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Solutions for a green future

SERIE HYDROVAL

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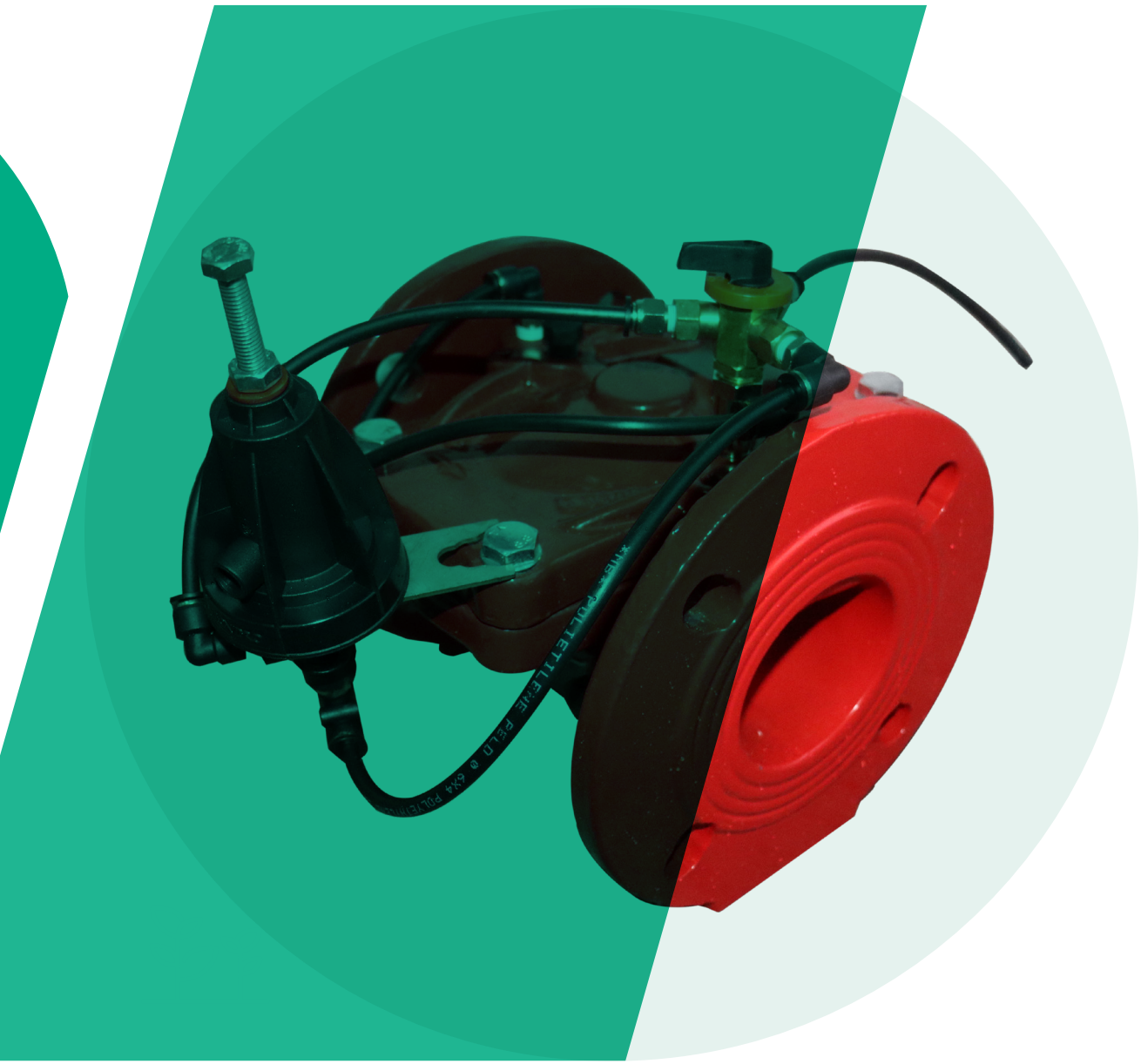

