EN

3110N / 3108N / 3107N

PRESSURE REDUCING VALVES - PN 25

WITH COMPENSATED SEAT

DESCRIPTION

Pressure reducing valves are mainly used in the private water network, in order to reduce and maintain the pressure of the water coming from the public distribution network at a constant value.
This is how pressure changes are prevented. In fact, they could damage the components of the domestic system or lead to incorrect water distribution.

The compensated seat, a construction feature that characterizes Tiemme pressure reducing valves, ensures the maintenance of the set value when the upstream pressure changes (for more information refer to "TIEMME INFORMS" section of this technical data sheet).

Tiemme pressure reducing valves meet the parameters set by the EN 1567 standard, falling within the acoustic group II.

ADVANTAGES/STRENGTHS

- High operating pressure resistant: PN25 bar
- Sealing in stainless steel
- Wide range available (FF threaded connections - MM union connections - FF union connections)
- Equipped with compensated seat
- Compliant with EN 1567 Standard
- Can be installed in all positions
- Compact size
- Front pressure gauge connection

PRODUCTION RANGE

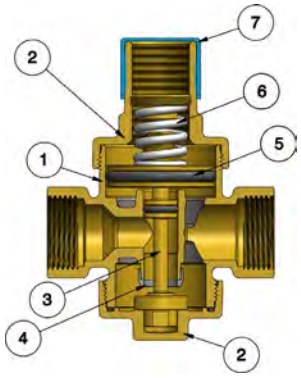
Art.	Description	Code	Connection attacks	Adjustment range
3110N 	Pressure reducing valves - female threaded connections.	318 0008	G 1/2" F (ISO 228)	1 ÷ 6 bar
		318 0010	G 3/4" F (ISO 228)	
		318 0003	G 1” F (ISO 228)	
		318 0012	G 1”1/4 F (ISO 228)	
		318 0014	G 1”1/2 F (ISO 228)	
		318 0009	G 2” F (ISO 228)	
		318 0016	G 2”1/2 F (ISO 228)	1,5 ÷ 6 bar
		318 0015	G 3” F (ISO 228)	
		318 0006	G 4” F (ISO 228)	

Art.	Description	Code	Connection attacks	Adjustment range
3108N 	Pressure reducing valves - male threaded union connections.	318 0068	G 1/2" M (ISO 228)	1 ÷ 6 bar
		318 0069	G 3/4" M (ISO 228)	
		318 0070	G 1” M (ISO 228)	
		318 0071	G 1”1/4 M (ISO 228)	
		318 0072	G 1”1/2 M (ISO 228)	
		318 0075	G 2” M (ISO 228)	

Art.	Description	Code	Connection attacks	Adjustment range
3107N 	Pressure reducing valves - female threaded connections with receptacle.	318 0002	G 1/2" F (ISO 228)	1 ÷ 6 bar
		318 0004	G 3/4" F (ISO 228)	
		318 0011	G 1” F (ISO 228)	
		318 0019	G 1”1/4 F (ISO 228)	
		318 0020	G 1”1/2 F (ISO 228)	
		318 0018	G 2” F (ISO 228)	

IN-BUILD FEATURES

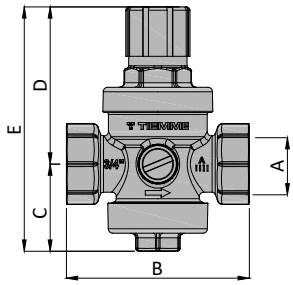
- **(1)** Body: CW617N nickel-plated brass
- **(2)** Cap: CW617N nickel-plated brass
- **(3)** Shutter: CW617N brass
- **(4)** Sealing: AISI 303 stainless steel
- **(5)** O-ring seal: EPDM (NBR for size 2”1/2 ÷ 4”)
- **(6)** Spring: Galvanized steel
- **(7)** Plastic components: PA (POM for size 2”1/2 ÷ 4”)
- Threads: ISO 228
- Front pressure gauge connection - reversible: 1/4" F ISO 228

