WATER

TECHNICAL DOCUMENT

CONTROL VALVES AND SAFETY VALVES

Technical document 079-04

Water Pressure Reducing valves

Technical document 079-04 Rev00
15/03/2019

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MODIFICATION HISTORY

Revision no.	Application date	Modifications
00	**15/03/2019**	**Update to the document layout and reference.** **Content modifications:** **Part 1: Rules of application** – Article 4.3 Connection: o clarifications on the dimensions of the end connections; o added a note on tracking for dimensional deviations for connections – Article 5 Designation: only the essential information has been retained; – Article 6.3 Resistance to splitting under stress: requirements supplemented; – Article 6.5 Compatibility with products used for disinfection: added detail about the quality of the water that must be used; – Article 8.1.1 Sequence and order of tests: replaced by Article 10 Test sequence; – Article 8.2.1 Bending strength: requirements clarified; – Article 8.2.2 Pressure resistance and tightness of the pressure reducing valve: test performed in compliance with the standard with a clarification about the requirement; – Article 8.2.4 Endurance: modified requirements for hydraulic performance (8.3.4). **Part 2 and Part 3 are moved into a Technical Management Appendix (Control methods)** **and** **Update to Tables "Inspection during production" and "Inspection of finished products".**

Contents

PART 1. RULES FOR THE APPLICATION OF STANDARD NF EN 1567 AND COMPLEMENTARY SPECIFICATIONS

Foreword

The issuance of Standard NF EN 1567 in December 2000 requires the addition of further details and supplementary information to the new standard framework so that earlier certified products will keep the same level of quality and so that the tests can be performed.

Moreover, since the market demands other end connections, it was decided to introduce this demand in this technical document.

Purpose

The purpose of this document is to add details to and/or supplement certain articles in Standard NF EN 1567, using the same numbering system as that used in the Standard.

The supplemented, modified and added articles are identified in the title.

1 Field of application (supplemented)

This document applies only to the pressure reducing valves covered by Standard NF EN 1567, whether combined or not.

For devices whose DN ≤ 50, only those operating with hot water can be covered by this certification.

2 Normative references (completed)

Revised standard

EN ISO 6509-1: 2014	Corrosion of metals and alloys - Determination of dezincification resistance of copper alloys with zinc - Part 1: Test method.

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

NF EN 1092-2: 1997	Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges.
NF EN 1092-3: 2004	Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 3: Copper alloy flanges.
NF EN 1254-4:1998	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends.
ISO 6957: 1988	Copper alloys. Ammonia test for stress corrosion resistance.
NF EN ISO 9227: 2012	Corrosion tests in artificial atmospheres – Salt spray tests.
NF EN 10226-1: 2004	Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation.

3 Definitions

3.1 Pressure-reducing valve (supplemented)

A water pressure-reducing valve is an independently operating valve device, operating without an outside energy source, that can, at its outlet, reduce the pressure of the water distributed to a value between certain limits, with or without water circulation.

3.2 Combined pressure-reducing valve

4 Classification of water pressure-reducing valves and combined water pressure-reducing valves

4.1 Types of constructions

4.2 Nominal diameter (DN) (supplemented)

The article is supplemented as follows:

The end connections shall have a diameter equal to or immediately lower or immediately higher than the product's nominal diameter.

For products with "multi-threaded" connections, the nominal flow rate shall be verified according to the marking and in the most critical combination.

4.3 Connections (extended)

NOTE:

Dimensional deviations on the connections observed during checks at CSTB will be subject to follow-up at audits of manufacturing sites. This follow-up will be included in the audit reports and communicated to the committee.

4.3.1 Threaded end connections (added)

Insertion of the pipe shall not under any circumstances disturb operation of the device (tube stop, etc.).

To ensure that the fitting can be removed without working on the pipework, the threads of the male end connections of the product (body of the reducing valve) must be **cylindrical**, in compliance with Standard NF EN ISO 228.

Male threaded connections without shoulder shall comply with all the dimensions given in Table 6 of Standard NF EN 1254-4, except dimensions "*C*" and "*R*".

The female threaded connections shall comply with the dimensions given in Table 3 of Standard NF EN 1254-4.

NOTE:

For an admission or a complementary admission, the dimensions of the end connections on the pipework must comply with the requirements in Table 2 and Table 3 of this document.

4.3.1.1 Seal surface

The seal surface of the male end connections shall be wide enough to prevent any cutting of the seal during assembly on the installation and shall comply with the requirements of Table 1.

