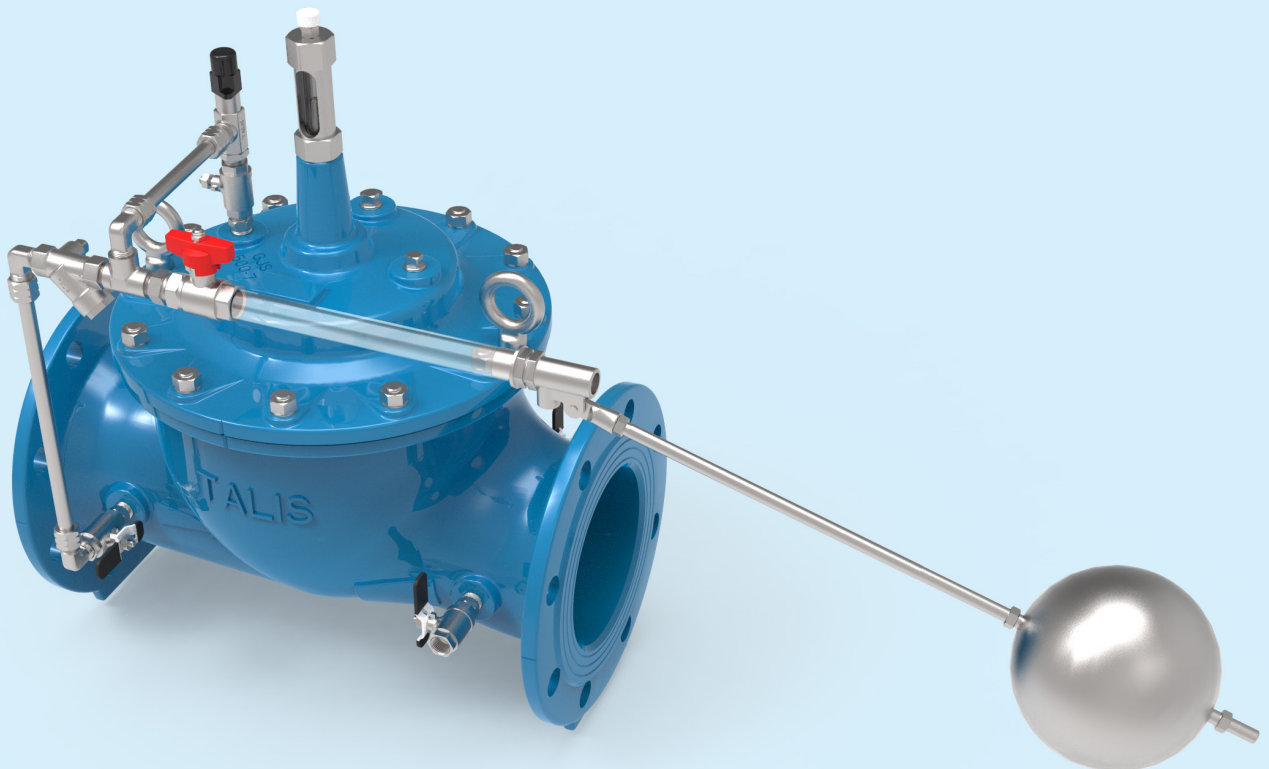


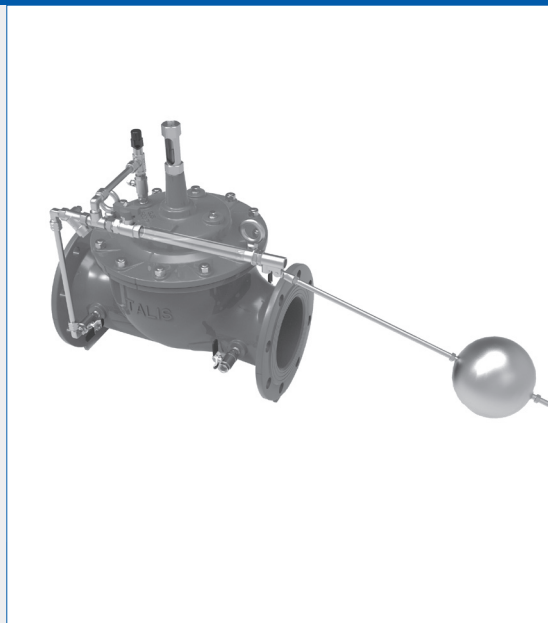
HYDROSTAB VEGA PREMIUM
SERIES K3 41



HYDROSTAB VEGA PREMIUM CONTROL VALVE

K3 41

Based on the latest developments of the Hydrobloc system, the Hydrostab Vega Premium series K3 41 uses high quality materials and a proven design to guarantee our customers exceptional service life, accuracy and functionality.



FUNCTION

The Hydrostab Vega Premium series K3 41 is an automatic control valve which enables the filling of a reservoir to be controlled by a float pilot.

MAIN ADVANTAGES: PERFORMANCE & DURABILITY

- L **Strength and durability** with a pilot circuit entirely* made from stainless steel 316. The internal moving parts are entirely made from stainless- steel 316 up to DN200mm —unique solution on the market as standard — provides high durability and performance even in harsh conditions of use, such as major upstream/downstream pressure differences.
- L **Resistance to corrosion** by application of a minimum 250µm coating and the use of connecting pieces passing through the valve body.
- L **High performance and durability** ensured by the use of a new, high density, EPDM, preformed diaphragm.
- L **Easy service and simplified maintenance:** supplied with instructions and upstream manometer.

*Not including ball valve body

APPLICATIONS



Desalination



Transport



Distribution



Dam



Water
treatment



Industry

COMPLIANCE WITH STANDARDS:

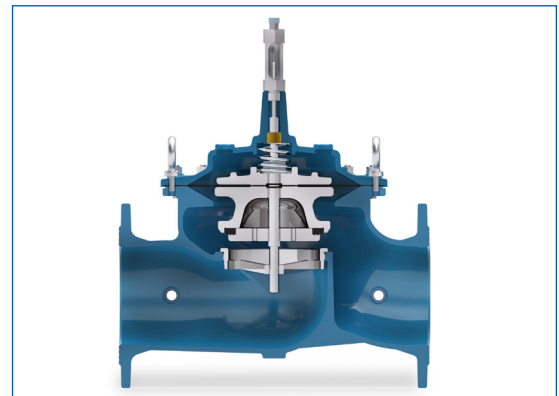
- NF EN 1074-5.
- Category A leak-tightness as per ISO 5208-2.
- Compliance with Standard EN 12266.
- Face-to-face dimensions NF EN 558-1 and ISO 5752-1.
- Connection flange drilling as per EN 1092-2 and ISO 7005-2 ISO PN 10 as standard, ISO PN 16, ISO PN 25 or other drillings for ND 50 to 400 (please consult us).
- Attestation of Sanitary Conformity (ACS)

USES

- └ Regulation valves can be:
 - Installed both in new works or existing installations.
 - Installed in valve chambers or buildings, in all cases with frost protection.
- └ The use of Hydrostab Vega Premium control valves enables the supply to a reservoir to be controlled. They therefore enable:
 - The shutting off of supply to a drinking water reservoir to be controlled at a constant high level.
 - The system to be shut off and manual regulation to be restored.

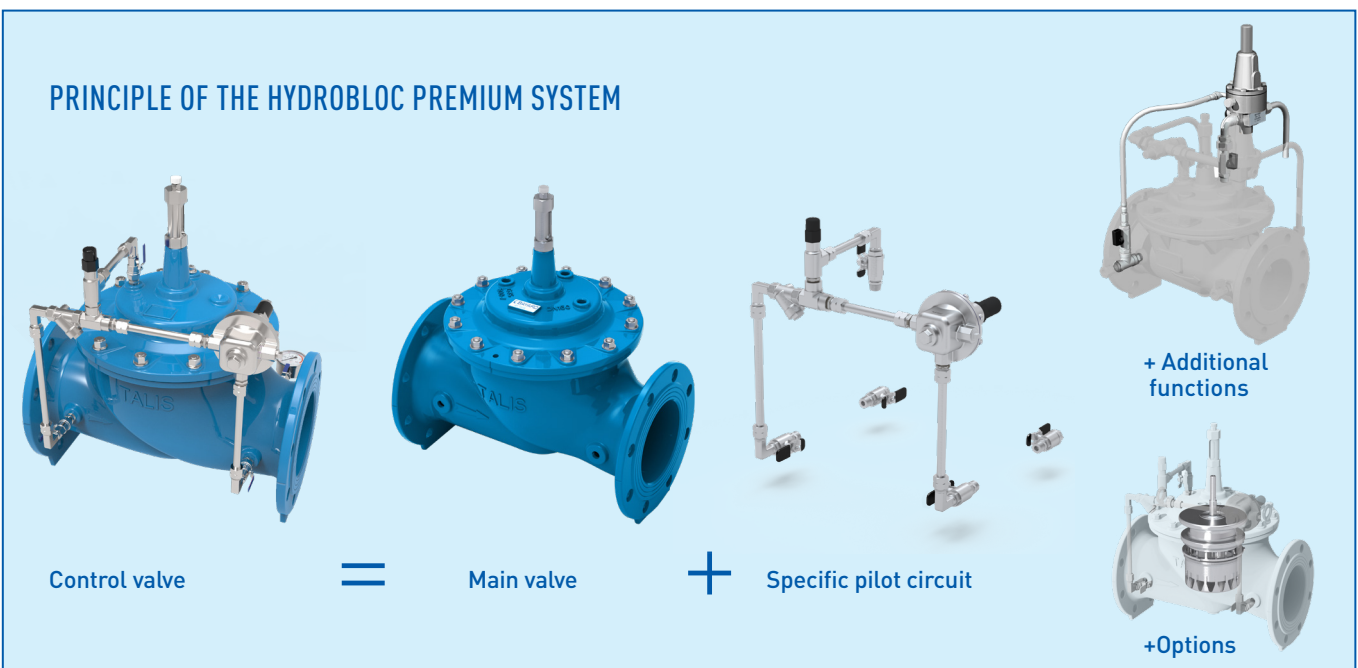
MAIN TECHNICAL DATA

- └ PFA 10, 16 . The pilot is PN 10 bar, if the pressure in the pilot could be more important, it is necessary to add a pilot to prevent against over pressure in the pilot (please consult us).
- └ DN 40 to 400 with standardised flanges.
- └ Leak-tightness at nil flow rate.
- └ Operating temperatures from 0°C to 65°C.
- └ Flow medium: 2mm screened potable or raw water.
- └ Optional anti-cavitation kit ACD040 with slotted cylinders.
- └ Assembly of the pilot circuit on the right strand as standard, on the left strand by request.
- └ Numerous options available on the main valve or the pilot device (see page 8-9-10).



