is greater.

7.3 Checking the limiter temperature setting

7.3.1 Type 1 : preset temperature, not adjustable

7.3.1.1 Principle

7.3.1.2 Procedure (modified)

The article is amended as follows:

Connect the limiter to the test equipment (see Appendix B).

Fully open any flow control.

Fully open valve 5 and tap 6.

Ensure that discharge valves 8 are closed.

Adjust to the initial values given in Table 5 of this document for the reduced flow.

A pressure of (0.3 ± 0.02 MPa) [(3 ± 0.2) bar] should be applied to the hot and cold water supplies and maintained throughout the procedure.

After 30 s, record the temperature of the mixed water from the temperature limiter and the mixed water flow rate (Qec + Qef).

This test is repeated with the normal flow rate defined in table 5 of this document.

7.3.1.3 Requirementss (modified)

After 30 s of stable supply conditions, the temperature of the mixed water must be less than 50°C (50°C +0/-5).

7.3.2 Type 2 : preset temperature, adjustable

7.3.2.1 Principle (modified)

The article is modified as follows:

Check that the temperature at the RU stop does not exceed 50°C.

7.3.2.2 Procedure (modified)

The article is modified as follows:

Connect the limiter to the test equipment (see Appendix B).

Fully open any flow control.

Fully open valve 5 and tap 6.

Ensure that discharge valves 8 are closed.

Adjust to the initial values given in Table 5 of this document for the reduced flow.

A pressure of $(0.3 \pm 0.02 \text{ MPa}) [(3 \pm 0.2) \text{ bar}]$ should be applied to the hot and cold water supplies and maintained throughout the procedure.

The test is carried out with the RU stop in the maximum position.

After 30 s, record the temperature of the mixed water from the temperature limiter and the mixed water flow rate ($Q_{ec} + Q_{ef}$).

This test is repeated with the normal flow rate defined in table 5 of this document.

7.3.2.3 Requirements (modified)

After 30 s of stable supply conditions, the mixed water temperature must not exceed 50 (+0/-5)°C.

7.4 Determining the minimum flow rate

7.4.1 Principle

7.4.2 Procedure for Type 1 valves (modified)

The article is amended as follows:

Connect the restrictor to the test equipment (see Appendix B).

Fully open any flow control.

Fully open valve 5 and tap 6.

Ensure that discharge valves 8 are closed.

Adjust to the initial values given in Table 5 of this document.

Adjust valve 6 to create a pressure drop of 0.5 (0/+0.1) bar.

After 15 s, record the flow rate of mixed water leaving the limiter.

7.4.3 Procedure for Type 2 valves

The article is amended as follows:

Connect the restrictor to the test equipment (see Appendix B).

Fully open any flow control.

Fully open valve 5 and tap 6.

Ensure that discharge valves 8 are closed.

Adjust to the initial values given in Table 5 of this document.

Adjust valve 6 to create a pressure drop of 0.5 (0/+0.1) bar.

Using the limiter's integral temperature adjustment mechanism, set the limiter to its maximum temperature.

After 15 seconds, record the flow rate of mixed water leaving the limiter.

Using the limiter's integral temperature adjustment mechanism, set the limiter to its minimum temperature.

After 15 seconds, record the flow of mixed water leaving the limiter.

.

7.4.4 Requirementss (modified)

The article is amended as follows:

After 30 s of stabilisation of the supply, the temperature of the mixed water must not differ by more than ± 2 K from the preset temperature (NR) or from the stop temperature RU; however, the measured temperatures of the mixed water must not exceed 50 (0/-5)°C.

Table 6 of the standard is amended as follows :

DN	15	20	20	25
Class	12		20	
Flow measured min (l/min) à $\Delta P = 0,5$ (0/+0,1) bar	12	12	20	20

Table 6 : Minimum flow

7.5 Temperature stability test starting from ambient temperature ("Initial draw-off") (modified)

7.5.1 Principle

Determine :

- a) the variation in the temperature of the mixed water when the limiter has not been used for a long period and is at room temperature; (initial draw-off)
- b) the temperature at which the mixed water stabilises when the flow rate is stabilised.