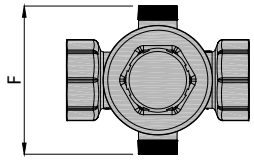


TECHNICAL CHARACTERISTICS

- Maximum working temperature: + 80 °C
- Minimum operating temperature: -20 °C (provided that the fluid remain liquid)
- Maximum inlet pressure: 25 bar
- Maximum operating pressure: see cavitation diagram
- Downstream regulation range: 1 ÷ 6 bar (1.5 ÷ 6 bar for size 2"1/2 ÷ 4")
- Factory setting: 3 bar
- Fluid compatibility: Drinking water, water and glycol solutions (maximum glycol percentage 30%)
- Compliant: EN 1567
- Acoustic group: II - Lap [dB (A)] ≤ 30

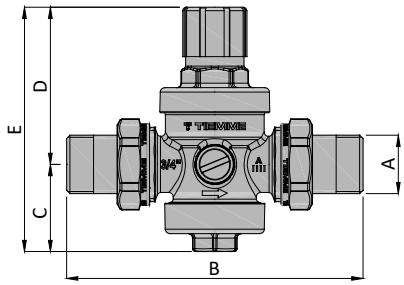
DIMENSIONAL SPECIFICATIONS

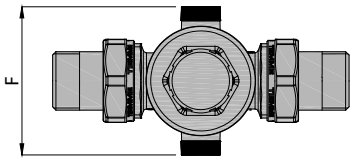




Pressure reducing valves - female threaded connections							
Art.	**Code**	**A**	**B**	**C**	**D**	**E**	**F**
3110N	**318 0008**	G 1/2" F	73	39	70	109	66
	318 0010	G 3/4" F	81.5	39	70	109	66
	318 0003	G 1” F	92	47	91	138	76
	318 0012	G 1”1/4	100	51	93	144	76
	318 0014	G 1”1/2 F	97	54	98	152	80
	318 0009	G 2” F	99	60	101	161	84
	318 0016	G 2”1/2 F	148	-	-	260	-
	318 0015	G 3” F	177	-	-	285	-
	318 0006	G 4” F	190	-	-	310	-

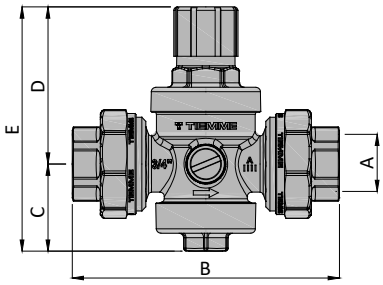
Dimensions in mm.

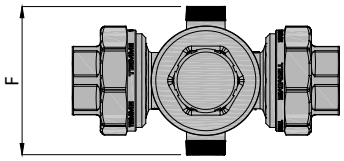




Pressure reducing valves - male threaded connections with receptacle							
Art.	**Code**	**A**	**B**	**C**	**D**	**E**	**F**
3108N	**318 0068**	G 1/2" M	126	39	70	109	66
	318 0069	G 3/4" M	132	39	70	109	66
	318 0070	G 1” M	155	47	91	138	76
	318 0071	G 1”1/4 M	166	51	93	144	76
	318 0072	G 1”1/2 M	174	54	98	152	80
	318 0075	G 2” M	199	60	101	161	84

Dimensions in mm.





Pressure reducing valves - female threaded connections with receptacle							
Art.	**Code**	**A**	**B**	**C**	**D**	**E**	**F**
3107N	**318 0002**	G 1/2" F	115	39	70	109	66
	318 0004	G 3/4" F	119	39	70	109	66
	318 0011	G 1" F	142	47	91	138	76
	318 0019	G 1”1/4	145	51	93	144	76
	318 0020	G 1”1/2 F	159	54	98	152	80
	318 0018	G 2” F	167	60	101	161	84

Dimensions in mm.