Section of main valve XG

PRINCIPLE OF THE HYDROBLOC PREMIUM SYSTEM



THE TECHNICAL ADVANTAGES OF HYDROSTAB VEGA PREMIUM CONTROL VALVE

MAIN VALVE OPTIMISED FOR LONG-LASTING INVESTMENT:

NO RISK OF CORROSION:

Full hot epoxy coating with **minimum thickness 250µ**.
Specific boss profile (pilot circuit connection areas): all drilling coated and protected.

EASY MAINTENANCE:

The use of **studs** and a **preformed diaphragm** facilitates disassembly and re-assembly operations.

ECONOMY:

All moving parts and seat made entirely from **stainless steel 316*** ensure exceptional durability and reliability. This improves and reduces the cost of network operation.

CUSTOMER and USER SATISFACTION:

Use of the **"small flow" SPD device** as standard ensures stability and set-point precision over the full range of operation.
Untimely variations in pressure are impossible.



EASY COMMISSIONING AND CONTROL:

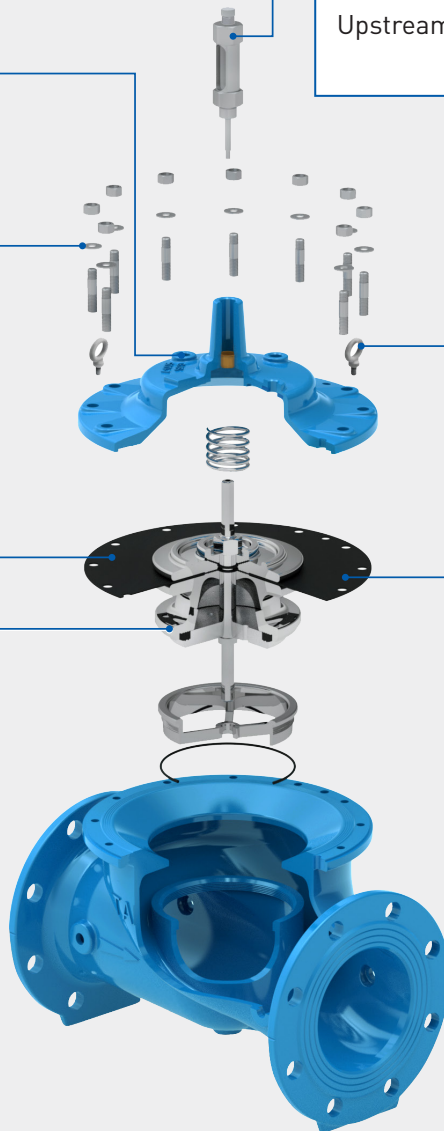
Position indicator made from stainless steel 316 with high resistance glass.
Integrated manual air release valve.
Upstream/downstream pressure gauges supplied as standard.

EASY INSTALLATION:

Lifting rings on all diameters.
Reduced overall size of the pilot circuit.
No straight length upstream or downstream required.

PERFORMANCE AND DURABILITY:

High density preformed diaphragm (individual manufacturing process), naturally positioned in the body of the Hydrobloc **without elongation** for increased service life and responsiveness.
New body design for enhanced flow performance and reduced loss of pressure.

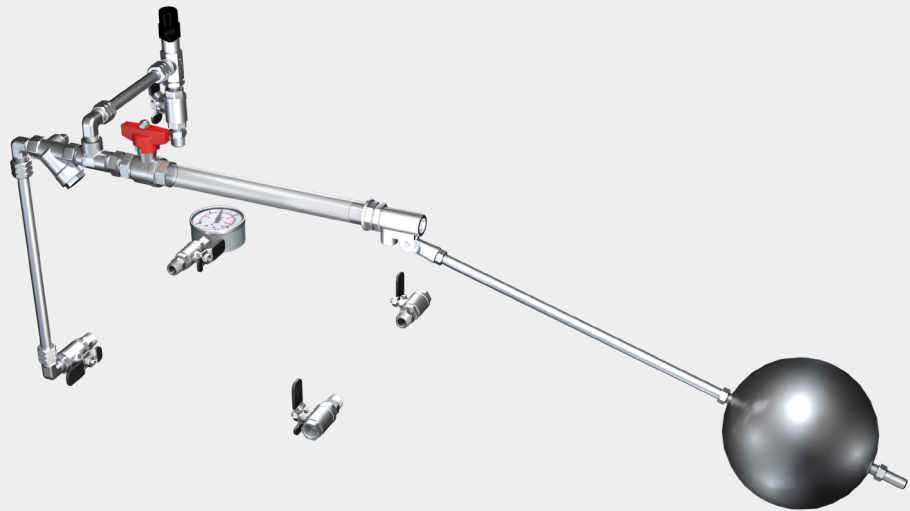


*Up to DN 200 XGS and DN 150 XG

THE TECHNICAL ADVANTAGES OF THE HYDROSTAB VEGA PREMIUM CONTROL VALVE

PILOT CIRCUIT OPTIMISED FOR DURABILITY, ACCURACY AND EASIER MAINTENANCE:

RELIABILITY AND DURABILITY:
Circuit and components entirely made from stainless steel 316* for high resistance to conditions of use, even the most extreme.
 Unalterable external appearance regardless of the environment.



EASY MAINTENANCE:
 New maintenance-free opening retarder.
 New filter with increased filtering surface area for reduced maintenance frequency.

EASY COMMISSIONING and CONTROL:
New isolation control valves made from stainless steel 316 and plastic coated.
 Simplified installation, commissioning and maintenance instruction leaflet.

New BAYARD
axial leak-tightness connecting pieces without insert.

Leak-tightness

The new connecting piece enables:

- Easier lateral disconnection for quick maintenance.
- Easy piping disconnection in the event of modification to be made that no longer takes account of the length to be inserted into the connecting piece (Part).

Previous version with insert.

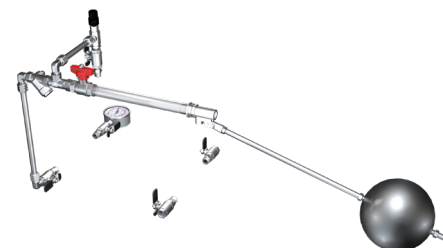
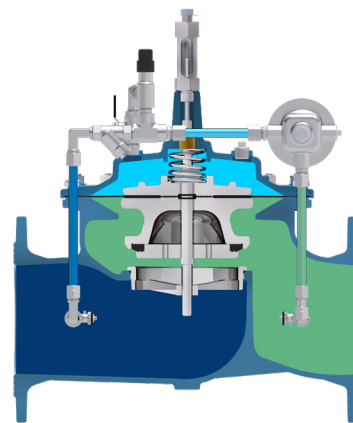
*Not including ball valve body

GENERAL OPERATING PRINCIPLE

DESCRIPTION

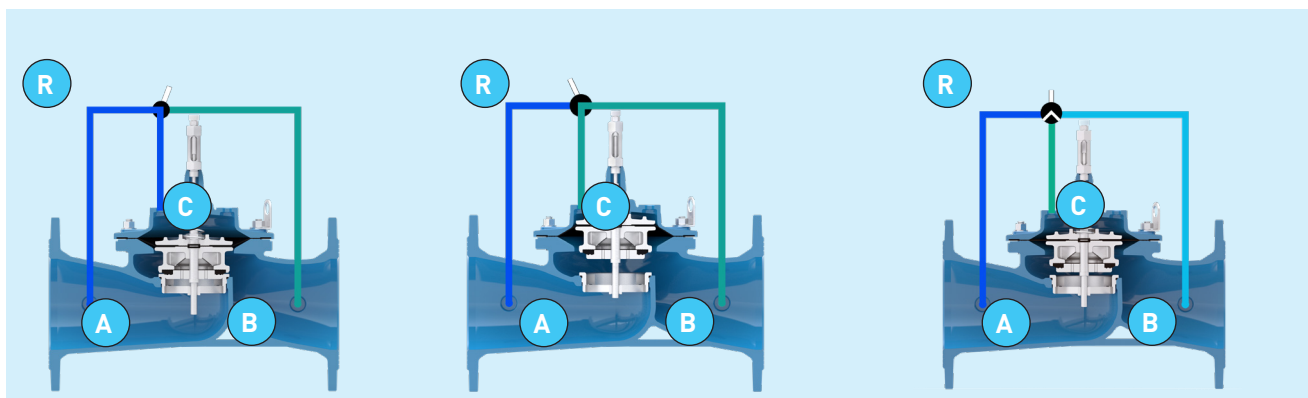
The Downstream Hydrostab Premium comprises:

- A MAIN VALVE comprising an upstream zone (dark blue), a downstream zone (green) and a control chamber (light blue), isolated from the latter by a diaphragm.
- A control circuit known as the PILOT CIRCUIT, comprising a diaphragm-holding filter, an opening retarder installed on a T-fitting providing the connection to the control chamber, then a pressure-reducing pilot, commonly called a downstream pilot that measures the pressure on the main valve outlet.



