

WR/AM TH

Pressure relief valve



TECHNICAL BROCHURE

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WR_AM TH_ENG_revA

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Stainless steel pressure relief valve

WR/AM TH

The **WR/AM TH** pressure relief valve automatically maintains the upstream pressure above a minimum value, irrespective of flow variations. The most common uses are as a branch to the line, as protection, and as a support valve on the line.

Constructive features and advantages

- Stainless steel mobile block obtained on a CNC lathe to avoid sliding friction due to accurate machining and ensure maximum reliability over time.
- Compensated piston technology for greater sensitivity.
- Entirely manufactured from stainless steel solid bars, seamless.
- Different setting ranges with interchangeable springs.
- Gaskets of different materials are available depending on fluid and application, to minimise wear and maintenance, even at high pressure differentials.



Main applications

- Water distribution networks
- Fire-fighting systems
- Irrigation systems
- Buildings and installations for civil use, particularly where the use of stainless steel is required or recommended
- Demineralised water and bottling plants
- Cooling systems and industrial plants



Operating principle

The WR/AM TH valve works by the movement of a piston that slides inside a body, which is fitted with a lip seal. This, together with the diaphragm positioned at the top, creates an upstream pressure compensation chamber.



Normally closed valve

In the absence of pressure or flow inside, the valve is normally closed; the piston is pushed down by the force of the spring.



Valve fully open in operation

When the upstream pressure rises above the spring calibration, the piston moves upwards and the valve moves to the fully open position.



Modulating valve

When the incoming pressure from upstream falls below the set value, the plug is pushed down, reducing the passage. The result is a pressure drop to restore the upstream pressure to the required value.



Valve closed (static conditions)

If the downstream withdrawal increases, and the upstream pressure falls below the spring setting, the valve moves to the fully closed position, maintaining the required pressure. This also occurs under static conditions.

Technical data

Pressure drop coefficient

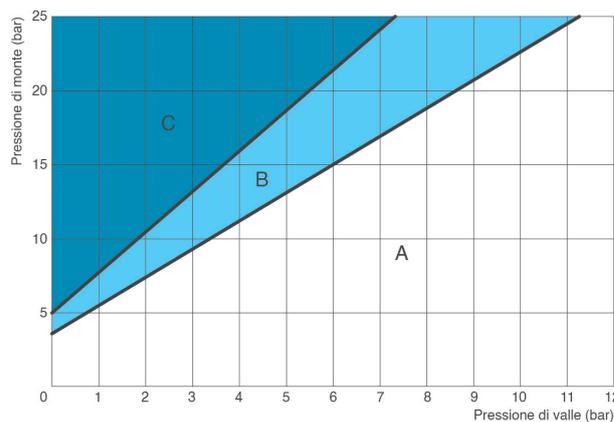
The Kv coefficient represents the flow rate that produces a pressure drop of 1 bar in the fully open valve.

| | |
|----------------------------|------|
| Thread (inches) | 1" |
| Kv (m ³ /h)/bar | 4,95 |

Cavitation chart

- A: optimal operation
- B: incipient cavitation
- C: harmful cavitation

Ensure that the point corresponding to the operating condition of the valve, appropriate to the required flow rate, falls in zone A of the graph (abscissa: downstream pressure values; ordinate: upstream pressure values). The graph refers to valves modulating with an opening percentage of 35-40%, at standard temperature and altitude below 300 m. In pressure support, the differential must not exceed 17 bar. The relief function tolerates larger differentials.





Operating conditions

| | |
|-----------------------|--|
| Maximum treated water | 70°C (solutions for higher temperatures on request) |
| Maximum pressure | 25 bar |
| Minimum pressure | 0.2 bar (lower on request) |

Recommended flow rates - pressure support

| | |
|----------------------|------|
| Thread (inches) | 1" |
| Min.flow rate | 0.03 |
| Max. flow rate (l/s) | 0.8 |

Recommended flow rates - pressure relief

| | |
|----------------------|-----|
| Thread (inches) | 1" |
| Max. flow rate (l/s) | 1.4 |

Spring calibration range

| | |
|-----------------------|--------|
| Thread (inches) | 1" |
| Spring pressure (bar) | 0,7-7 |
| | 1,5-15 |

