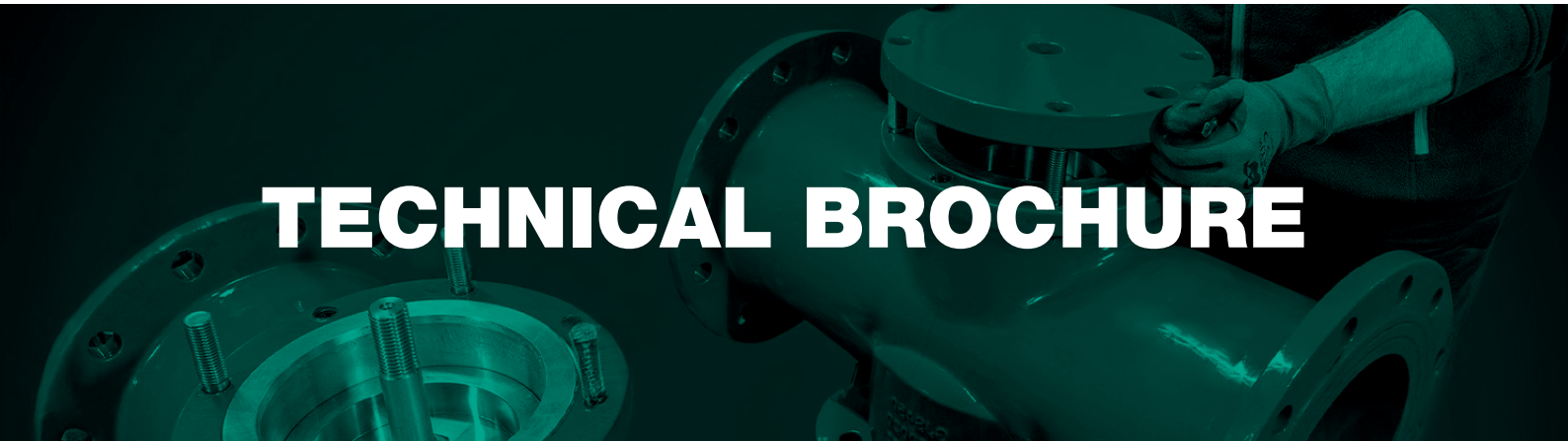
Pietro Fiorentini

W-FLUX

Pressure reducing direct action valves



TECHNICAL BROCHURE

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W-FLUX_technicalbrochure_ENG_revA

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High-pressure reducing direct action valve

W-FLUX

The **W-FLUX** valve reduces and stabilises the downstream pressure at a constant value, regardless of flow rate and upstream pressure variations. It can be used with water, air and other fluids up to a temperature of 70°C and a pressure of 64 bar.

Constructive features and advantages

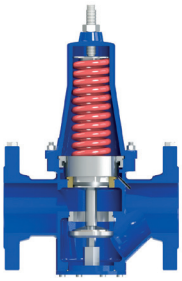
- Ductile cast iron cap, electro-welded steel body, stainless steel sliding mobile block and sealing rings.
- Self-cleaning piston with innovative technology that improves running performance and reduces maintenance.
- Mobile block consisting of three stainless steel components obtained on a CNC lathe to avoid sliding friction and leakage due to accurate machining.
- Upstream and downstream pressure ports for the insertion of pressure gauges.
- Flanged version available from DN 50 to 150, class PN 64.

Main applications

- Water distribution networks characterised by high pressures
- Mines
- Cooling systems and industrial plants

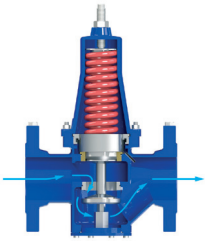
Operating principle

The W-FLUX valve works by the movement of a piston that slides inside two stainless steel ring nuts of different diameters. These, firmly screwed to the body and fitted with lip seals, create an upstream and downstream pressure compensation chamber, ensuring a perfect seal.



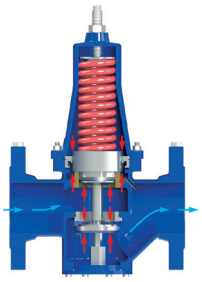
Normally open valve

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



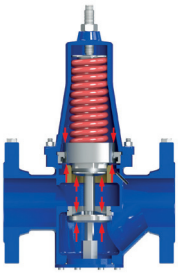
Fully open valve in operation

When the downstream pressure falls below the spring setting, the piston moves downwards and the valve moves to the fully open position.



Modulation valve

If the downstream pressure tends to rise above the set value, it pushes the plug upwards, reducing the passage. The result is the creation of a pressure drop such that the downstream pressure returns to the required value.