GENERAL OPERATION OF THE HYDROBLOC PREMIUM REGULATION VALVE:

The regulation valve is under the control of its pilot circuit.



CLOSING

From the upstream zone to the chamber:

- └ The valve **(R)** lets water into the chamber **(C)**, which fills due to upstream pressure.
- └ The forces that push the moving parts downwards are the strongest.

Conclusion: "to close a Hydrobloc Premium valve, the chamber needs to be filled".

OPENING

From the chamber to the downstream zone:

- └ The valve **(R)** prevents the water from entering the chamber **(C)**. It lets the water leave the chamber **(C)**. It empties towards the lower downstream pressure **(B)**.
- └ The forces that push the moving parts upwards are the strongest.

Conclusion: "to open a Hydrobloc Premium valve, the chamber needs to be emptied".

BLOCKING

Or chamber isolation:

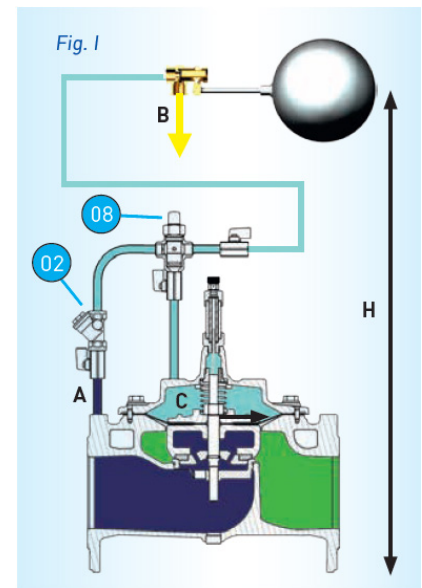
- └ The valve **(R)** prevents the water from entering or leaving the chamber **(C)**. The operating chamber is blocked.
- └ So the forces cannot vary.

Conclusion: "to keep the Hydrobloc Premium valve in an intermediate position, the volume in the chamber must not change".

PILOT CIRCUIT OPERATING PRINCIPLE

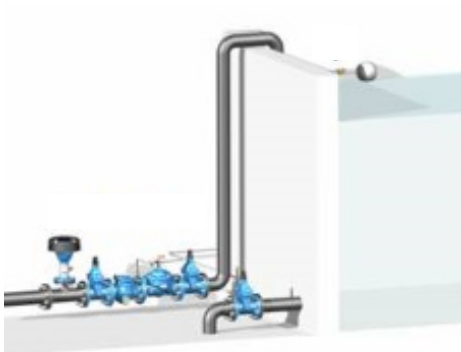
OPERATION OF THE VEGA 70P PILOT CIRCUIT (FIG. 1):

- As the reservoir level rises, the pilot closes.
- When the water level falls, the float follows and opens the flow of water into the pilot.
- Dark blue area = upstream pressure; light blue area = variable balanced pressure between the diaphragm (02) and the pilot; yellow area = atmosphere, and green area = downstream pressure.
- The opening and closing retarder OCR (08) enables the speed at which the chamber is filled (closing) and emptied (opening) to be controlled.
- The reservoir water level is at the maximum level: the pilot is closed: The upstream pressure A enters chamber C and causes the device to close.
- The reservoir water level decreases: the pilot opens: chamber C is linked to atmosphere B: the pressure imbalance due to the diaphragm (02) enables the valve to open.
- The control valve will reproduce the movements of the pilot control system.

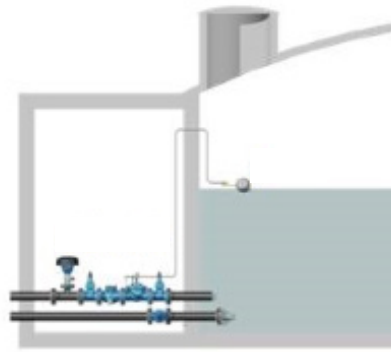


Installation options:

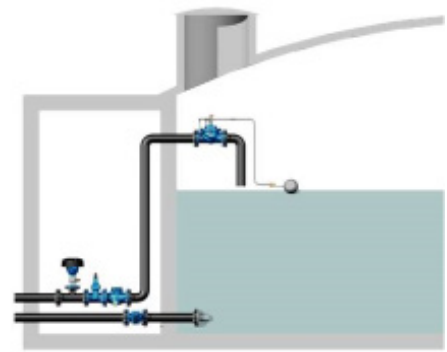
Semi-buried reservoirs or on a tower



At the bottom of a tank with a standpipe



At the bottom of a tank



At the top of a tank
(not advised if DN greater than 200)

Hydraulic engineer's notes:

Hydro VEGA is an "all or nothing" system. The adjustment flow rate may be much higher than the desired flow rate or the maximum recommended flow rates.

This means of operation may not be suitable for small-size tanks or for intake tanks of recovery pumps which are supplied from a sizeable water source. A proportional RAF control valve may be more suitable – contact us for advice.

The water column H, represented by the link from Room C to the pilot, implies a pressure in the valve chamber which may limit the opening of the valve.

The pilot was deported to the tank and connected to the main valve by an unsupplied G 1/2 tube.

The opening conditions of the Hydro Vega valve depend on its installation: In all cases, consult us to check how well it works.

ACCESSORIES AND OPTIONS

1- ANTI-CAVITATION DEVICE ACD 040

When the pressure differential generated by the reduction of the desired pressure entails a risk of cavitation (see table on page 12), the solution is anti-cavitation device ACD 040 (Anti Cavitation Device 0-40 bar).

APPLICATIONS

- Reduction of pressure.
- Reduction of noise.
- Reservoir filling.
- By-pass of an overpressure pump.
- Discharge with emission directly into the atmosphere.

In general, all of the applications where valves are subject to extreme differences of pressure or conditions where the downstream pressure is low or nil.

FUNCTIONS

The effects of cavitation are devastating, particularly when using equipment with little opening possibility or at high speeds. This device makes it possible to extend the range of normal use of a standard hydrobloc valve to particularly harsh operating regimes without the risk of damage.

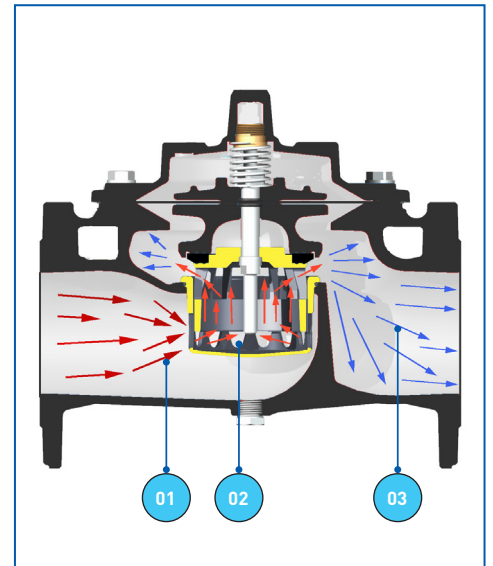
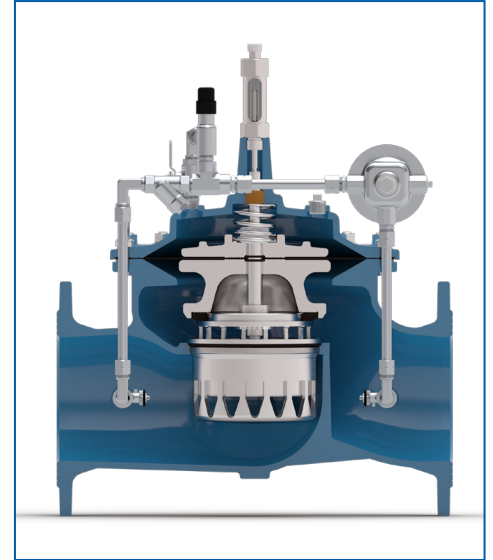
PRINCIPLE OF THE DEVICE ACD 040

The BAYARD patented ACD 040 device (Anti-Cavitation Device 0 to 40 bar) is an advance in the control of cavitation and high speeds.

Applying the principle of a double slotted cylinder, which has very much proved its worth in our annular valves, the design has been optimised to accept high pressure differences from small openings onwards, while preserving high flow capacity at full fire.

The principle of this device is to dissipate the energy in two successive, balanced phases. Most of the cavitation (60 to 70%) will be dissipated by passing from zone 1 to zone 2, and any cavitation is contained in zone 2. Circulation from zone 2 to zone 3 completes the reduction of pressure and high speeds, and does so regardless of the percentage of opening.

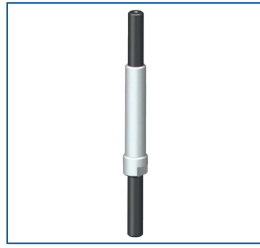
On the basis of these two principles, cascaded dissipation and linearity on the range of opening, device ACD 040 offers remarkable performances.