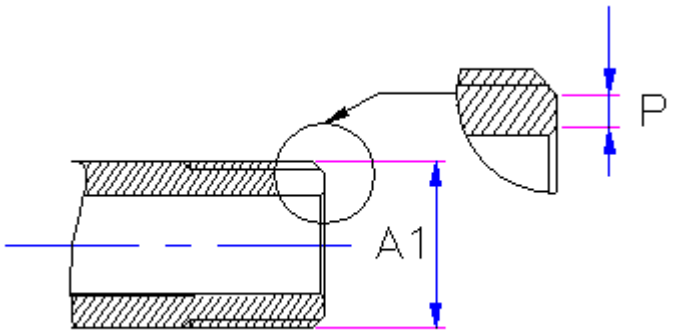


Figure 1: Seal surface

A1: Threading designation

P: Seal surface

Table 1: Seal surface dimension

Nominal diameter (DN)	A1	P (mm) (min.)
DN8	G 1/4	1.0
DN10	G 3/8 B	1.5
DN15	G 1/2 B	1.7
DN20	G 3/4 B	2.0
DN25	G 1 B	2.2
DN32	G 1 1/4 B	2.5
DN40	G 1 1/2 B	2.5
DN50	G 2 B	3.0

NOTE:

Table 1 is not applicable for multi-threaded fittings.

The holder's technical documentation shall include a statement that the seal shall be achieved in the thread **only**.

4.3.1.2 Male connection

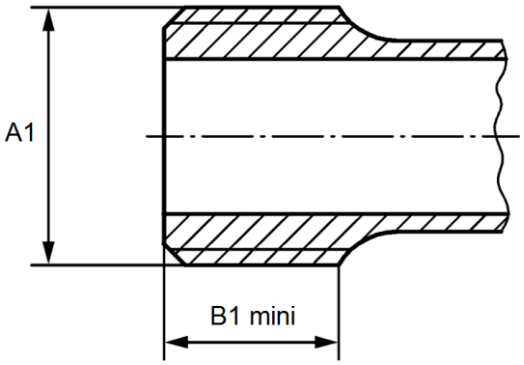


Figure 2: Male end connection

A1: Threading designation

B1: Usable thread length corresponding to a minimum of 4 interengaged threads, including chamfer

Table 2: Dimensions of male connection

Nominal diameter (DN)	**A1**	**B1 (mm) (min.) (cf. doc 079-10)**
DN8	G 1/4	6.0
DN10	G 3/8 B	7.0
DN15	G 1/2 B	8.7
DN20	G 3/4 B	9.0
DN25	G 1 B	11.2
DN32	G 1 1/4 B	12.0
DN40	G 1 1/2 B	13.5
DN50	G 2 B	15.0

4.3.1.3 Female connection

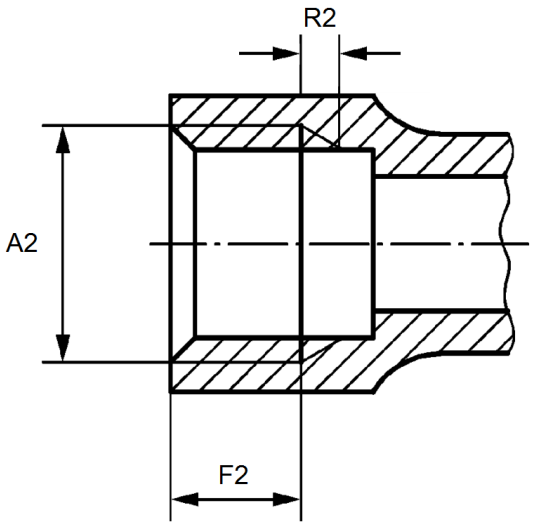


Figure 3: Female end connection

A2: thread designation
F2: depth of female thread
R2 (max.): clearance equivalent to 1 step

Table 3: Dimensions of female connection

Nominal diameter (DN)	A2	F2 (mm) (min.)
DN8	G 1/4	7.1
DN10	G 3/8	8.1
DN15	G 1/2	9.8
DN20	G 3/4	10.1
DN25	G 1	12.3
DN32	G 1 1/4	13.1
DN40	G 1 1/2	14.6
DN50	G 2	16.1

4.3.1.4 Swivel captive nut

The dimensional characteristics of the swivel captive nuts are given in Table 4.