7.5.2 Procedure (modified)

The section is amended as follows:

Connect the temperature limiter to the test apparatus (see Appendix B) and set to the normal test conditions given in Table 5 of this document.

For Type 1 temperature limiters, conduct the test at the preset temperature.

After 30 seconds of stable conditions, measure the mixed water temperature (T°C set point).

Isolate the hot water supply, and open the cold water bypass (valve 7) to the hot water inlet of the temperature limiter; circulate the water through the limiter for 2 minutes.

Close the mixed water flow using valve 5.

Close the cold water bypass to the hot water inlet; open the hot water supply.

Open the mixed water outlet.

Continuously measure the mixed water temperature.

Repeat the procedure with the reduced flow rate values given in Table 5 of this document.

7.5.3 Requirements (modified)

The article is amended as follows:

A transient rise in temperature at 55°C must not last more than 3 seconds.

A transient rise in temperature to 65°C must not last more than 0.5 s.

15 s after the start of the observed disturbance, the average stabilised temperature must not be more than ± 2 K from the initial set value and must balance within a range of 3 K. This temperature must not exceed 50°C.

Figure D1 in Annex D is amended as follows:

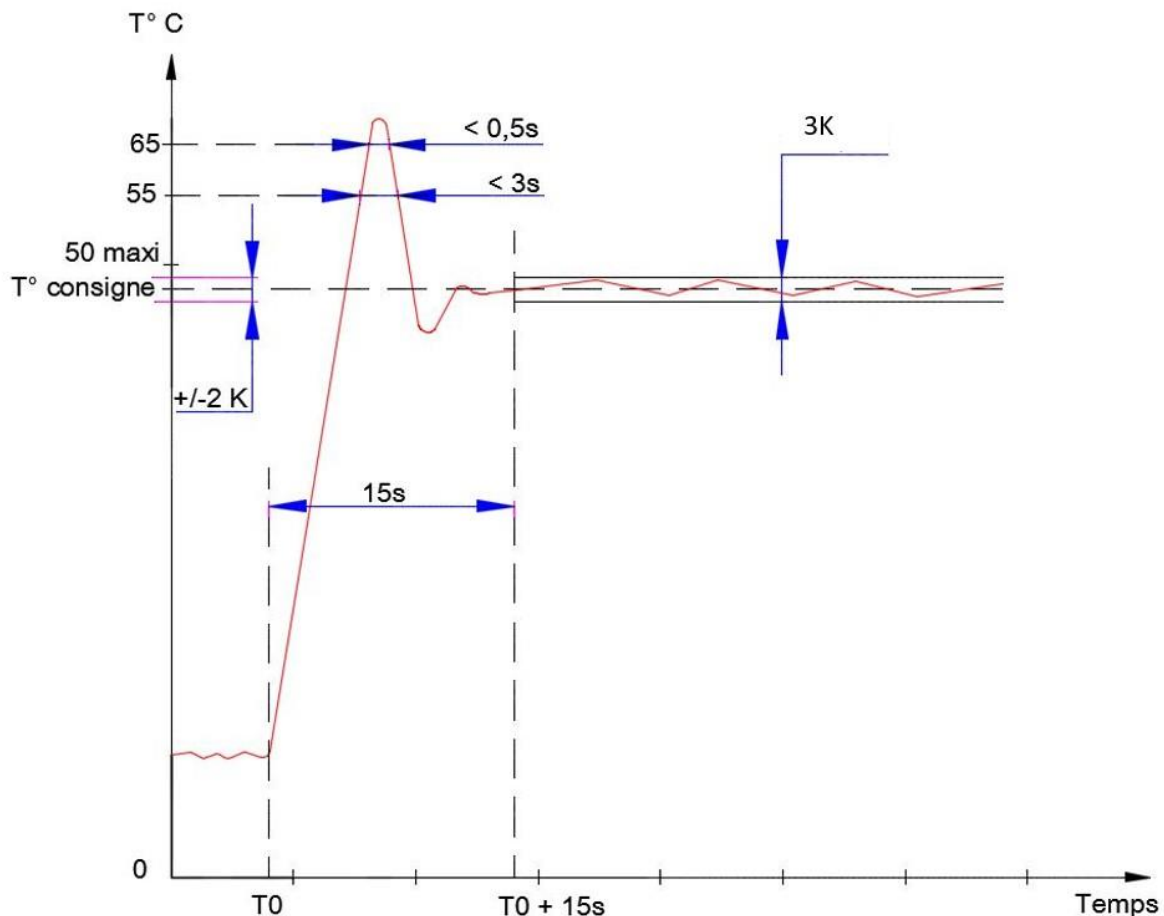


Figure D1

7.6 Temperature stability test during flow variations

7.6.1 Principle

7.6.2 Procedure (modified)

The article is amended as follows:

Flow rate variations must be carried out in less than 2 seconds.

After each flow variation, a minimum stabilisation time of 30 seconds must be allowed before the next variation.

Connect the temperature limiter to the test equipment (see Appendix B), and set to the initial values given in Table 5 of this document.

After 30 seconds of stable conditions, measure the mixed water temperature (T°C set point).

For Type 1 limiters, carry out the test at the preset temperature.

Reduce the mixed water flow rate to the reduced flow rate given in Table 5 of this document, by adjusting valve 5.

Restore the mixed water flow rate to the normal test flow rate given in Table 5 of this document, by adjusting valve 5.

Increase the mixed water flow rate to the maximum flow rate obtained by fully opening valve 5.