HYDRAULIC CHARACTERISTICS

NOMINAL FLOW RATES:

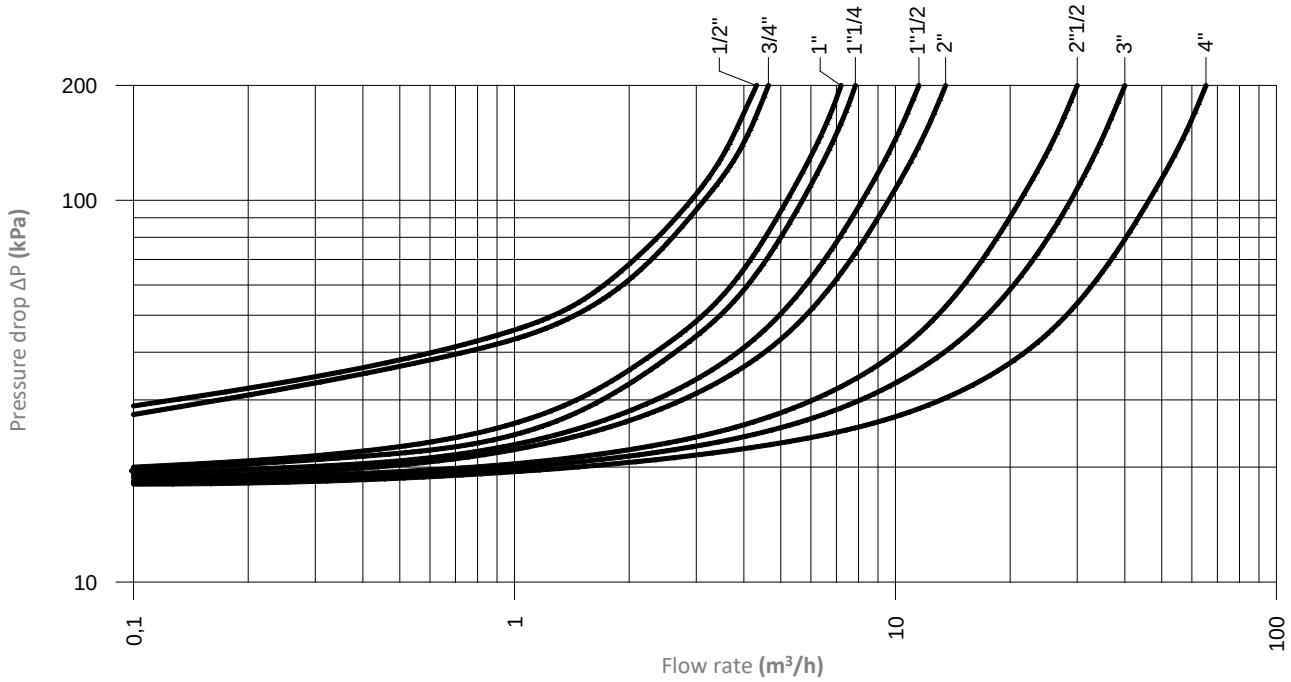
Measurement	Flow rate (m^3/h)
1/2"	1.27 *
3/4"	2.27 *
1"	3.60 *
1"1/4	5.80 *
1"1/2	9.10 *
2"	14.00 *
2"1/2	8.50 ÷ 11.00 **
3"	10.00 ÷ 13.20 **
4"	12.00 ÷ 15.60 **

* Nominal water flow rate at an average speed of 2 m/s, in accordance with EN 1567 Standard.
** Ideal water flow rate within which operation, silence and reduced pressure drop are optimized. The maximum flow rate is approximately double the ideal flow rate indicated in the table.

FLOW RATE / PRESSURE DROP DIAGRAM:

The pressure drop diagram of the reducing valves represents the pressure drop as a function of the flow rate at the user's outlet.

Test conditions: - Upstream pressure 8 bar
- Downstream pressure 3 bar

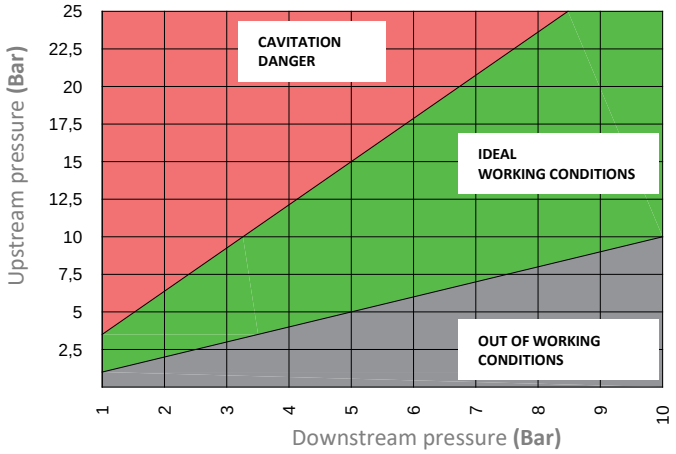


USEFUL ADVICE - DETERMINING THE CORRECT PRESSURE REDUCTION RATIO

The correct calibration pressure value must be determined in a way so to avoid dangerous cavitation phenomena.
The cavitation could in fact cause malfunctions, damage the gearbox and produce annoying noises.