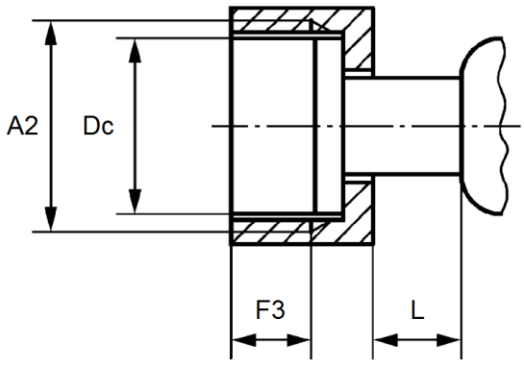


Figure 4: Swivel nut

A2: ISO 228-1 thread

Dc: diameter of the collar

F3: **Usable** depth of the female threading of the nut

L: Length of clearance of the swivel captive nut

Table 4: Dimension of the swivel captive nuts

Nominal diameter (DN)	**A2**	**Dc min**	**F3 min**	**F3 max**	**L**
DN15	G 1/2	18	8	9.8	must allow for the complete disengagement of the swivel captive nut
DN20	G 3/4	23.5	8.5	11.3	
DN25	G 1	29.4	10	12.8	
DN32	G 1 1/4	37.9	11	14.3	
DN40	G 1 1/2	43.5	12	15.8	
DN50	G 2	54.8	14	17.3	

Dimensions expressed in mm.

4.3.2 End connections with flange (added)

Table 1 of Standard EN 1567 is modified as follows:

The reference to Standard ISO 7005-3:1998 is:

- replaced by Standard NF EN 1092-3:2004 for copper alloy flanges
- supplemented by Standard NF EN 1092-2:1997 for cast iron flanges

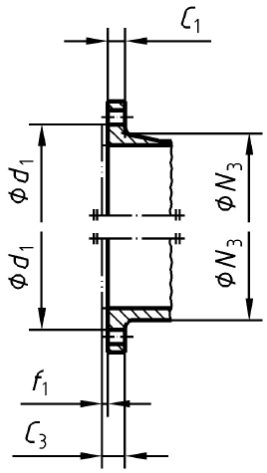


Figure 5: Flange of type 21 - incorporated flange (i.e. incorporated into a component or device)

At a minimum, the flange dimensions defined in Table 5 must comply with the requirements of the NF EN 1092 standards.

Table 5: Dimensions of flanged fittings of type 21

D Ø ext.	K Ø of circle for pass-through holes	L Ø of pass-through hole	C thickness of the flange	d Ø seal surface	F across-flat dimension of seal surface

Dimensions expressed in mm.

4.4 Adjustment (supplemented)

As part of the NF mark, the product shall be delivered with a presetting of:

- for products with DN ≤ 32: 3 bar ± 10% downstream for an upstream pressure of (8 ± 0.1) bar;
- for products with DN > 32: 3 bar or 4 bar ± 10% downstream for an upstream pressure of (8± 0.1) bar.

4.5 Temperature range (supplemented)

The article is supplemented as follows:

For this certification:

- products with DN ≤ 50 shall be able to operate with hot water;
- the endurance test is carried out with water, the temperature of which is between 75°C and 80°C;
- for products with DN > 50, the manufacturer specifies the temperature range.

5 Designation (modified)

For practical reasons and ease of comprehension, it has been decided to keep the essential information defined in the standard:

- nominal diameter;
- adjustable or non-adjustable;

- end connections;
- temperature if DN > 50;
- reference to the European Standard.

Added to this designation is the logo for this certification.

Minimum designation.

EXAMPLE 1

Water pressure-reducing valve, DN 20, 3/4 female inlet sleeve and outlet with 3/4 male end, non-adjustable, NF EN 1567, **NF**

EXAMPLE 2

Water pressure-reducing valve, DN 80, flanged in compliance with NF EN 1092-3, adjustable, for cold water up to 30°C maximum, NF EN 1567, **NF**

6 Materials

Materials in contact with potable water must comply with regulations: see Article 2.1 of the certification reference system for “Control Valves and Safety Valves” (ACS).

6.1 Chemical and sanitary behaviour of materials

6.2 Nature of the materials

6.2.1 Copper alloy

6.2.2 Cast iron

6.3 Resistance to cracking under stress in an ammoniated environment (added)

This test is based on Standard ISO 6957. Its purpose is to check the resistance to splitting under stress of copper alloy parts in ammonia medium.

6.3.1 Principle

The test consists of exposing a pressure-reducing valve, installed with an upstream air pressure, to an ammonia vapour atmosphere.

6.3.2 Test method

The paragraph below details Standard ISO 6957.

a) Test solution

- use analytical-quality solutions and distilled water;
- ammonia solution, 20% (by mass);
- the volume of the solution used shall be 200 ml for 3 litres of total volume of the closed container (e.g. a desiccator).

b) Test condition

- the pH of the test solution is to be adjusted to (10 ± 0.2);
- the test temperature shall be (23 ± 2)°C, and the means of measurement shall have a maximum permissible deviation of ± 2°C.

c) Test specimen

- the test specimen consists of two samples of the same assembled product;

- the test specimen is placed in the test enclosure under stress (upstream air pressure equal to a maximum of 6 bar).

d) Test

- rinse the test specimens with a clean non-chlorinated solvent (e.g. ethanol);
- air-dry them;
- place the test specimens within the test enclosure along with the ammonia solution;
- place the test specimens in the container in such a way that they do not touch each other and so that they are not in contact with the solution;
- after an exposure of 24 h (+2/0) h, remove the test specimens and rinse them.