Restore the mixed water flow rate to the normal test flow rate given in Table 5 of this document, by adjusting valve 5.

7.6.3 Requirements (modified)

The article is amended as follows:

A transient rise in temperature at 55°C must not last more than 3 seconds.

A transient rise in temperature to 65°C must not last more than 0.5 s.

15 s after the start of the observed disturbance, the average stabilised temperature must not be more than ± 2 K from the initial set value and must balance within a 3K interval. This temperature must not exceed 50°C.

(see figure D1 above).

7.7 Safety test in the event of a cold water supply failure

7.7.1 Generalities

7.7.2 Principle

7.7.3 Procedure (modified)

The section is amended as follows:

Connect the temperature limiter to the test equipment (see Appendix B), and set to the initial values given in Table 5 of this document.

For Type 1 (NR) limiters, conduct the test at the preset temperature.

After 30 s of stable conditions, measure the mixed water temperature (T°C set point).

Isolate all outlets on the cold water supply line, including the cold water pressure measurement line. Also isolate the outlet pressure measurement line, if it is open.

Isolate the cold water supply instantly (in less than 2 seconds).

Wait 3 seconds, then collect the mixed water that flows out for 10 seconds.

Leave the cold water supply isolated for (60 ± 3) s, then restore it to the original pressure and record the temperature of the mixed water.

- Carry out the test with the flow rate set at :
- at the reduced flow rate in Table 5 of this document,
- at the normal flow rate value in table 5 of this document.

The procedure is carried out once on a sample.

7.7.4 Requirements (modified)

The article is amended as follows:

The volume of mixed water collected must be less than the volume given in Table 5 of this document.

15 s after the start of the disturbance observed, the average stabilised temperature must not be greater than ± 2 K of the initial set value. This temperature must not exceed 50°C.

7.8 Temperature stability test during a variation in inlet pressure (added)

7.8.1 Principle

7.8.2 Procedure (modified)

The article is amended as follows:

Connect the temperature limiter to the test equipment (see Appendix B), and set to the initial values given in Table 5 of this document.