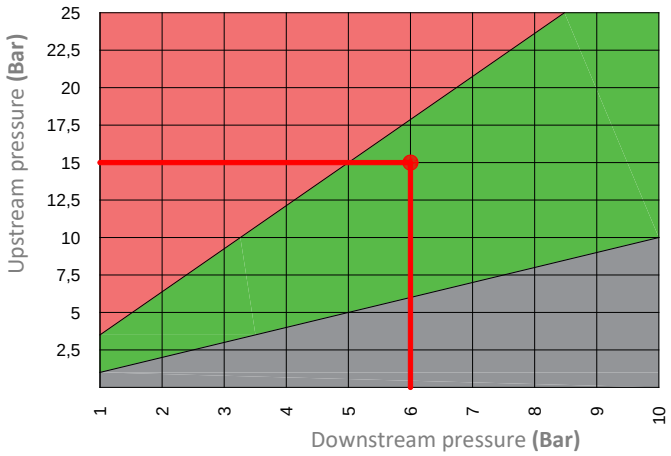
Thus, it is recommended to respect some precautions related to the ratio between the upstream pressure and the desired downstream pressure.
The general rule is that the ideal ratio between the upstream pressure (to be reduced) and the downstream pressure (desired in the circuit) is 2:1. At most this ratio can reach the value of 3:1

CAVITATION DIAGRAM:

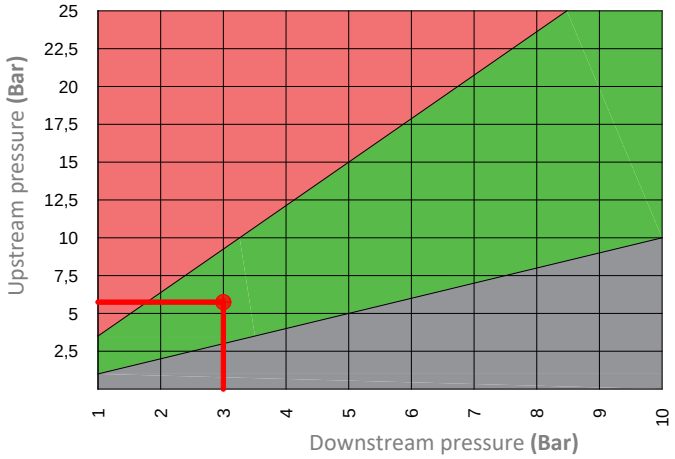


When the ratio between the upstream pressure and the downstream pressure exceeds the 3:1, cavitation of the component occurs. It is then necessary to provide two pressure reducing valves installed one after the other, in order to perform a FIRST LEVEL REDUCTION and then a SECOND LEVEL REDUCTION.

EXAMPLE: I have to reduce the pressure from 15 bar to 3 bar. The ratio 15: 3 = 5 exceeds the limit ratio of 3: 1. it is necessary to provide two pressure reducing valves. With the first reducing valves the pressure will be lowered from 15 bar to 6 bar, with the ideal ratio 15: 6 = 2.5 (FIRST LEVEL REDUCTION).



By means of the second reducing valve the pressure will be lowered from 6 bar to 3 bar, with the ideal ratio 6: 3 = 2 (SECOND LEVEL REDUCTION).