6.3.3 Requirements

The pieces are examined and the leaktightness of the products is checked according to Article 8.2.2.

The result is considered compliant if both samples are compliant.

6.4 Corrosion resistance of iron alloy parts (added)

6.4.1 Principle

The purpose of the test is to check the corrosion resistance of iron alloy parts (such as springs, etc.).

The test is carried out in neutral salt spray (NSS) under the conditions specified in Standard NF EN ISO 9227.

6.4.2 Test method

Subject the complete product to spraying as follows:

- spray for (100 ± 2) hrs;
- stop spraying, continue heating of the tank and wait for (48 ± 1) hrs;
- spray for (100 ± 2) hrs;

Throughout the entire duration of the test:

- the tank shall be opened only to check and to maintain the conditions, with the maximum spray pause time being 30 min per day;
- heating shall never be stopped, and the specimens subjected to the test shall not be handled, washed or verified.

The product shall be positioned in the tank so as to limit liquid retention.

After treatment and before visual inspection, rinse the samples with water to free them of all saline residues.

6.4.3 Requirements

At the end of the test, check that the requirements defined in 8.2.3 and 8.3.3 are satisfied.

If necessary, reset the preliminary output pressure setting to not more than 20% of the nominal value.

EXAMPLE

For a preliminary setting of 8 bar x 3 bar → Possible adjustment: ± 0.6 bar.

After tests 8.2.3 and 8.3.3, remove the components and conduct a visual examination of their surface with the naked eye from a distance of 300 mm, without any magnification instrument.

The degree of rusting is checked based on Standard NF EN ISO 4628-3. It must be ≤ Ri 3.

6.5 Compatibility with products used for disinfecting systems (added)

6.5.1 Principle

All the product's constituent parts that are in contact with water, in particular parts made of elastomers, shall be compatible with water treated to disinfect systems with sodium hypochlorite.

6.5.2 Test method

For at least 24 hours, keep internal parts of the valve in contact with a solution containing 0.10 g of sodium hypochlorite per litre of "quality 3" water at a pressure of (3 ± 1) bar.

NOTE:

"Quality 3" water is defined as water that is appropriate for the preparation of solutions and for most chemical applications. It must be produced by single distillation, demineralisation or reverse osmosis.

6.5.3 Requirements

At the end of the test, rinse the product with mains water for at least one minute and verify that the requirements specified in 8.2.3 and 8.3.3 are met.

If necessary, reset the preliminary output pressure setting to not more than 20% of the nominal value.

EXAMPLE:

For a preliminary setting of 8 bar x 3 bar → Possible adjustment: ± 0.6 bar.

6.6 Surfaces with organic coating (added)

The coating of the internal and external parts of the devices shall meet the requirements laid down in technical document 079-01 of the certification reference system.

7 General design requirements

7.1 Adjustable pressure-reducing valves

7.2 Non-adjustable pressure-reducing valves

7.3 Removability

7.4 Pressure tap

7.5 Filter

8 Requirements and tests

8.1 General (modified)

The article is modified as follows:

The acoustic tests are performed on three new test specimens that have not been subjected to any tests.

8.2 Mechanical characteristics and tests

8.2.1 Bending strength of the body

8.2.1.1 Principle

8.2.1.2 Test (supplemented)

The article is supplemented as follows:

It is specified that the diameter of the metal tube shall correspond to the diameter of the product's end connections.

The test shall be performed in water under a static upstream pressure of 16 (+1/0) bar, with the product adjusted to obtain maximum downstream pressure.

- For products with "multithreaded" connections, the test shall be carried out assuming the next larger diameter.
- For products with a connection of the male rotating nut type, the nut is tightened onto the test rig to the torque defined in Table 6.

8.2.1.3 Requirements (supplemented)

The article is supplemented as follows:

After the test, the device must not have undergone any permanent deformation or **visible** cracks or breaks.

No external leak shall be observed during the test.

8.2.2 Pressure resistance and leaktightness of the pressure-reducing valve

8.2.2.1 Principle

8.2.2.2 Test

8.2.2.3 Requirements (supplemented)

The article is supplemented as follows:

No leak to the outside shall occur, nor any permanent **visible** deformation.

8.2.3 Leaktightness between upstream and downstream

8.2.3.1 Principle (modified)

The article is supplemented as follows:

The principle of the test consists of verifying the leaktightness from the upstream side to the downstream side, at a zero flow rate, for pressures between 6 bar and 16 bar.

