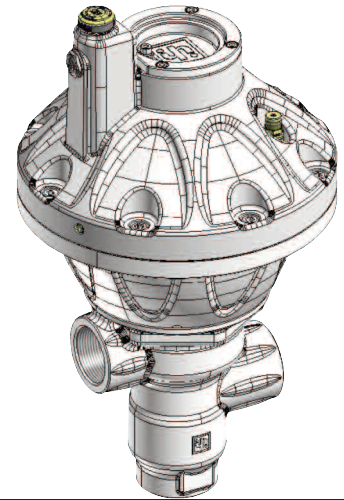




*Pneumatically-Operated Pressure Regulator*

**FEATURES**

- Available in 2 versions according to pressure and volume required.
- Allows remote control of the water pressure.
- Allows off-load start up.
- When there is no air pressure water flows through the by-pass without pressure.
- No discharge leakage in bypass.
- Suitable for controlling several units at the same time,

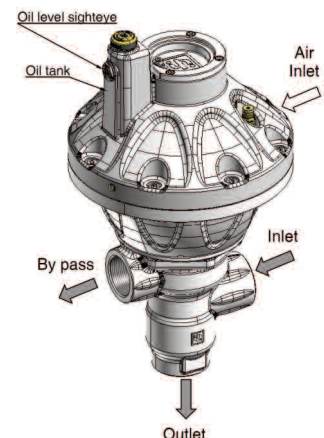
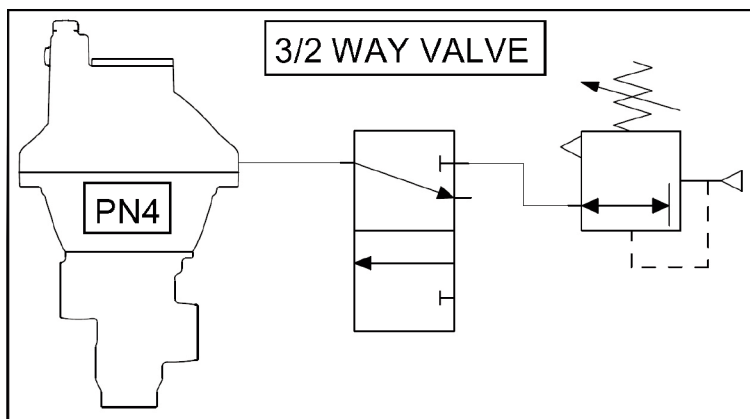


**SPECIFICATIONS**

Part Number	PN4-200	PN4-300
Maximum Volume	132 GPM	95 GPM
Maximum Pressure	2,900 PSI	4,300 PSI
Maximum Fluid Temperature	140°F	
Inlet Port Thread	1-1/2" BSP-F	
Discharge Port Thread	1-1/2" BSP-F	
Bypass Port	1-1/2" BSP-F	
Air Inlet Port	1/4" BSP-F	
Maximum Air Pressure	101 PSI	
Air Consumption	28 n/liter/min	
Oil Capacity - oz / (liters)	8.5 / (.25) Hydraulic	
Weight	35.3 lbs	
Materials	Upper Body	Aluminum Alloy
	Lower Body	SPF600 Cast Iron
	Valve and Valve Seat	Stellite® Coated AISI 420 SS

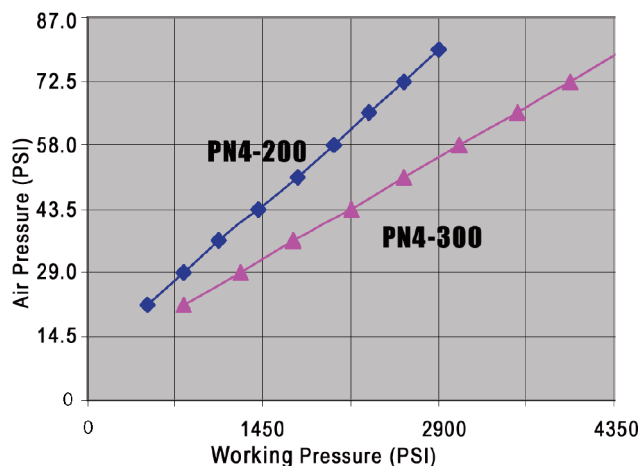
Specifications are subject to change without notice.