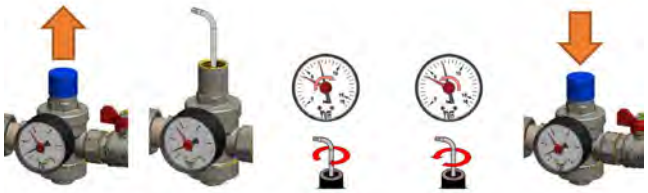
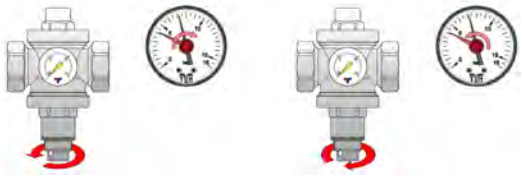
INSTALLATION

- Remove any dirt due to the assembling of the system (hemp, shavings, etc.) before proceeding with the installation of the pressure reducing valves.
- **Install a Y or self-cleaning filter upstream of the pressure reducing valves** in order to eliminate all impurities in the water that could deposit on the reducing valves, causing it to malfunction.
- To facilitate any maintenance operations, it is recommended to install shut-off valves upstream and downstream of the reducing valves.
- Respect the flow direction indicated by the arrow printed on the reducing valves body.
- The pressure reducing valves can be installed equally in a **horizontal** and **vertical position.**

- Install the pressure reducing valves in an accessible position, in order to easily carry out periodic inspections.
- Before installing the reducing valves, it is best to make sure that there is no air in the network by opening all the delivery valves in the system.
- The system must be designed and built in a way so to avoid stresses that could damage the pressure reducing valves and prevent its correct sealing and good operation. It is recommended to insert a water hammer device in the system in order to avoid sagging in the internal components of the pressure reducing valves due to violent pressure returns.

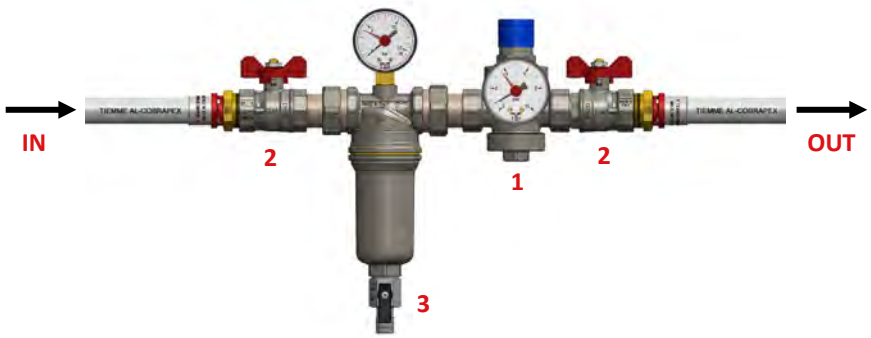
Calibration at the desired pressure value:

Before being packaged, all pressure reducing valves are tested and calibrated at the outlet at a pressure of 3 bar. The outlet pressure can be easily changed once the unit is installed on the system.
To change the outlet pressure:

Procedure for size reducing valves 1/2" ÷ 2”	Procedure for size reducing valves 2” 1/2 ÷ 4”
Close the shut-off valve installed downstream of the pressure reducing valve, remove the blue plastic cap, using a hexagonal wrench, turn the brass spring-press.	Close the shut-off valve installed downstream of the pressure reducing valve, loosen the ring nut and turn the spring-presser.
	

NB. Turning clockwise the outlet pressure increases, turning anticlockwise the outlet pressure decreases.
The calibration operation is completed when the pressure gauge indicates the desired pressure.
The correct pressure regulation must be performed with the hydraulic circuit full and with all users closed.

INSTALLATION EXAMPLE



KEY:

IN	Inlet from the public distribution network
OUT	Output to private users
1	Pressure reducing valves
2	Shut-off valves
3	Self-cleaning filter

NB. In case of use at a boiler inlet, it is necessary to provide for the installation of an expansion tank placed between the reducing valves and the boiler.

MAINTENANCE

In normal operating conditions the pressure reducing valves does not require any maintenance.
We recommend a parodical check (at least once a year) that the system function correctly, in particular:
- Inspect and clean the filters installed upstream of the system.