Closed valve (static conditions)

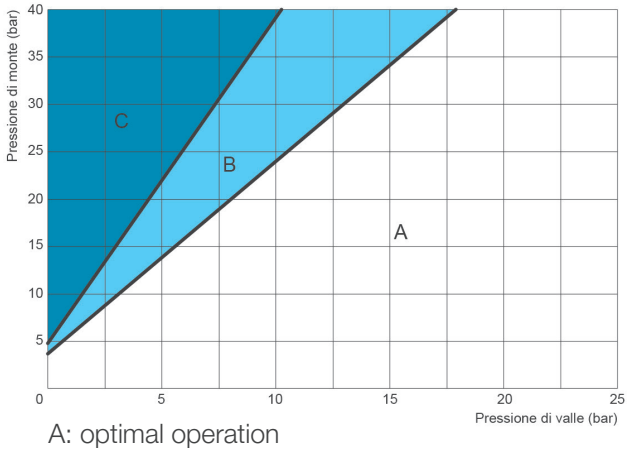
In the event that the downstream withdrawal is cancelled and the pressure rises above the spring setting, the valve moves to the fully closed position, maintaining the required downstream pressure. This also occurs under static conditions.

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.

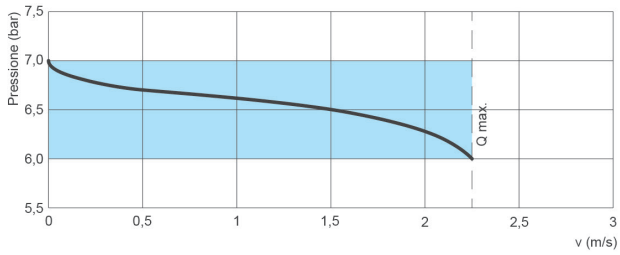
Thread (DN)	50	80	100	150
Kv (m^3/h)/bar	18	63	98	147



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

Cavitation chart

Ensure that the point corresponding to the operating condition of the valve appropriate to the required flow rate, identified by the values of the downstream pressure (in abscissa) and upstream pressure (in ordinate), falls in zone A in the graph. The graph refers to valves modulating with an opening percentage of 35-40%, at standard temperature and altitude below 300 m. Under operating conditions, the pressure reduction differential must not exceed 24 bar.



Valve sensitivity The curve shown in the figure shows the indicative change in actual downstream pressure from the set value as the flow rate increases. The maximum speed and recommended working conditions are indicated (blue area).

Operating conditions

Fluid	treated water
Maximum temperature	70°C
Maximum input pressure	64 bar
Downstream pressure	calibration range 1.5 to 6 bar and 5 to 12 bar (higher values on request)

Recommended flow rates

Thread (inches)	1/2”	1”	1” 1/2	2”
Min. flow rate (l/s)	0.3	0.8	1.2	2.6
Max. flow rate (l/s)	3.9	10	15	40
Emergency flow rate (l/s)	6,9	17	27	61

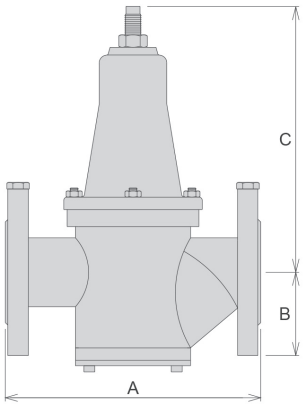
Standard

- Certification and testing according to EN 1074/5
- Flanges with drilling according to EN 1092-2
- RAL 5005 blue epoxy paint applied on fluid bed