2- MAIN OPTIONS

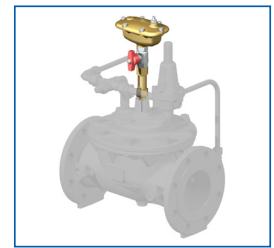
└ Anti-calcification stem:

The upper and lower guide parts are covered with Teflon. The lime-scale settles but does not adhere, the guides self-clean with the displacement of the mobile ensemble during operation.

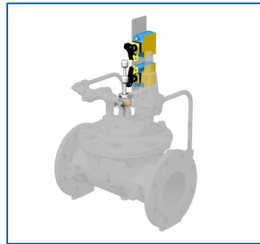


└ Automatic drainage kit:

Mini air valve above the position indicator, it automatically removes air that may accumulate in the valve and ensures the device operates optimally.



└ Dry contactors:



└ Analogue opening contactors:

Removal of magnetic contactors and a potentiometer to indicate the percentage of opening.



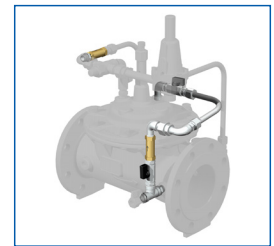
└ Manual drive:

Makes it possible to use the device as a hydraulically operated isolating valve, a valuable option on large DN.



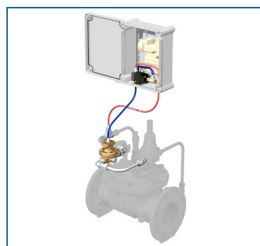
└ Return or anti-return function circuit:

Authorises the valve to open or close when reversing the direction of flow.



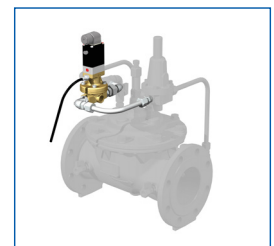
└ Operated by programmable time stamp:

Selects or annuls a function depending on the date and time stamp programming.



└ Control by solenoid valve:

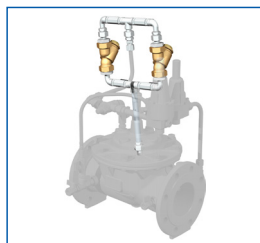
• 12 V, 24 V, or 240 V
Selects or annuls a function depending on the date and time stamp programming.



└ Double filtering:

Facilitates filter maintenance operations without interrupting service. Recommended for raw water network.

Automatic filtration automatic, consult us.



└ Opening assistance kit:

Upward traction system of the moving parts to facilitate the opening of the main valve without pressure.



Other options: (non-exhaustive list)

Vertical or horizontal assembly up to DN 200 XG and 250 XGS:

└ Mechanical stroke limiter.

CHOICE OF MODEL AND DIMENSIONING

Each network is unique. In order for a regulation valve to be entirely satisfactory and for its service life to be as long as possible, a number of criteria must be determined:

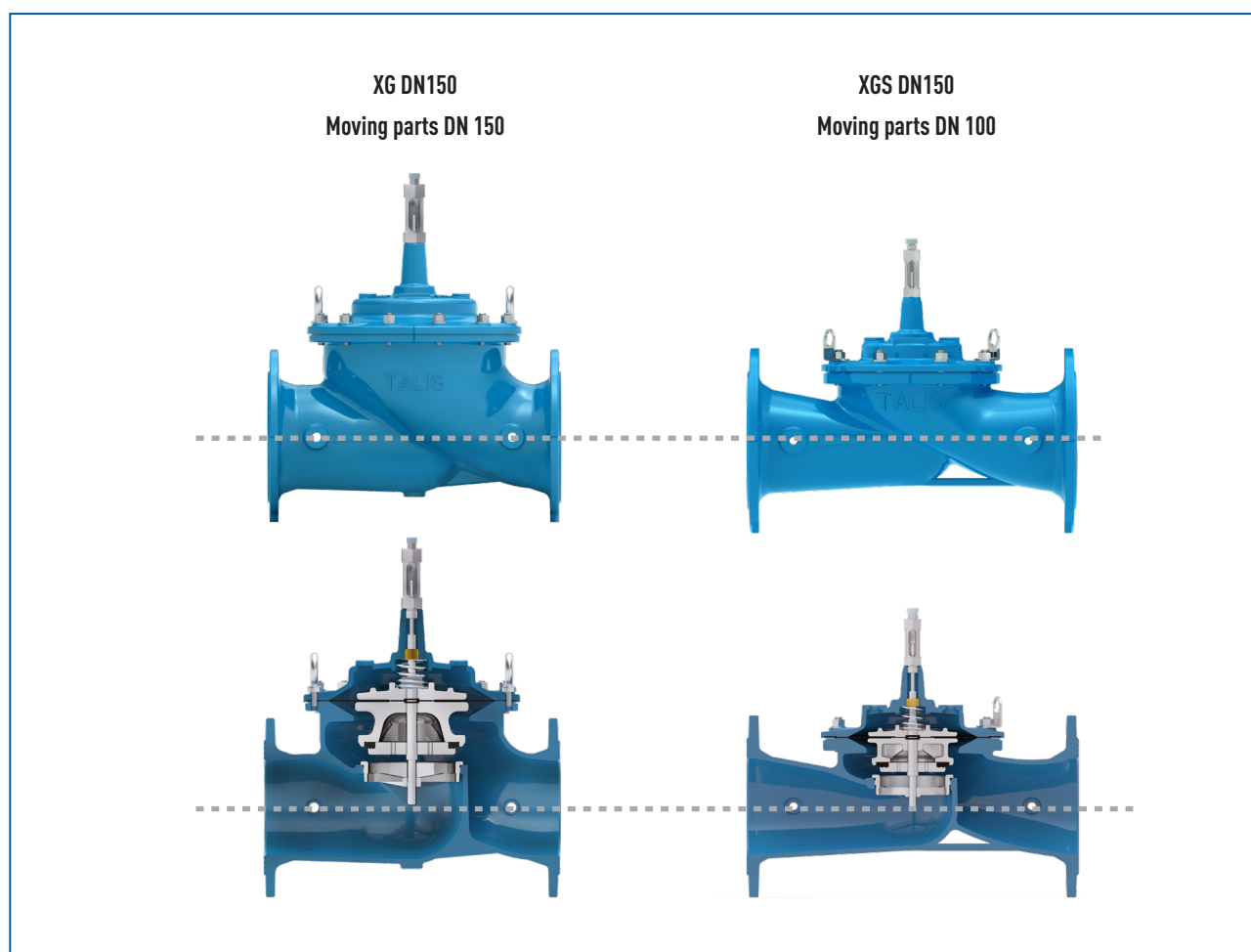
- └ The network life scenario, which will determine the operation of the device.
- └ The network's operating conditions (flow rate, pressure, etc.).
- └ The model and DN.
- └ Additional function(s).
- └ Supplementary options.
- └ Options specific to the operating conditions.

1- CHOICE OF MAIN VALVE

To ensure the pressure reduction function, a main valve type XGS (reduced throughway) is recommended in network operation cases where the available Δp (i.e., the difference in pressure between the upstream and the downstream of the regulation valve), is greater than or equal to 1 bar.

If the available Δp is continuously 1 bar lower, we advise an XG type main valve (full throughway). This choice tends to be unusual in the case of pressure reduction.

If the flow is low and the available Δp is greater than or equal to 1 bar and becomes lower than 1 bar when the flow rate is high, we recommend you contact BAYARD Customer Technical Service.

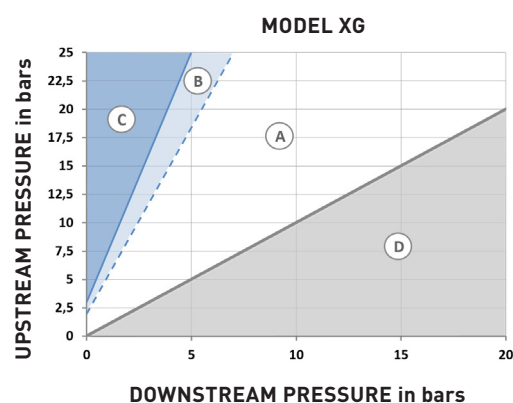
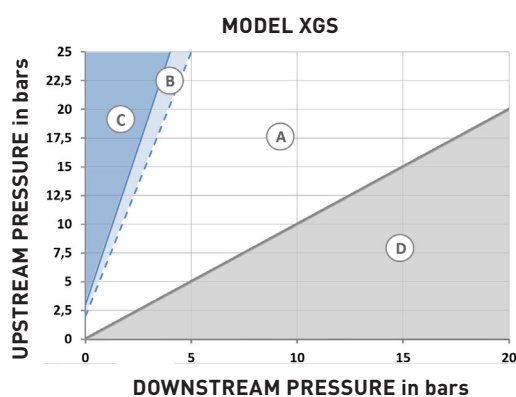


THE ADVANTAGES OF THE XGS VERSION - REDUCED THROUGHWAY - FOR PRESSURE REDUCTION:

- High hydraulic performance: the XGS versions offer high flow-rate coefficients.
- A better range of operation: reduced throughway automatically generates a greater degree of opening of the downstream Hydrostab Premium at low flow-rates. Thus, the stability of the device is optimised and the risk of cavitation reduced.
- Greater precision attributable to the stability of the valve.
 - The Downstream Hydrostab Premium XGS
 - Associated with the specific moving parts profile "SPD" (Low Flowrate System).
 - The best performances on the market.