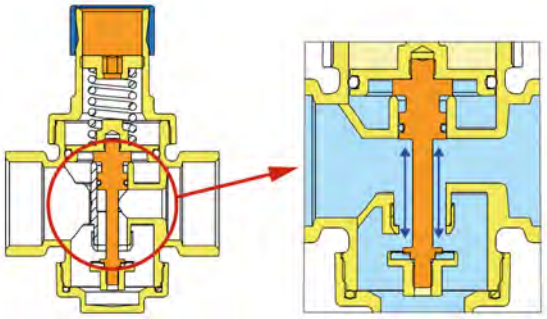
TIEMME INFORMS

WHAT IS THE COMPENSATED SEAT:

The compensated seat, a **construction feature that characterizes the Tiemme pressure reducing valves, allows to avoid that changes in the upstream pressure could interfere with the constant maintenance of the downstream calibration pressure**.

This is possible because the upward thrust (closing of the reducing valve) and the downward thrust (opening of the reducing valve) that are generated inside the reducing valves, are exerted on two equal surfaces, and so to balance:

equal and opposite forces cancel each other out.



RESOLUTION TO ANY MALFUNCTIONING

THE PRESSURE REDUCING VALVE DOES NOT MAINTAIN THE CALIBRATION PRESSURE:

The presence of suspended impurities in the water can cause deposits on the sealing and sliding areas of the reducing valves.

This can affect the proper functioning of the pressure reducing valves, **causing unwanted increases in the system pressure**.

The solution is installing a Y or self-cleaning filter upstream of the pressure reducing valves.

ACCESSORIES

Art. 2080POST

Pressure gauge with decentralized rear connection.

Explore the product catalog for codes/further details.

ITEM SPECIFICATIONS

Art. 3110N

Piston pressure reducing valve PN25 with compensated seat obturator, female threaded connections, made of: CW617N nickel-plated brass body, CW617N nickel-plated brass cover, CW617N brass obturator, sealing in AISI 303 stainless steel, sealing O-ring in EPDM (NBR for size 2 "1/2 ÷ 4"), galvanized steel spring, plastic components in PA (POM for size 2 "1/2 ÷ 4"), ISO 228 threads, reversible front pressure gauge connection 1/4" F ISO 228. Maximum operating temperature +80 ° C, minimum operating temperature -20 °C (as long as the fluid remains in the liquid phase), maximum inlet pressure: 25 bar, downstream regulation range 1 ÷ 6 bar (1.5 ÷ 6 bar for measure 2"1/2 ÷ 4"), factory setting 3 bar, compatibility of drinking water, water and glycol solutions (maximum glycol percentage 30%). Compliant with EN 1567 Standard Acoustic group II. Available sizes G 1/2" F ÷ G 4" F.

Art. 3108N

Piston pressure reducing valve PN25 with compensated seat obturator, connections with male threaded unions, made of: CW617N nickel-plated brass body, CW617N nickel-plated brass cover, CW617N brass obturator, sealing in AISI 303 stainless steel, O-ring EPDM seal, galvanized steel spring, PA plastic components, ISO 228 threads, 1/4 "F ISO 228 reversible front pressure gauge connection. Maximum operating temperature +80 ° C, minimum operating temperature -20 °C (as long as the fluid remains in the liquid phase), maximum inlet pressure: 25 bar, downstream regulation range 1 ÷ 6 bar, factory setting 3 bar, compatibility of drinking water, water and glycol solutions (maximum glycol percentage 30%). Compliant with EN 1567 Standard Acoustic group II. Available sizes G 1/2" M ÷ G 2" M.

Art. 3107N

Piston pressure reducing valve PN25 with compensated seat obturator, connections with female threaded unions, made of: CW617N nickel-plated brass body, CW617N nickel-plated brass cover, CW617N brass obturator, sealing in AISI 303 stainless steel, O-ring EPDM seal, galvanized steel spring, PA plastic components, ISO 228 threads, 1/4 "F ISO 228 reversible front pressure gauge connection. Maximum operating temperature +80 ° C, minimum operating temperature -20 °C (as long as the fluid remains in the liquid phase), maximum inlet pressure: 25 bar, downstream regulation range 1 ÷ 6 bar, factory setting 3 bar, compatibility of drinking water, water and glycol solutions (maximum glycol percentage 30%). Compliant with EN 1567 Standard Acoustic group II. Available sizes G 1/2" F ÷ G 2" F.

CERTIFICATIONS

Art. 3110N

Art. 3107N - 3108N