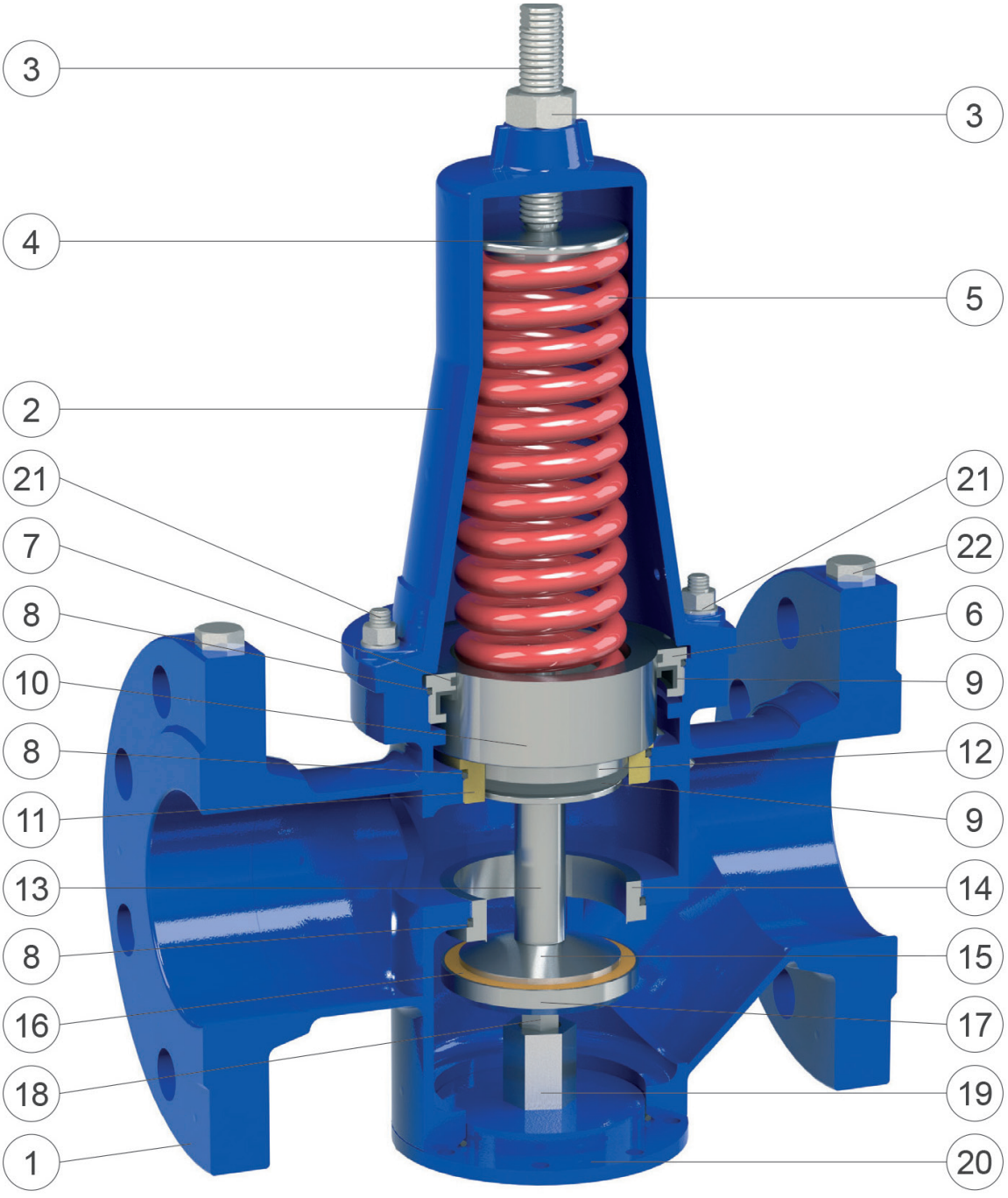
Modifications to flanges and painting on request.

Dimensions and weights

DN (mm)	50	80	100	150
A (mm)	230	310	350	480
B (mm)	90	108	126	172
C (mm)	240	340	400	500
Weight (Kg)	15	29	40	90