2- CAVITATION:

Depending on the reduction of pressure desired, it is worth making sure that the device will not be in a cavitation zone. To determine whether a risk exists, please refer to the graphics below.



Zone A: Conditions not including cavitation.

Zone B: Harsh area of use. Make sure you have a polyurethane disk kit.

Zone C: Cavitation zone. Make sure you have an anti-cavitation kit ACD040 or cascaded devices.

In the case of downstream pressure below 1 bar, an air inlet device may be considered (consult us).

Zone D: Impossible zone, upstream pressure lower than downstream pressure.

Hydraulic engineer's notes:

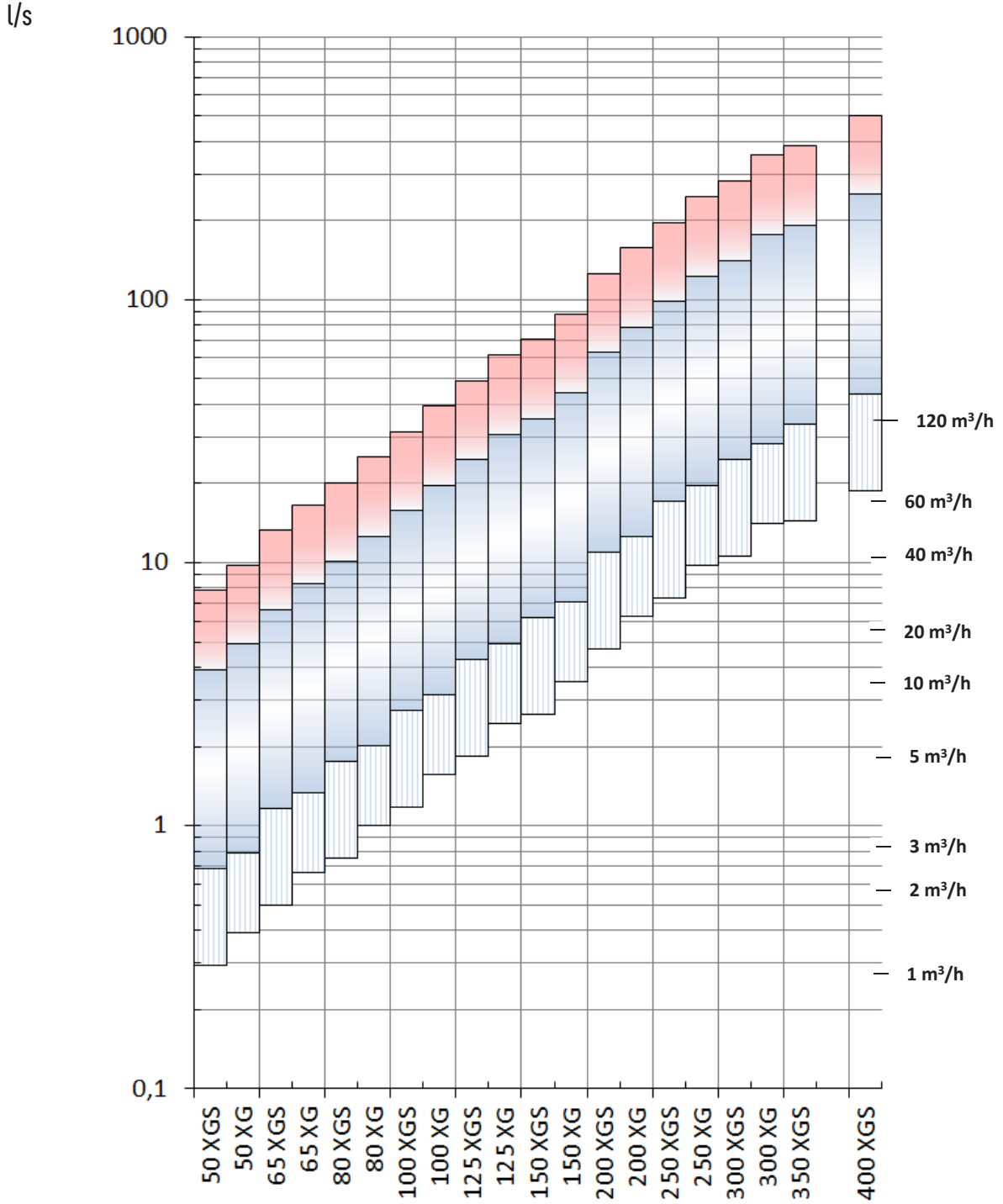
The potential damage created by cavitation in the regulation valve are detrimental to its service life and therefore to the precision of the downstream pressure controlled. The anti-cavitation device addresses this threat. Furthermore, this device only requires the installation of a single device on the network, unlike some manufacturers' recommendations (two devices in series). This avoids higher hardware costs, a larger valve chamber and more complex maintenance.

Request Hydrosizer II to help you with the dimensioning of the device!

THE HYDROBLOC SYSTEM ESTABLISHING A PROJECT OPERATING RANGES

3- FLOW SPEEDS:

The table below summarises the flow coefficients as well as the flow rates under certain speeds. The Hydrobloc Premium series allows an exceptional speed, which can be used for flows related to fire-fighting (red zone).



- The Δp available and consumable in the valve must be above 1bar (10WCm).
- Optimum operating range
The Δp available and consumable in the valve must be between Δp necessary for operation of the valve and the maximum allowable (see cavitation and speed diagrams).
- The Δp available and consumable in the valve must be below 1bar (10WCm).

THE HYDROBLOC SYSTEM ESTABLISHING A PROJECT OPERATING RANGES

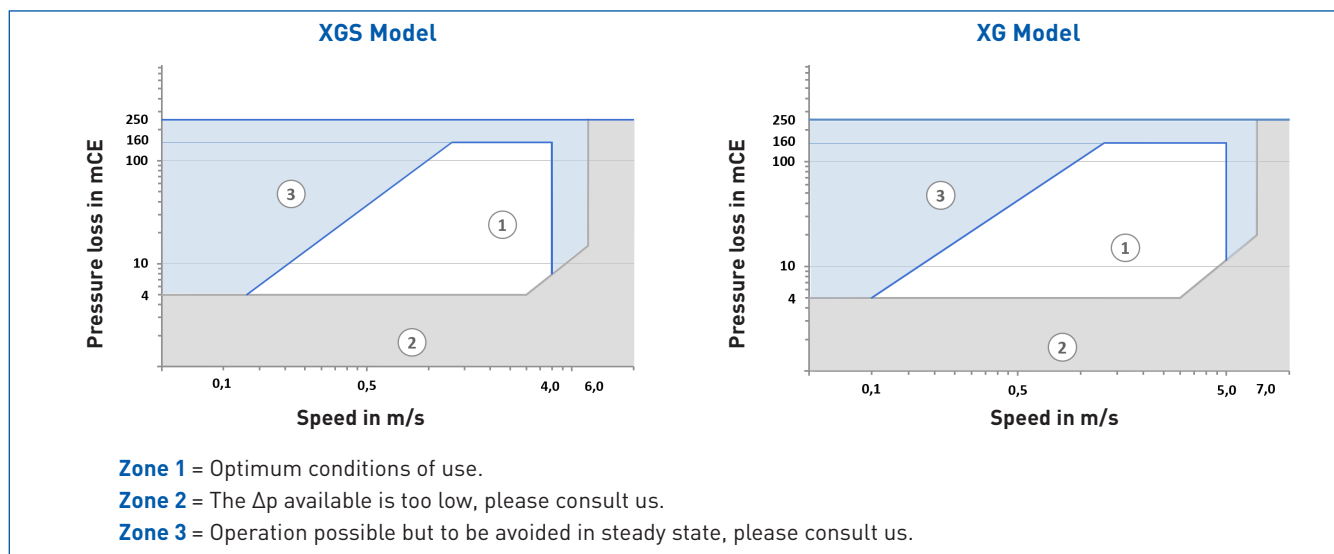


Calculation rule BAYARD

Choice of model and DN with the BAYARD calculation rule:

The mode of use together with the BAYARD calculation rule enables you to determine the regulator that is suitable for the installation and its operating conditions.

- The diagrams below can be used to check whether the device will operate in an optimum operation zone, knowing the available Δp and the speed in the inlet section.



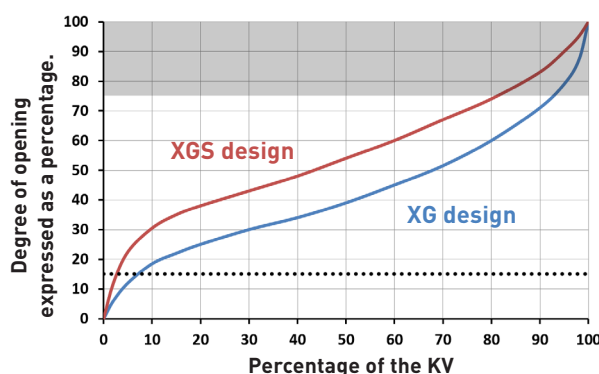
Rep	Modèles XGS		Modèles XG	
DN	Kv	K	Kv	K
50	22	20.3	50	3.9
65	52	10.3	91	3.4
80	90	7.9	126	4.0
100	135	8.6	178	5.0
125	189	10.7	283	4.8
150	196	20.6	417	4.6
200	456	12.1	670	5.6
250	605	16.7	1223	4.1
300	1266	7.9	1472	5.9
350	1389	12.2	-	-
400	1441	19.3	-	-

OPERATING CONDITIONS

- The valve is dimensioned on the basis of the cross-section of the throughway at disk level (reduced on the XGS, practically equal to the cross-section of the inlet on the XG), and the flow-speed of the water or flow rate ($Q = V \times S$).
- The Hydrobloc Premium valve is a globe valve; its throughway cross-section is equal to the circumference of the seat multiplied by the height of opening of the disk.
- Between 15 and 75% opening, the operation of the valve is optimal in normal conditions of use.
- Below 15%, the quality of the regulation remains excellent, particularly thanks to the SPD device, but the valve is subject to a harsh operating regime that may induce vibration and noise. The device is probably oversized.
- Above 75% opening, regulation performs less well as the pressure difference becomes very low. The device is slow to react, it is probably undersized. However, this range is usable in "all or nothing" mode, such as in the case of reservoir-filling applications.