For Type 1 limiters, carry out the test at the preset temperature.

After 30 s of stabilisation, measure the mixed water temperature (T°C set point).

Reduce the flow rate to the reduced flow rate given in Table 5 of this document.

After 15 s, start recording the temperature of the mixed water leaving the limiter, and continue recording throughout the series of tests.

Reduce the cold water supply pressure to (0.2 ± 0.01) MPa [(2.0 ± 0.1) bar] for a period of (1 ± 0.1) s. After (30 ± 2) s, restore the cold water pressure to (0.3 ± 0.01) MPa [(3.0 ± 0.1) bar] for a period of (1 ± 0.1) s.

Repeat the procedure for hot water.

The procedure is carried out only once on a sample.

7.8.3 Requirements (amended)

The article is amended as follows:

A transient rise in temperature at 55°C must not last longer than 3 s.

A transient rise in temperature to 65°C must not last more than 0.5 s.

15 s after the start of the observed disturbance, the average stabilised temperature must not be more than ± 2 K from the initial set value and must balance within a range of 3 K. This temperature must not exceed 50°C.

(see figure D1 above)

7.9 Temperature stability test when the input temperature varies

7.9.1 Principle

7.9.2 Procedure (modified)

The section is amended as follows

Connect the temperature limiter to the test equipment (see Appendix B) and set to the initial values given in Table 5 of this document but adjust the hot water temperature to 80 ± 1 °C.

For Type 1 (NR) limiters, conduct the test at the preset temperature.

After 15 seconds of stabilisation, record the initial temperature of the mixed water leaving the temperature limiter (set T°C), then continue to monitor the temperature throughout the test.

Reduce (within 5 seconds) the hot water supply temperature by 10K.

Repeat the procedure with the reduced flow rate values given in Table 5 of this document.

The procedure is carried out only once on a sample.

7.9.3 Requirements (modified)

The article is amended as follows:

A transient rise in temperature at 55°C must not last more than 3 seconds.

A transient rise in temperature to 65°C must not last more than 0.5 s.

15 s after the start of the observed disturbance, the average stabilised temperature must not be more than ± 2 K from the initial set value and must balance within a 3K interval. This temperature must not exceed 50°C.

(see figure D1 above)

7.10 Endurance test on the thermostat

7.10.1 Principle

7.10.2 Procedure (modified)

The section is amended as follows:

The durability cycle shall be carried out using the apparatus described in Annex A of the standard.

Under normal test conditions (see Table 5 of this document):

- set the output flow rate between 10 l/min and 6 l/min then,
- subject the temperature limiter to 50,000 operating cycles, each cycle comprising :
 - o a supply of hot and cold water at a temperature of between 55 and 65°C for 10 s ;
 - o supply of hot and cold water at a temperature of between 15 and 30°C for 10 seconds.

7.10.3 Requirements (completed)

Pendant toute la durée, il ne doit se produire ni rupture de pièce, ni grippage, ni fuite.

A l'issue de l'essai, vérifier que les exigences d'étanchéité (article 6.4.1) et hydrauliques (article **Erreur ! Source du renvoi introuvable.** excepté l'article 7.4) sont conservées.

8 Acoustic characteristics

8.1 General

This clause specifies the test method for classifying in-line hot water temperature limiters by acoustic group (I, II or unclassified).

Acoustic testing is only required for valves with denominations up to and including DN 32.

This chapter specifies the test method used to classify temperature limiters by acoustic group.

8.2 Test method

Temperature limiters are tested at the flow rate QN given in Table 5 in accordance with EN ISO 3822-1 and EN ISO 3822-3, with a set temperature of $(50 \pm 1) ^\circ\text{C}$.

In principle, only the 0.3 MPa (3 bar) test is used to determine the acoustic group of a temperature limiter.

The tests are carried out in accordance with the specifications of standards NF EN ISO 3822/1 and NF EN ISO 3822/3.