8.2.3.2 Test 1

8.2.3.3 Requirements (modified)

The article is modified as follows:

During the stabilisation pause of 10 minutes at **6 bar**, the downstream pressure shall not vary by more than ±10% relative to t_0.

Record the pressure values at t_0 and t_0+10.

No external leaks shall be observed throughout the test.

8.2.3.4 Test 2

8.2.3.5 Requirements (modified)

The article is modified as follows:

During the stabilisation pause of 10 minutes at **16 bar**, the downstream pressure shall not vary by more than ±10% relative to t_0.

Record the pressure values at t_0 and t_0+10

No external leaks shall be observed throughout the test

8.2.4 Endurance and operating pressure resistance

8.2.4.1 Principle

8.2.4.2 Test

8.2.4.2.1 Test temperatures (modified)

The article is modified as follows:

For products with:
- DN ≤ 50, the test is carried out in hot water between 75 and 80°C.
- DN > 50, the test is carried out in compliance with the field of application defined in the product documentation.

8.2.4.3 Requirements (supplemented)

The article is supplemented as follows:

At the end of the test: once again, satisfy the requirements defined in 8.2.3, 8.3.3 and 8.3.4.

The flow rate and pressure characteristics (article 8.3.4) after endurance must comply with the requirements of the NF EN 1567 standard (Table 5 and Figure 6 of the standard).

8.2.5 Mechanical tensile strength test (added)

8.2.5.1 Principle

The principle of the test consists of verifying the mechanical tensile strength of the connection:

- of the fastening sockets/nuts delivered with the product
- of the swivel captive nuts with which the product is equipped.

Prepare the test configuration shown in Figure 6.

Socket/nut **Swivel captive nut**

① and ②: adapter part to mount the product on the tensile test machine

①: body of the product to be tested
②: test device

Figure 6: Configuration for tensile test

Table 6: Tensile test

Socket connection thread	Nut thread A2	Min. tightening torque (Nm)	Force (kN)
G3/8”	G1/2”	50	11
G1/2”	G3/4”	70	15
G3/4”	G1”	90	17.5
G1”	G1” 1/4	110	20
G1” 1/4	G1” 1/2	120	22.5
G1” 1/2	G2”	150	25
G2”	G2” 1/2	167	27.5

8.2.5.2 Test method

- Tighten the nut by applying the torque defined in column 3 of Table 6.
- Mount the unit to be tested with its adapter pieces between the jaws of the test apparatus.
- Apply the tensile force at the speed of 1 mm/min up to the value indicated in column 4 of Table 6 with a force precision of (-5/0)%.
- Maintain the force for 30 seconds, then release.

8.2.5.3 Requirements

The assembly (e.g. socket/nut) shall resist the tensile force indicated in Table 6 with no visible deformation.

8.3 Hydraulic characteristics and tests (modified)

8.3.1 Setting range of adjustable models

The maximum downstream pressure value shall be between (-10/0)% of the theoretical value.

EXAMPLE:

For a theoretical value (the value declared by the manufacturer) of 5.5 bar, the maximum setting shall be deemed compliant if the pressure is between 4.95 bar and 5.5 bar.

a) For reducing valves with DN < 25:

The adjustment range shall conform to the following requirements:

The adjustment device shall allow the following downstream pressures to be achieved:

- with an upstream pressure of 8 bar:
  - a minimum downstream pressure ≤ 1.5 bar for the lower limit of the flow control
  - a maximum downstream pressure ≤ 5.5 bar (-1/0) for the upper limit of the flow control
- with an upstream pressure of 16 bar:
  - a pressure ≤ 6.5 bar for the upper limit of the flow control.

b) For reducing valves with DN ≥ 25:

- if the upper limit of the flow control is ≤ 5.5 bar, refer to the requirements for reducing valves with DN < 25.
- if the upper limit of the flow control is > 5.5 bar (under 8 bar upstream pressure) or > 6.5 bar (under 16 bar upstream), verify that the value declared by the manufacturer is the highest value that can be achieved.

8.3.2 Outlet pressure for non-adjustable models

8.3.3 Influence of the inlet pressure

8.3.4 Outlet pressure and flow rate

8.3.4.1 Principle

8.3.4.2 Test (modified)

The article is modified as follows:

The tests shall be performed at a pressure of 8 bar only.

For the hydraulic characteristics under upstream pressures of 6 bar and 16 bar according to Standard NF EN 1567, an extrapolation will be performed from the curve obtained at 8 bar by means of a translation based on the results obtained at 6 bar and 16 bar in Article 8.3.3.3 of Standard NF EN 1567.

8.3.4.3 Requirements (modified)

The article is modified as follows:

The variation curve of the downstream pressure as a function of the flow rate shall be located above the reference limit indicated in Figure 7.