Reminders:

- The pressure loss in the Hydrobloc valve is its driving force.
- The XGS model has a reduced throughway cross-section compared with the inlet section.

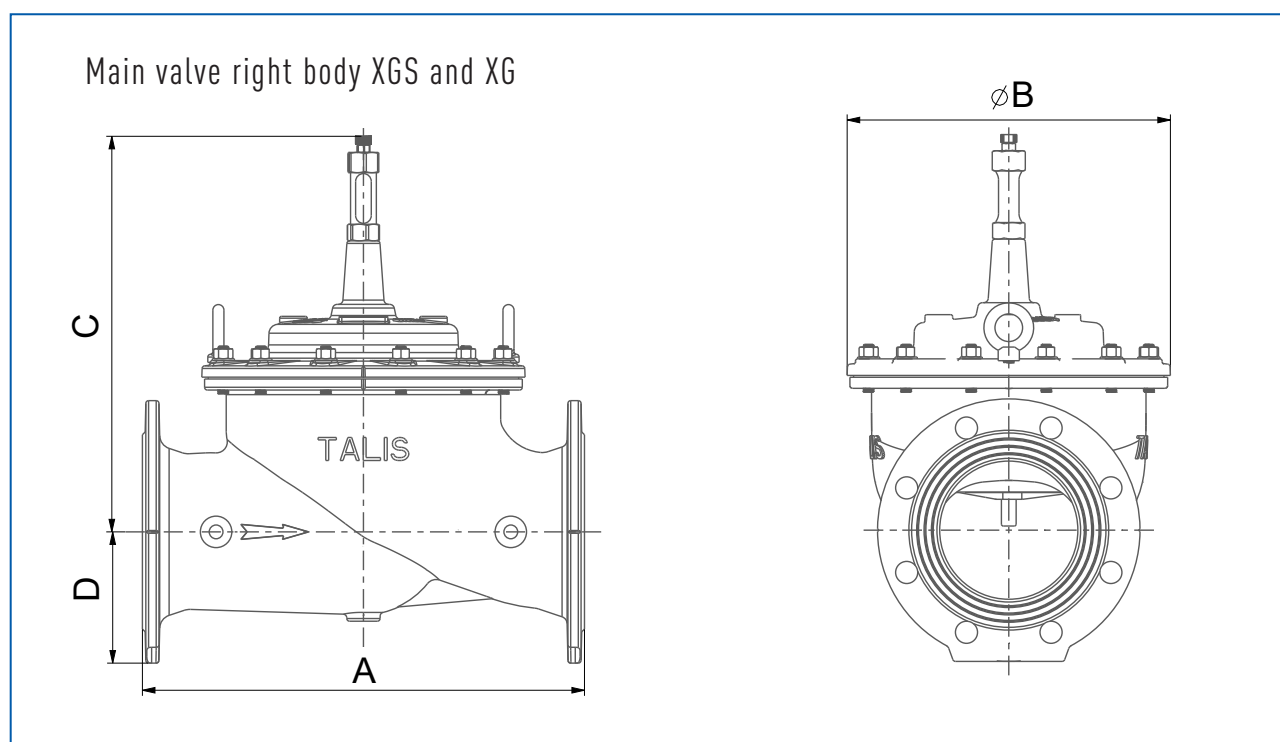


DIMENSIONS

MAIN VALVE TYPE XGS

REDUCED THROUGHWAY

DN	A (mm)	B (mm)	C (mm)	D (mm)	Poids* (kg)
40/50	230	145	195	80	10.2
65	290	173	237	95	15
80	310	198	257	102	21
100	350	226	277	112	27
125	400	265	312	127	34
150	480	265	376	145	37
200	600	351	431	172	68
250	730	436	521	205	125
300	850	524	647	232	200
350	980	606	657	278	248
400	1100	606	714	290	269



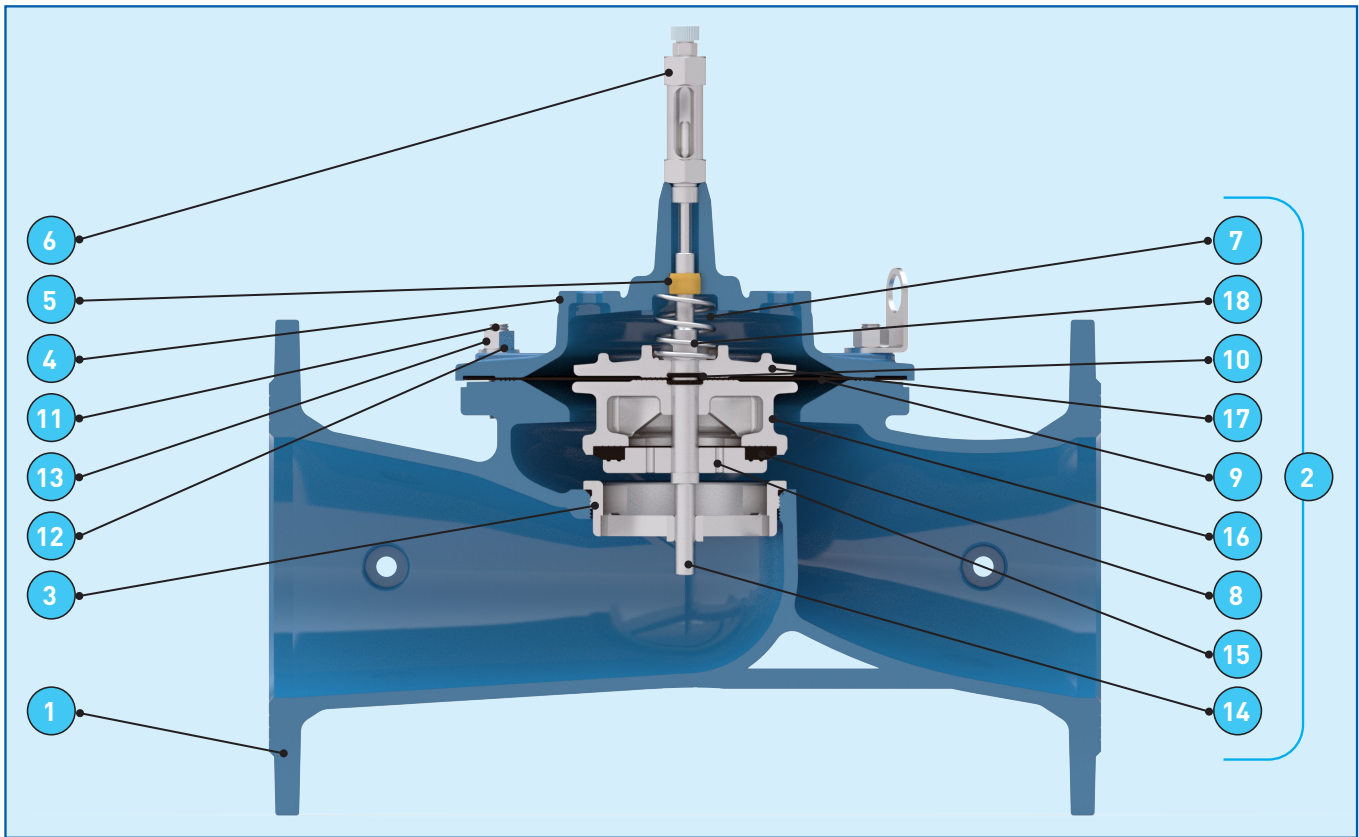
MAIN VALVE TYPE XG

FULL THROUGHWAY

DN	A (mm)	B (mm)	C (mm)	D (mm)	Weight* (kg)
40/50	230	173	237	85	14
65	290	198	257	95	19
80	310	226	277	102	23
100	350	265	312	112	32
125	400	307	376	127	50
150	480	351	431	145	68
200	600	436	521	172	125
250	730	524	647	205	200
300	850	606	697	232	260