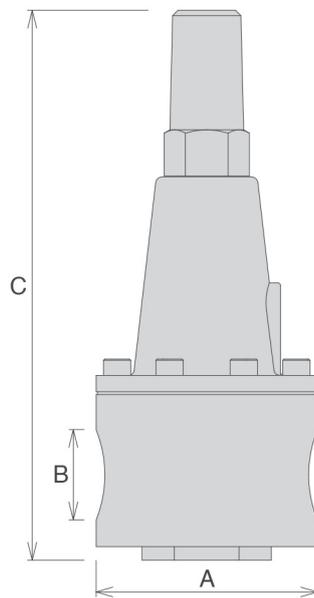
Standard

- Certification and testing according to EN 1074/5
- BSP threaded fittings

Thread modifications on request.

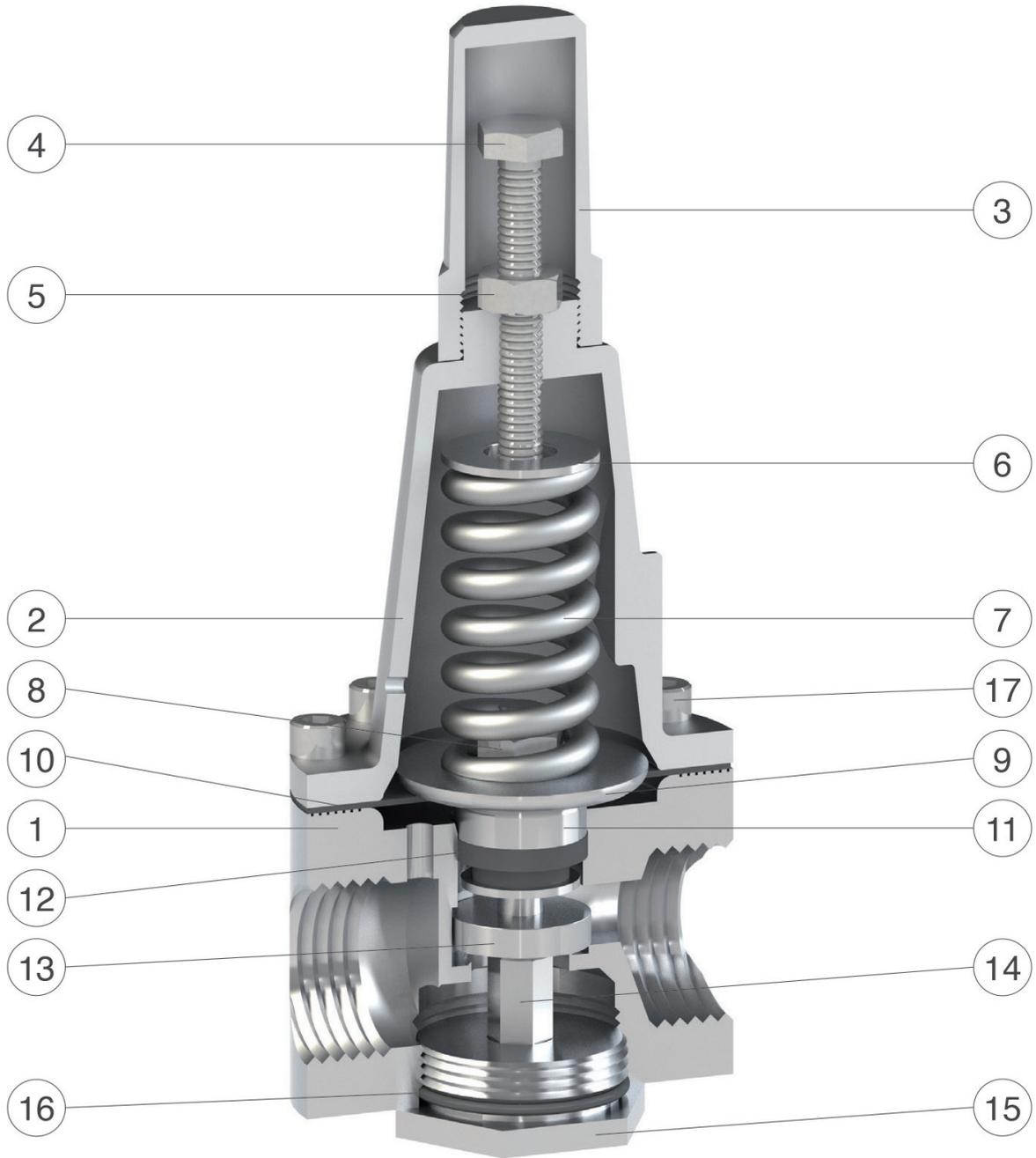
Dimensions and weights

| | |
|-------------------|-----|
| Thread (B) inches | 1" |
| A (mm) | 81 |
| C (mm) | 205 |
| Weight (Kg) | 2.7 |





Construction details



| No. | Component | Standard material | Optional |
|-----|-----------------------|---|--------------------------|
| 1 | Body | AISI 303 stainless steel | AISI 316 stainless steel |
| 2 | Cap | nickel-plated bronze | stainless steel |
| 3 | Cap | AISI 303 stainless steel | AISI 316 stainless steel |
| 4 | Control screw | AISI 304 stainless steel | AISI 316 stainless steel |
| 5 | Locking nut | AISI 304 stainless steel | AISI 316 stainless steel |
| 6 | Spring plate | AISI 303 stainless steel | AISI 316 stainless steel |
| 7 | Spring | painted steel 52SiCrNi5 | |
| 8 | Self-locking nut | AISI 304 stainless steel | AISI 316 stainless steel |
| 9 | Upper diaphragm plate | AISI 303 stainless steel | AISI 316 stainless steel |
| 10 | Diaphragm | EPDM-Nylon | |
| 11 | Piston | AISI 303 stainless steel | AISI 316 stainless steel |
| 12 | Lip seal | NBR | EPDM/Viton |
| 13 | Plug with flat gasket | AISI 303 stainless steel and polyurethane | AISI 316 stainless steel |
| 14 | Clamping nut | AISI 303 stainless steel | AISI 316 stainless steel |
| 15 | Guide cap | AISI 303 stainless steel | AISI 316 stainless steel |
| 16 | O-ring | NBR | EPDM/Viton |
| 17 | Hex socket head screw | AISI 304 stainless steel | AISI 316 stainless steel |

The table of materials and components is subject to change without notice.



Customer Centricity

Pietro Fiorentini is one of the main Italian international company with high focus on product and service quality.

The main strategy is to create a stable long-term oriented relationship, putting the customer's needs first. Lean management and thinking and customer centricity are used to improve and maintain the highest level of customer experience.