This reference limit is positioned vertically from the downstream pressure (P0) measured statically at 8 bar, where P0 is the initial setting pressure at zero flow.

P (bar) = pressure drop downstream relative to the initial downstream setting pressure

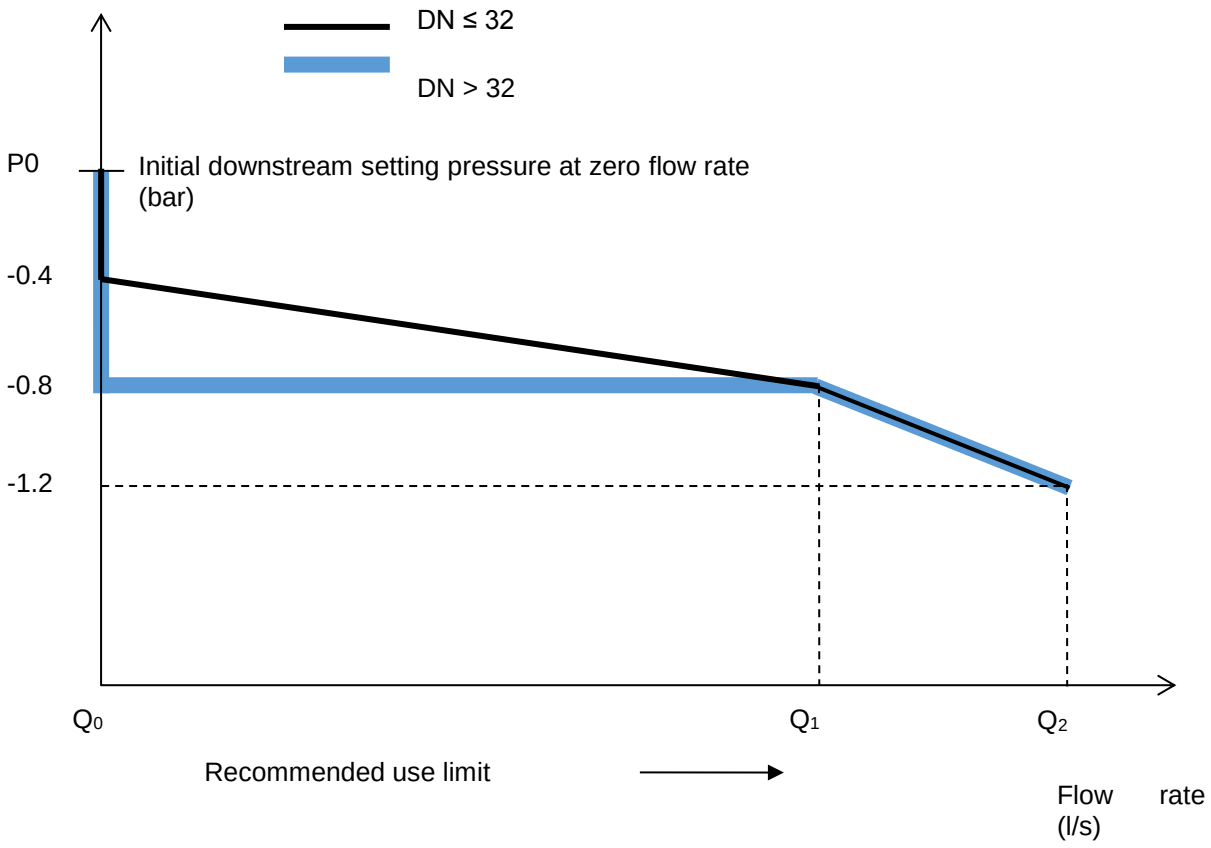


Figure 7: Flow rate and pressure loss

Table 7 shows the flow rate limit values for each zone, depending on the DN of the reducing valves.

Table 7: Flow rate limit values

Flow rate (l/s) / Pressure drop (bar)	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50
- 0.4 (Q0 DN ≤ DN32)	0	0	0	0	0	0		
- 0.8 (Q0 DN > DN32)							0	0
- 0.8 (Q1)	0.12	0.25	0.41	0.74	1.20	2.0	2.5	3.9
- 1.2 (Q2)	0.19	0.37	0.61	1.10	1.70	3.0	3.8	6.0

EXPLANATORY NOTE FOR DETERMINING THE FLOW RATE LIMITS:

The flow rates are based on the following assumptions:

- a flow velocity of 2 m/s for flow rate Q1 and of 3 m/s for flow rate Q2
- an inner diameter as defined in Table 8 of this document (based on “Table 2: Usual diameters, Average series thickness” of the NF A 49-115 standard).