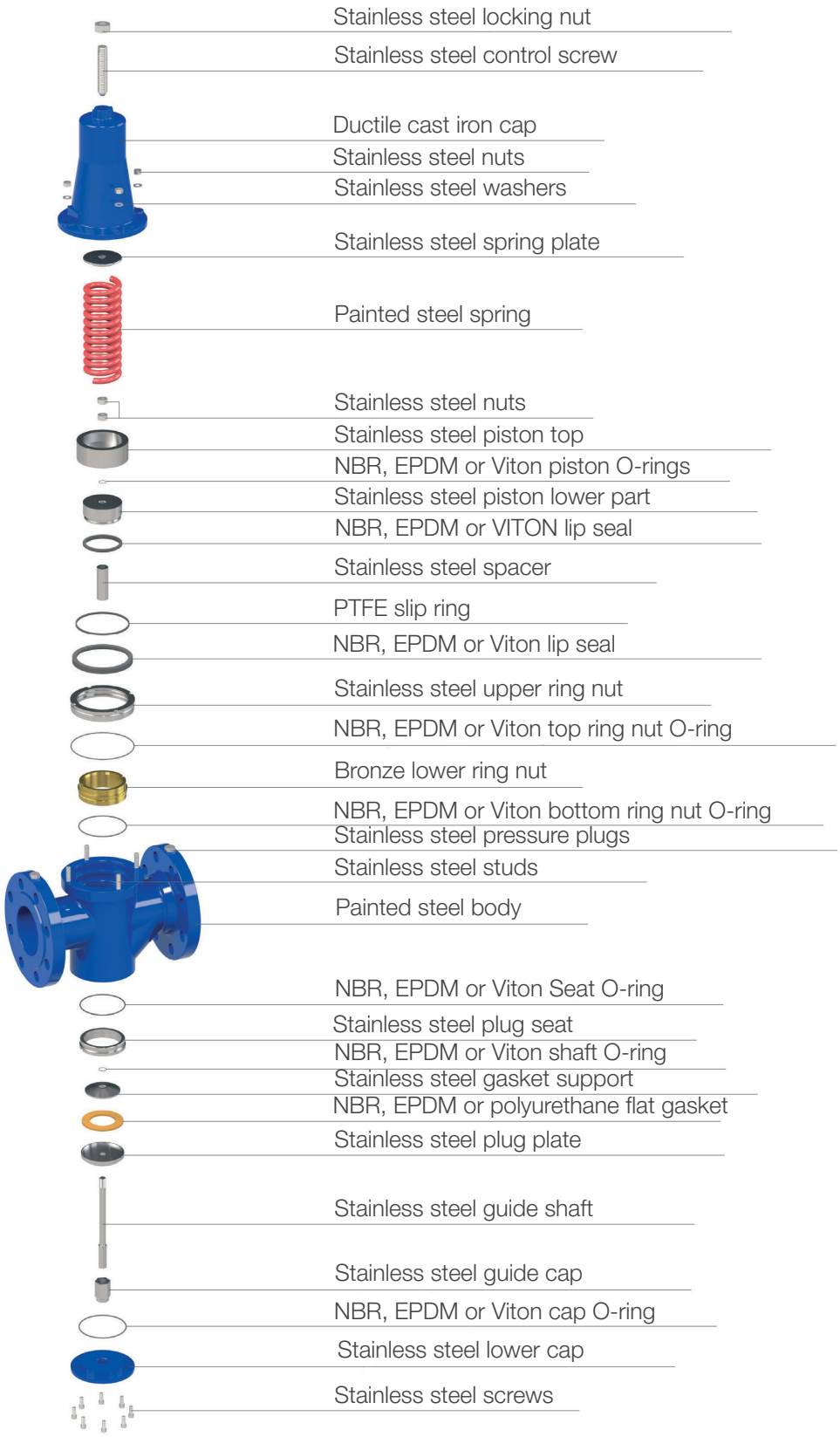
Construction details



No.	Component	Standard material	Optional
1	Body	painted steel	
2	Cap	ductile cast iron GJS 450-10	
3	Drive screw and nut	AISI 304 stainless steel	AISI 316 stainless steel
4	Spring plate	AISI 303 stainless steel	AISI 316 stainless steel
5	Spring	coated spring steel 52SiCrNi5	
6	Upper ring nut	AISI 304 stainless steel	AISI 316 stainless steel
7	Slip ring	PTFE	
8	O-ring	NBR	EPDM/Viton
9	Lip seals	NBR	EPDM/Viton
10	Piston upper part	ac. AISI 303 (bronze CuSn5Zn5Pb5 for DN 150)	AISI 303/316 stainless steel
11	Lower ring nut	bronze CuSn5Zn5Pb5	AISI 303/316 stainless steel
12	Piston lower part	AISI 303 stainless steel	AISI 316 stainless steel
13	Spacer	AISI 303 stainless steel	AISI 316 stainless steel
14	Plug seat	AISI 304 stainless steel	AISI 316 stainless steel
15	Gasket support	AISI 303 stainless steel	AISI 316 stainless steel
16	Flat gasket	polyurethane	
17	Plug plate	AISI 303 stainless steel	AISI 316 stainless steel
18	Guide shaft	AISI 303 stainless steel	AISI 316 stainless steel
19	Guide cap	AISI 303 stainless steel	AISI 316 stainless steel
20	Lower cap	painted steel	
21	Studs, nuts and washers	AISI 304 stainless steel	AISI 316 stainless steel
22	Pressure plugs	AISI 316 stainless steel	

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

Spare parts


Stainless steel locking nut
Stainless steel control screw
Ductile cast iron cap
Stainless steel nuts
Stainless steel washers
Stainless steel spring plate
Painted steel spring
Stainless steel nuts
Stainless steel piston top
NBR, EPDM or Viton piston O-rings
Stainless steel piston lower part
NBR, EPDM or VITON lip seal
Stainless steel spacer
PTFE slip ring
NBR, EPDM or Viton lip seal
Stainless steel upper ring nut
NBR, EPDM or Viton top ring nut O-ring
Bronze lower ring nut
NBR, EPDM or Viton bottom ring nut O-ring
Stainless steel pressure plugs
Stainless steel studs
Painted steel body
NBR, EPDM or Viton Seat O-ring
Stainless steel plug seat
NBR, EPDM or Viton shaft O-ring
Stainless steel gasket support
NBR, EPDM or polyurethane flat gasket
Stainless steel plug plate
Stainless steel guide shaft
Stainless steel guide cap
NBR, EPDM or Viton cap O-ring
Stainless steel lower cap
Stainless steel screws

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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