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Politejo
Solutions for
a green future

The best thermoplastic solutions for infrastructure networks

Politejo

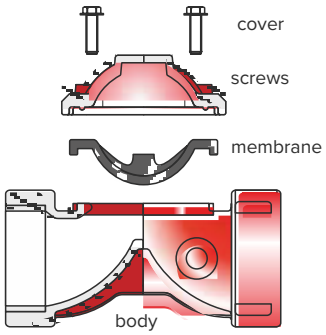
Politejo Group was founded in 1978, as an industry specialized in the manufacture of thermoplastic solutions and its main activity is the production of pipes and plastic accessories for the water supply, waste water, irrigation, electricity and telecommunications.

Our strategy is based on the constant innovation of products and services, with a skilled team, able to understand the needs associated with the various sectors and present highly reliable solutions, longevity that allow the conservation of water resources and the environment.

The success of Politejo Group is based on the profile of its employees, with a family-oriented management, due to the strategic location of its manufacturing units and their complete solutions.
This profile enabled a notable growth throughout the last 40 years, and currently Politejo Group is present in Angola, Brazil, Spain, Mozambique and Portugal, with a view to expandingto new locations.

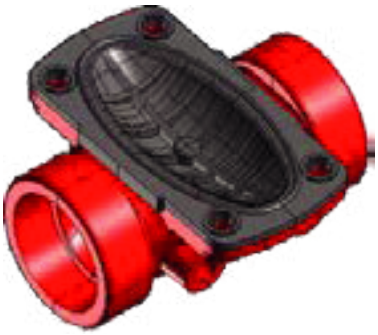
HYDROVAL VALVES

HYDROVAL® valves operate by means of a simple and efficient adjustment and closing system. The valve performs the opening and closing manoeuvre by means of the movement of a pre-shaped elastic membrane with an elliptical profile (international patent), hydraulically activated by the pressure of the water available in the pipes and actuated by means of pilot circuits for control and regulation.



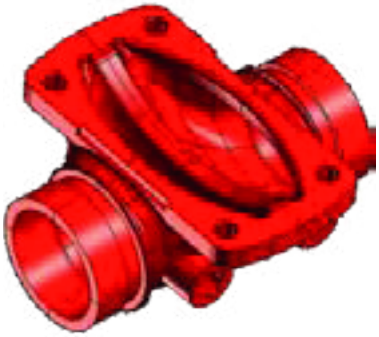
The diaphragm is the only moving component in the moving valve, ensuring a longer service life during its operation.

Compared to traditional circular shaped membranes, the elliptical section design reduces the deformations produced by the pressure imbalance that is generated when the valve is in the fully closed position. At the same time, the width of its cross section and the special profile of the body follow the flow to minimise pressure losses.

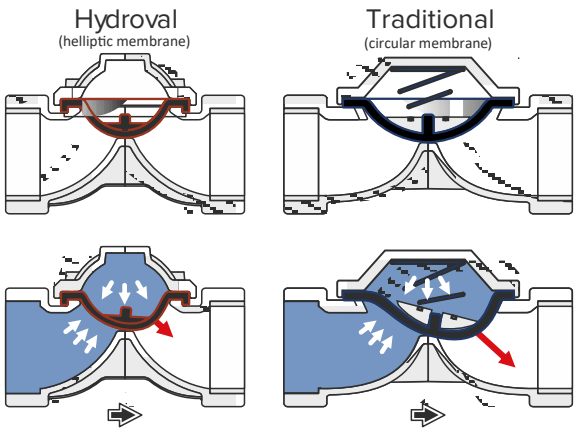


Reinforcing ribs extending over the internal surface of the diaphragm contribute to the initial closing phase, without the need for a return spring, which means less resistance to opening and allows the valve to operate with minimum full opening pressures of 0.5 bar.

The hydraulic control circuits are connected by means of pressure taps located on the upper part of the cover, with no need for connections to the valve body (international patent). This characteristic allows the diaphragm to be changed without having to dismantle the hydraulic circuit, simplifying and reducing considerably the time required for maintenance.