8.3 Expression of results

The results of the measurements carried out in accordance with EN ISO 3822-1 and EN ISO 3822-3 are expressed by the sound level (Lap), in dB (A) of the temperature limiter in the hot water supply line.

Only the 3 bar (0.3 MPa) test is used to determine the acoustic group.

The tests are carried out with a flow rate given in the **Erreur ! Reference source not found.**

Product class	Débit (l/min)
12	12
20	20

8.4 Requirements

NOTE :

Temperature limiters with an "unclassified" acoustic group are not eligible for this certification.

9 Classification

Temperature limiters are classified according to the supply connection and nominal flow rate given in article 7.4 of this document and article 8.

10 Designation (modified)

The article is amended as follows:

- a) its name: temperature limiter
- b) this certification symbol
- c) reference to this technical document: 079-08
- d) its nominal size (DN), which corresponds to the size of the connection at the outlet of the limiter (designation of the thread or external diameter of the pipe for smooth ends);
- e) its inlet connection dimensions
- f) its type (see Articles 3.8 and 3.9) ;
- g) its flow rate class
- h) its outlet temperature set point or the corresponding range, i.e. "50°C" or "35°C to 50°C" (see Article 3.5);
- i) its PN
- j) its acoustic group.

To this designation is added the.

Example of a temperature limiter designation:

Temperature limiter, NF, 079-08, DN20 (3/4), G3/4B, type RU, class 20, 35°C to 50°C, PN10, a 1

11 Marking (amended)

The article is amended and simplified as follows:

The product must be legibly, visibly and permanently marked with at least the following information:

- acronym or name of the manufacturer;
- flow rate class;
- acoustic group;
- information identifying the hot and cold water supplies;

EXAMPLE: colours (blue for cold water, red for hot water), letters that cannot be confused, etc.

- the certification logo.

To mark the logo for this certification, refer to the relevant certification standards.

In the case of an adjustable temperature limiter (RU and RO types), the temperature control device must have markings that make it possible to find the desired direction of operation without ambiguity, for example: graduated scale, symbols, markings (+, -), colours (blue for colder, red for hotter), etc.

12 Instructions - Technical documentation (amended)

The article is amended as follows:

Points 4), 5) and 6) are deleted and replaced.

Installation and commissioning instructions must be supplied with all temperature limiters. The technical documentation must contain at least the following information:

- 1) a schematic diagram illustrating the correct installation of the temperature limiter;
- 2) the designation of the temperature limiter concerned;
- 3) the commissioning and maintenance instructions to be carried out;
- 4) list of spare parts, if any
- 5) the nature of the materials making up the body of the appliance
- 6) the preset temperature or setting range
- 7) a statement indicating that the set temperature must comply with national regulations.

If this information does not appear in the technical documentation, it must appear on the packaging.

The product's technical documentation must be written in the usual language of the country where the product is sold.

13 Presentation

The product must be stored and delivered in packaging containing all its components and in such a way that the threads are protected against impact.

14 Test sequence (added)

The sequences below are given by way of example.

The tests mentioned below may be carried out according to each specified sequence.

The test sequence must be carried out on the same specimen, except in the case of an additional test.

The marking and appearance of the external surfaces are checked on all the products tested.

The technical documentation will be checked for each different presentation sampled (packaging, sheets, etc.).

Sequence	Name of sequence and order of tests
1.	Dimensions 4 Materials and surface finish 5 Design and dimensional requirements
	6.4.2 Check the tightness of the non-return device: interconnection between hot and cold water
2.	Hydraulics / Endurance 7 Tests and performance requirements 7 Tests and performance requirements (except 7.4 and 7.10)
3.	Mechanical resistance 6.1 Body strength test 6.2 Bending moment test for temperature limiters (modified) 6.3 Torque test for temperature stops
4.	Acoustics 8 Acoustic characteristics