Table 8: Inside diameter (Dint)

Nominal diameter (DN)	Dint (mm)
DN8	8.9
DN10	12.6
DN15	16.1
DN20	21.7
DN25	27.3
DN32	36.0
DN40	41.9
DN50	53.1

8.3.5 Outlet pressure and flow rate under low upstream pressure (supplemented)

The article is supplemented as follows:

For this certification, this test is only performed at the manufacturer’s request.

8.4 Acoustic characteristics (supplemented)

The article is supplemented as follows:

For “non-rated” (NC) products according to the requirements of Article 8.4 of the NF EN 1567 standard, an additional test shall be performed under the flow rate conditions defined in Table 9.

Table 9: Flow rate for acoustic test

Nominal diameter (DN)	Flow rate (l/s)
DN15	0.18
DN20	0.32
DN25	0.57
DN32	0.92

Under these test conditions, the acoustic pressure level (Lap) shall not exceed 30 dB(A).

8.5 Resistance to alternating pressures (added)

The products are subjected to large pressure variations due to closure of the equipment installed: solenoid valves of washing machines, mixers, etc.

The alternating pressure resistance test is performed to ensure that the parts of the product resist this type of stress.

It follows the same principle as the tests performed on the mechanical filters used in potable water installations inside buildings.

8.5.1 Principle

This test involves applying variable hydraulic pressure downstream of the product at a defined frequency.

The tested product must not be used for any other test.

8.5.2 Testing device

The equipment consists of a pressure generator capable of generating variable pressure that can oscillate with a constant period between 1 s and 2 s between a low limit and a high limit, establishing a constant amplitude.

The diagram of that variation takes the form of a generally rectangular signal (see

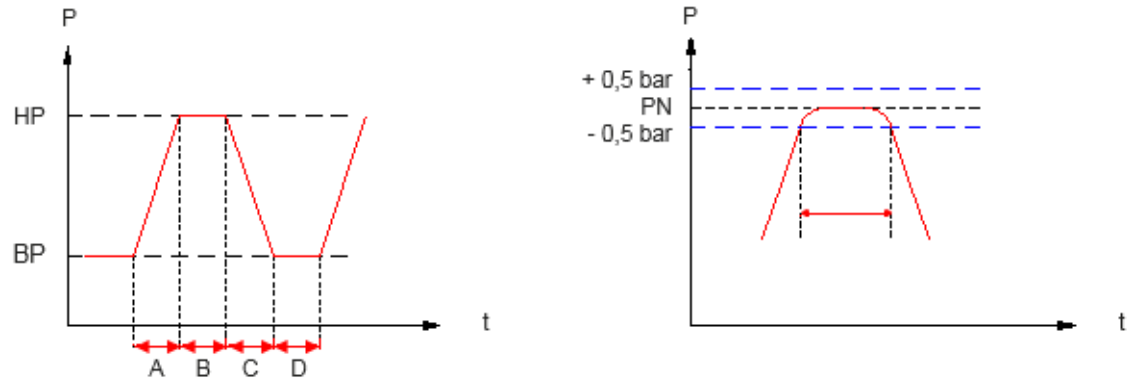
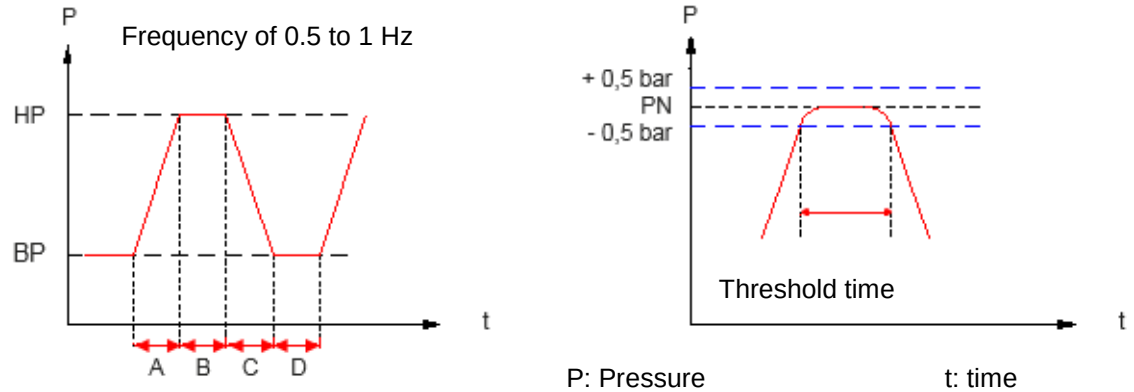


Figure 8).