The membranes are marked with the manufacturing batch and characteristics (material and hardness) for their identification from the outside without having to dismantle the valve. Each valve model can be assembled with different types of diaphragms to optimise the efficiency of the valve according to the working conditions required by the hydraulic service conditions.



(Pressure tapping)

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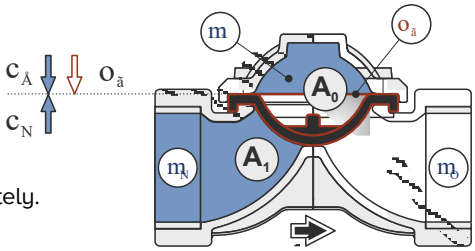
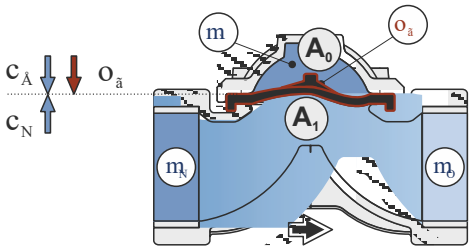
Operation

For the valve to function, it requires a hydraulic circuit to control the inlet and outlet of water to the chamber, maintaining or reducing the pressure PC in relation to the pressure available in the pipe P1. The pressure PC exerts force on the internal surface A0 of the membrane, resulting in a larger external surface A1 on which the pressure P1 acts. Thanks to the difference between the active surfaces, when the pressure of the water in the chamber (PC) equals or exceeds the value of the pressure upstream (P1), the valve closes the passage completely.



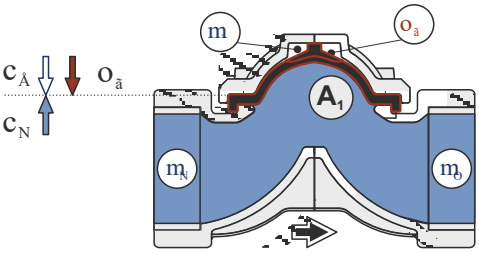
Valve closed | $P_1 = P_c$ | $P_2 = 0$ | $R_m = 0$ | $A_0 > A_1$
$F_1 = P_1 X A_1$ | $F_c = P_1 X A_0$ | $R_m = 0$ | $F_c > F_1$

The pressure in the chamber PC can be controlled by means of a regulating pilot valve, which determines an intermediate position of the diaphragm once the required hydraulic parameters have been set (pressure, flow rate or both). When the pressure in the chamber (PC) is equal to the average value of the pressure of the flow through the valve ([P1+P2]÷2), the diaphragm reaches hydraulic equilibrium and remains in the intermediate position with respect to its full travel.



Valve in adjustment | $P_1 > P_c > P_2$ | $R_m = 0$ | $A_0 = A_1$
$F_1 = (P_1 + P_2)/2 X A_1$ | $F_c = P_C X A_0 + R_m$ | $R_m > 0$
$F_c + R_m = F_1$

By isolating the supply circuit and placing the chamber at atmospheric pressure, the membrane rises and leaves the pitch fully open. When the pressure in the chamber (PC) is equal to zero, the force exerted by the upstream pressure (P1) manages to lift the membrane completely. In this position, the pressure at the valve outlet (P2) will be equal to the inlet pressure (P1) minus the head losses determined by the instantaneous flow rate. The stretched diaphragm accumulates useful energy to accompany the subsequent closing operation.



Valve open | $P_1 = P_2$ | $P_c = 0$ | $R_m > 0$ | $A_0 = 0$
$F_1 = P_1 X A_1$ | $F_c = 0$ | $R_m > 0$ | $F_1 - R_m > 0$

Main functions

HY - CM
Manually operated opening and closing valve. Available with relay for long distance hydraulic or pneumatic remote control.

HY - EL
3-way electrically operated opening and closing valve. Available with N.O.C. plastic or metal solenoids powered by 24v AC 50/60Hz or Latch type solenoids powered by 9v DC. Can be coupled with a relay for long distance remote pneumatic or hydraulic control.