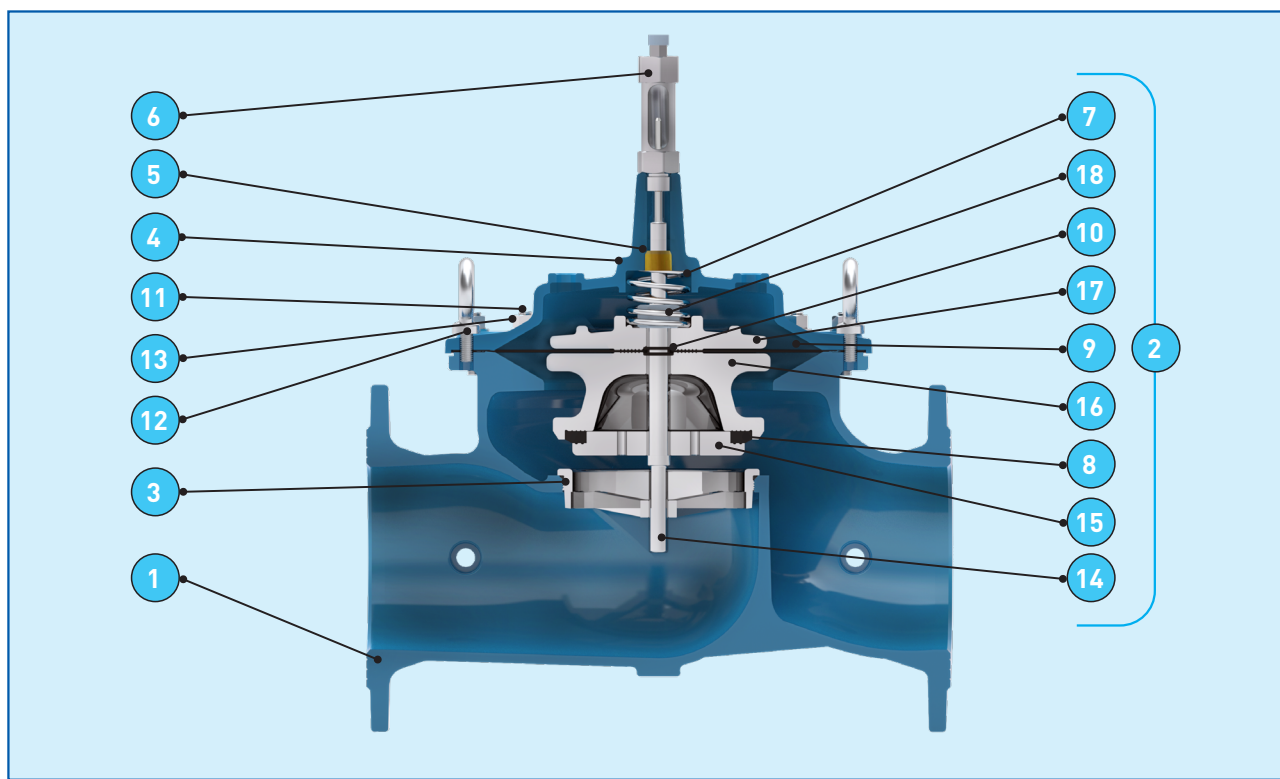
*Weight bare valve

NOMENCLATURE - HYDROBLOC PREMIUM: XGS [DN50-200MM] ET XG [DN50-150MM]



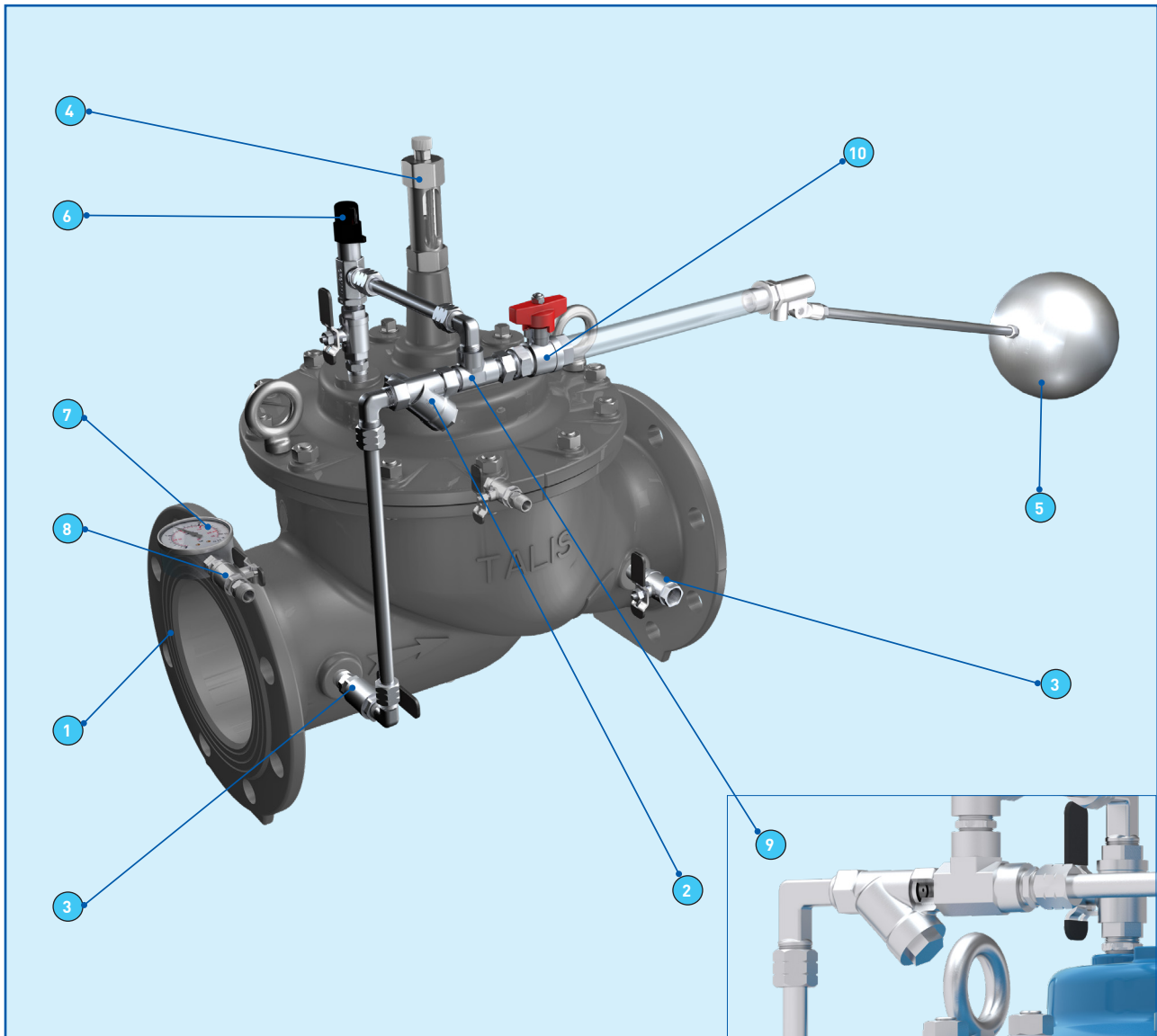
Part no.	Name	Type	Name	Number	Standard
1	BODY	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
2	MOBILE PARTS Nos. 14-15-16-8-17-18				
3	SEAT	STAINLESS-STEEL	GX5CrNiMo19-11-2	1.4408	EN 10213-4
4	BONNET	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
5	GUIDE	BRASS	CuZn21Si3P (CR)	CW724R	EN 12164
6	INDICATOR	STAINLESS STEEL	X5CrNiMo17-12-2 (AISI 316)	1.4401	EN 10088
7	SPRING	STAINLESS STEEL	X5CrNiMo17-12-2	1.4401	EN 10088
8	DISK	ELASTOMER	EPDM		ISO 1629
9	DIAPHRAGM	ELASTOMER	EPDM		ISO 1629
10	O-RINGS	ELASTOMER	EPDM		ISO 1629
11	STUD	STAINLESS STEEL	A2		ISO 3506
12	WASHER	STAINLESS STEEL	A2		ISO 3506
13	NUT	STAINLESS STEEL	A4		ISO 3506
14	SHAFT	STAINLESS STEEL	X5CrNiMo17-12-2 (AISI 316)	1.4401	EN 10088
15	DISK RETAINER	STAINLESS STEEL	GX5CrNiMo19-11-2 (CF8M)	1.4408	EN 10213-4
16	DISK HOLDER	STAINLESS STEEL	GX5CrNiMo19-11-2 (CF8M)	1.4408	EN 10213-4
17	DIAPHRAGM RETAINER	STAINLESS STEEL	GX5CrNiMo19-11-2 (CF8M)	1.4408	EN 10213-4
18	NUT	STAINLESS STEEL	A2		ISO 3506

NOMENCLATURE - HYDROBLOC PREMIUM: XGS[DN250-400MM] AND XG [DN200-300MM]