Support

One of Pietro Fiorentini's top priorities is to provide support to the client in all phases of project development, during installation, commissioning and operation. Pietro Fiorentini has developed a highly standardized intervention management system, which helps to facilitate the entire process and effectively archive all the interventions carried out, drawing on valuable information to improve the product and service. Many services are available remotely, avoiding long waiting times or expensive interventions.



Training

Pietro Fiorentini offers training services available for both experienced operators and new users. The training is composed of the theoretical and the practical parts, and is designed, selected and prepared according to the level of use and the customer's need.



Customer Relation Management (CRM)

The centrality of customer is one of the main missions and vision of Pietro Fiorentini. For this reason, Pietro Fiorentini has enhanced the customer relation management system. This enables us to track every opportunity and request from our customers into one single information point.

Sustainability

Here at Pietro Fiorentini, we believe in a world capable of improvement through technologies and solutions that can shape a more sustainable future. That is why respect for people, society and the environment form the cornerstones of our strategy.

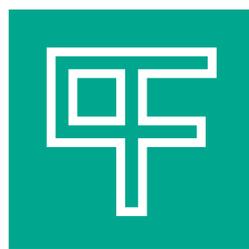


Our commitment to the world of tomorrow

While in the past we limited ourselves to providing products, systems and services for the oil & gas sector, today we want to broaden our horizons and create technologies and solutions for a digital and sustainable world, with a particular focus on renewable energy projects to help make the most of our planet's resources and create a future in which the younger generations can grow and prosper.

The time has come to put the why we operate before the what and how we do it.





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