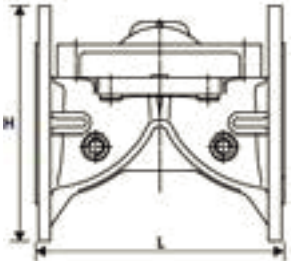
HY - RP
Pressure reducing valve with 3-way pilot. Available with plastic or metal pilot valves PN10/16, with a regulation range between 0.2 and 9.0 [bar]. Can be coupled with solenoid, hydraulic relay, hold pilot or flow limiter.

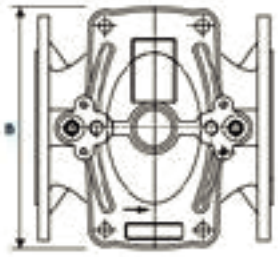
HY - SP
Pressure support valve with 3-way pilot. Available with plastic or metal pilot PN10/16, with a setting range between 0.2 and 9.0 [bar]. Can be combined with solenoid, hydraulic relay, pilot reducer or float switch.

HY - FL
Tank filling valve with modulating float valve. Available with max. level, differential action or PN10/16 level pilot. Can be combined with solenoid, lift pilot and flow restrictor.

Technical data

Diam.	Mod.	Thread	Flange	Dimensions and mass				Recommended flow rate	
				L (mm)	H (mm)	B (mm)	P (kg)	ON-OFF (m^3/h)	REG. (m^3/h)
2”	2”	X	-	190	100	140	3.45	40	80
3”	3”	X	-	250	140	220	8.35	70	155
	DN80	-	X	210	210	220	12.4	70	155
4”	DN100	-	X	220	225	300	16.4	110	270
6”	DN150	-	X	300	290	360	39.0	220	460
8”	DN200	-	X	325	345	365	45.2	225	465





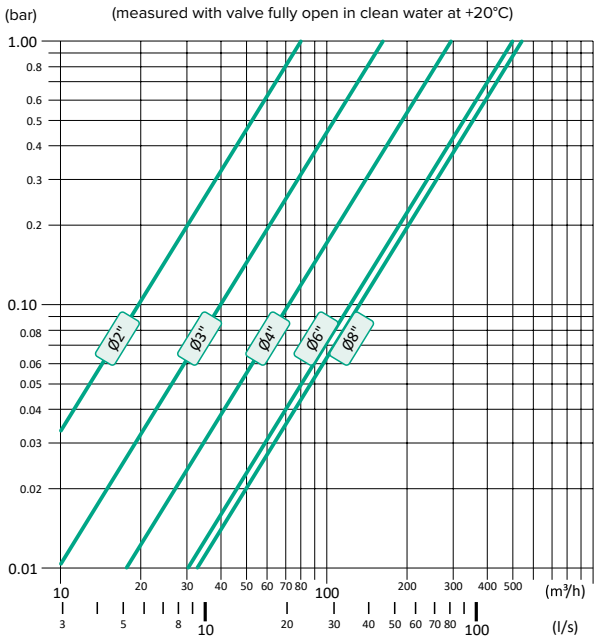
Materials

Location	Materials
Body and lid	ductile iron EN GJS 400
Coverage	internal/external, FBE (fusion bonded epoxy), 150 microns
Membrane	NR natural rubber, internal reinforcement in Nylon
screws	galvanized steel 8.8

Service limits

Pressure	Max/Min service	0.50/16.0 [bar] - 3.63/232.0 [psi]
	Hydraulic test	1,5 x PS (24.0 [bar] - 348 [psi])
Fluids	Type	Irrigation water
	Temperatures	+0.5°/+50°C +32.9/+122 °F
Connection	to the tube	Flange ISO PN16/ANSI #150 Thread BSP/NPT
	to the circuit	Ø1/4” / Ø1/2” H BSP

Load Losses



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Notes:

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geral@politejo.com