A and C: 0.5 seconds max

B and D: 0.5 seconds max

P: Pressure t: time

HP: High Pressure

BP: Low Pressure

PN: Nominal pressure

Figure 8: Alternating pressures

- the time needed to go from low pressure to high pressure and vice versa shall be as short as possible and never longer than 0.5 s;
- the low and high pressure values shall be obtained and checked to within ±0.5 bar of the desired values;
- to check the waveform of the signal representing the pressure variation, the generator must be combined with a device that can verify the pressure changes in the test specimen (low-inertia pressure sensor and graphic data recorder or oscilloscope).

8.5.3 Test method

- connect the outlet of the product (downstream) to the test apparatus;
- blow down the product;

- block the inlet to the product (upstream);
- apply 20,000 cycles to the product while filled with water and cleared of air:
  - low pressure equal to the maximum theoretical setting of 8 bar (e.g. 5.5 bar),
  - high pressure equal to 3x the maximum theoretical setting of 8 bar (e.g. 16.5 bar).

8.5.4 Requirements

The products must comply with the following requirements:

- no visible deterioration shall be observed;
- leaktightness as per article 8.2.2 of standard NF EN 1567.

9 Marking and technical documents (supplemented)

9.1 Marking

Table 10 completes and sums up the markings that shall appear on the body of the product:

Table 10: Markings and location

Marking / Location	Manufacturer's name or logo	DN	Arrow (direction of flow)	Downstream pressure	Certification logo	Identifying the date of manufacture
Body	X	X	X	X Not adjustable	X	X

As regards the marking of the logo for this certification, refer to the certification rules concerned.

9.2 Technical documents

The manufacturer shall indicate the following:

- for all reducing valves: adjustable and non-adjustable:
  - the hydraulic performance: This information may be in the form of a flow/pressure loss curve, or a table. At least one item of data on the flow rate at a pressure loss of 1 bar can be tolerated.
  - the installation instructions and more specifically the recommended leaktightness method, depending on the end connection types.
  - logo for this certification

- additionally, for adjustable reducing valves:
    - the preset downstream pressure value
    - the setting range for the downstream pressure

If this information is not included in the technical documentation, it must appear on the packaging or directly on the product.

Technical documentation for a product must be written in the common language of the country where the product is sold.

It may be made available in electronic form. In this case, the link (QR code, web address, etc.) must accompany the product and provide direct access to the product's technical documents.

10 Test sequence (added)

Where applicable, the tests set out in

Table 11 shall be performed in the specified sequence.

The test sequence must be performed on the same specimen, except in the case of an additional test. The marking and appearance of exterior surfaces are verified on all products tested.

The technical documentation will be verified wherever it appears (packaging, data sheets, etc.).

Table 11: Distribution of tests

Sequence	Sequence name and order of the tests
1.	**Dimensions** 4.3 Connections (extended) 7 General design requirements 6.1 Chemical and sanitary behaviour of materials / 6.2 Nature of the materials 6.6 Surfaces with organic coating (added) (DT 079-01)
	8.2.1 Bending strength of the body
2.	**Cracking under stress** 8.2.2 Pressure resistance and leaktightness of the pressure-reducing valve 6.3 Resistance to cracking under stress in an ammoniated environment (added) 8.2.2 Pressure resistance and leaktightness of the pressure-reducing valve
3.	**Corrosion** 8.2.3 Leaktightness between upstream and downstream 8.3.3 Influence of the inlet pressure 6.4 Corrosion resistance of iron alloy parts (added) 8.2.3 Leaktightness between upstream and downstream 8.3.3 Influence of the inlet pressure
4.	**Disinfection** 8.2.3 Leaktightness between upstream and downstream 8.3.3 Influence of the inlet pressure 6.5 Compatibility with products used for disinfecting systems (added) 8.2.3 Leaktightness between upstream and downstream 8.3.3 Influence of the inlet pressure
5.	**Traction** 8.2.5 Mechanical tensile strength test (added)
6.	**Endurance** 8.3.1 Setting range of adjustable models 8.3.2 Outlet pressure for non-adjustable models (if applicable) 8.3.3 Influence of the inlet pressure 8.3.4 Outlet pressure and flow rate 8.3.5 Outlet pressure and flow rate under low upstream pressure (supplemented)(upon request) 8.2.3 Leaktightness between upstream and downstream 8.2.4 Endurance and operating pressure resistance 8.2.3 Leaktightness between upstream and downstream 8.3.3 Influence of the inlet pressure 8.3.4 Outlet pressure and flow rate
7.	**Alternating pressures** 8.2.2 Pressure resistance and leaktightness of the pressure-reducing valve 8.5 Resistance to alternating pressures (added) 8.2.2 Pressure resistance and leaktightness of the pressure-reducing valve (according to standard NF EN 1567)

8.	**Acoustics** **8.4 Acoustic characteristics (supplemented)**