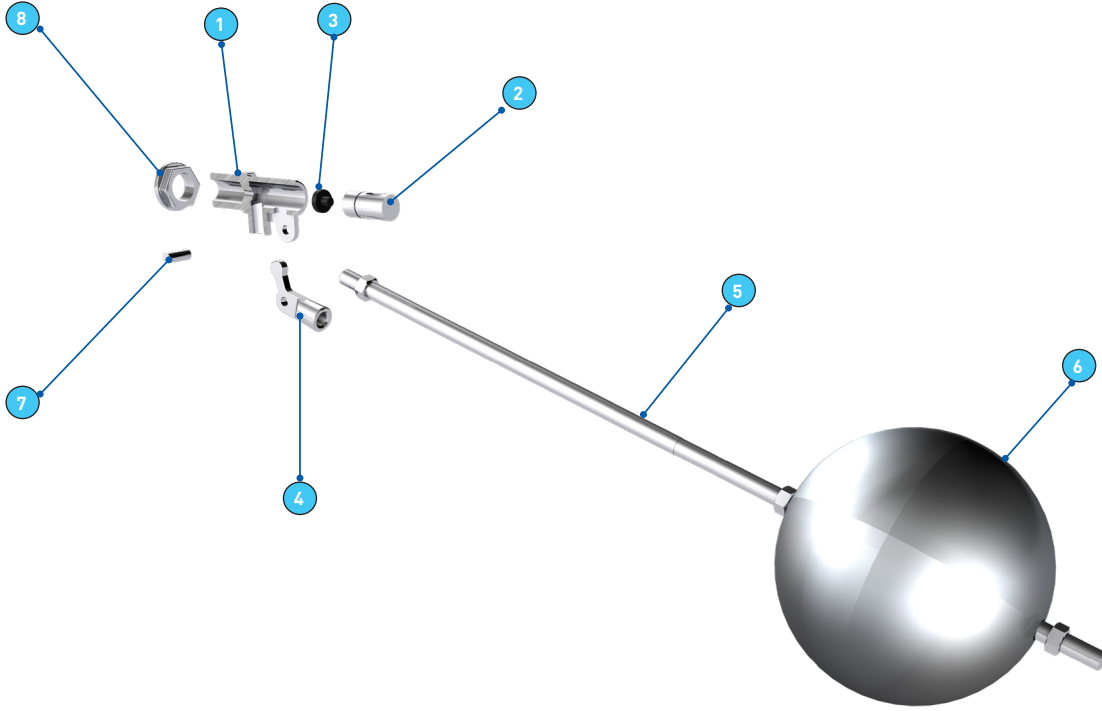
Part no.	Name	Type	Name	Number	Standard
1	BODY	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
2	MOBILE PARTS Nos. 14-15-16-8-17-18				
3	SEAT	STAINLESS STEEL	GX5CrNiMo19-11-2	1.4408	EN 10213-4
4	BONNET	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
5	GUIDE	BRASS	CuZn21Si3P (CR)	CW724R	EN 12164
6	INDICATOR	STAINLESS STEEL	X5CrNiMo17-12-2 (AISI 316)	1.4401	EN 10088
7	SPRING	STAINLESS STEEL	X5CrNiMo17-12-2	1.4401	EN 10088
8	DISK	ELASTOMER	EPDM		ISO 1629
9	DIAPHRAGM	ELASTOMER	EPDM		ISO 1629
10	O-RINGS	ELASTOMER	EPDM		ISO 1629
11	STUD	STAINLESS STEEL	A2		ISO 3506
12	WASHER	STAINLESS STEEL	A2		ISO 3506
13	NUT	STAINLESS STEEL	A4		ISO 3506
14	SHAFT	STAINLESS STEEL	X5CrNiMo17-12-2	1.4401	EN 10088
15	DISK RETAINER	STAINLESS STEEL	GX5CrNiMo19-11-2	1.4408	EN 10213-4
16	DISK HOLDER	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
17	DIAPHRAGM RETAINER	DUCTILE IRON	EN-GJS-500-7	5.3200	EN 1563
18	NUT	STAINLESS STEEL	A2		ISO 3506

PARTS LIST FOR THE VEGA 70P PILOT CIRCUIT



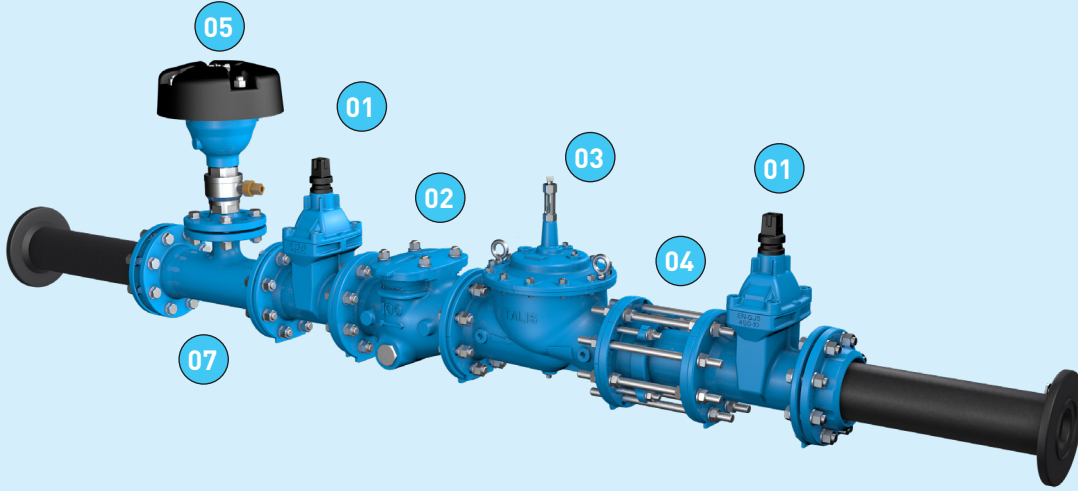
Part no.	Designation	N.B.	Materials
01	Base valve	1	See details on pages 15-16
02	Sieve filter G 3/8	1	STAINLESS STEEL 316 / 1.4401
03	Ballcock FF G 3/8	3	Copper alloy with nickel / actuator STAINLESS STEEL 316
04	Position indicator	1	STAINLESS STEEL 316 / 1.4401 + glass + EPDM
05	Vega pilot	1	See notice on page 18
06	Opening and closing retarder (OCR)	1	BODY STAINLESS STEEL 316 / 1.4401 + STAINLESS STEEL A1 + EPDM
07	Manometer	1	
08	Manometer shutter cock G 1/4	2	Copper alloy with nickel / actuator STAINLESS STEEL 316
09	Diaphragm	1	STAINLESS STEEL 316L / 1.4404
10	Downstream shut-off cock G 1/2	1	Copper alloy with nickel

NOMENCLATURE OF THE PILOT VEGA

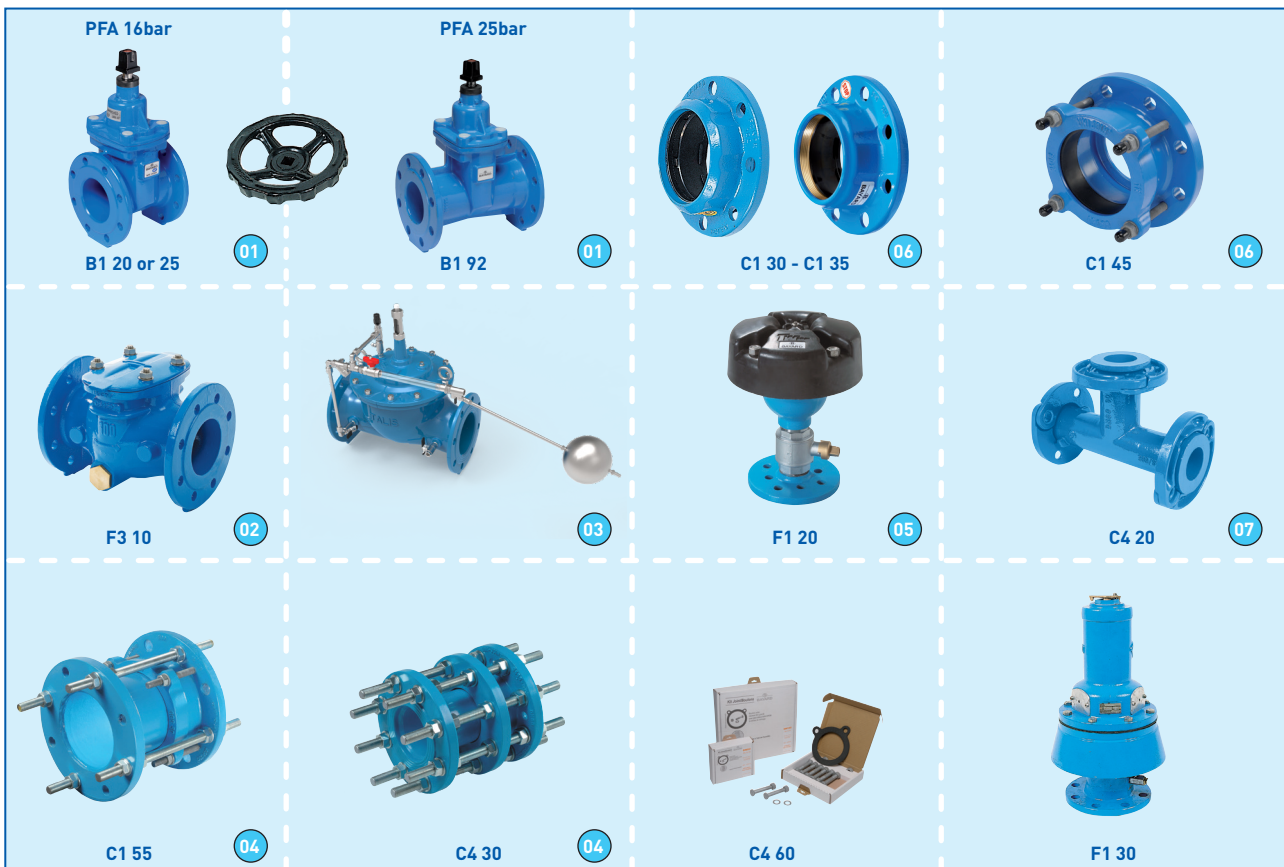


Part no.	Designation	N.B.	Materials
01	Threaded body G1/2	1	STAINLESS STEEL 304
02	Piston	1	STAINLESS STEEL 304
03	Clack valve	1	EPDM
04	Cam	1	STAINLESS STEEL 304
05	Lever	1	STAINLESS STEEL 304
06	Float	1	STAINLESS STEEL 304
07	Axis	1	STAINLESS STEEL 304
08	Securing lock nut	1	STAINLESS STEEL 304

INSTALLATION RECOMMENDATIONS:



The overall dimensions of the pilot circuit, depending on the DN, may be greater than those of the valve.





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