**INSTALLATION DIAGRAMS**



General Pump  
is a member of  
the Interpump Group





## OPERATION

The pressure regulator is a manually adjustable, pressure operated pneumatic control device. According to its setting, this device limits the pump/system pressure by conveying the excess of water to the by-pass. Moreover, when the outlet flow is blocked, it totally releases the flow, thus keeping the pump/system at the adjusted pressure.

The pneumatic control of the valve allows to change the hydraulic working pressure by changing the air pressure. The two pressures are proportional i.e. when increasing the pneumatic pressure the hydraulic pressure increases and when reducing the pneumatic pressure the hydraulic pressure decreases. (See table, left.)

The pneumatic control of the valve allows to cut in or to cut out the adjusted hydraulic pressure. This function is particularly suited for automatic working cycles and remote controls. When the hydraulic pressure is cut out, the pump starts at zero pressure, i.e. without the motor being under stress.

In order to operate the pneumatic control of the valve it is necessary to use compressed air with a value depending on the desired hydraulic pressure. In order to correctly operate the pneumatic control we suggest you use a 3/2 way valve and a pressure regulator as shown in the diagram on page one.

Since the valve is used in connection with a high pressure water pump/system, which shall hereafter be called only "system", installation and use must be suited to the type of system used and comply with the safety regulations in force where the valve is used.

Before installing and using the valve for the first time, we suggest you check that it is undamaged and make sure that the rated features correspond to the requirements.

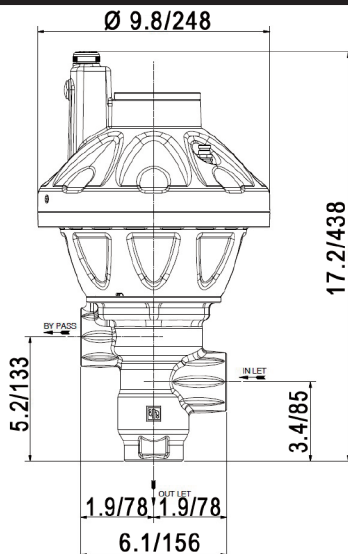
## INSTRUCTIONS FOR PRESSURE SETTING

In order to obtain a correct adjustment and consequently a proper functioning of the valve, always make sure that when working at the maximum pressure the valve by-pass keeps releasing a quantity of water equal to 5% of the total flow rate. In case the flow rate at the by-pass is close to zero or exceeds 15% of the maximum flow rate, this could cause faults, early wear and result in situations of danger.

Connect the valve to the water system and to the pneumatic circuit and set it upright (for other positions please contact our Customer Service Department), then follow these steps:

1. Open the pneumatic pressure regulator completely in order to control the valve.
2. Start the hydraulic system on which the valve is fitted and make sure that the air contained in it is fully ejected.
3. Open the gun or the water control device. Start the pneumatic circuit and begin adjusting the air pressure within the valve by using the pneumatic pressure regulator. Alternate the adjusting operations with a few openings and closings of the gun or the control device. When the desired hydraulic pressure has been reached, open and close the gun/control device a few times again in order to stabilize the various components (seals, springs, etc.). Check the pressure value again and correct if necessary.
4. In case you decide to change the adjusted hydraulic pressure later, follow the procedure stated in #3 again.
5. The upper body position #18 is equipped with a safety valve (pos. 55) in order to limit the pneumatic pressure within the valve and with a permanently open breather nozzle (pos. 20) in order to regulate the functioning (air consumption). The installer must adjust the safety valve so that it opens when the pneumatic pressure is approx. 10% higher than the pneumatic pressure necessary to obtain the maximum desired hydraulic pressure.

## DIMENSIONS



## MAINTENANCE AND WARNINGS

**IMPORTANT:** During use, never exceed the maximum values of pressure (water and air), flow rate and temperature as stated in this document and/or indicated on the valve.

The installation and setting of the maximum pressure must be made by qualified staff only, who must have the required skills to handle high pressure systems and be informed of the operating and safety instructions contained in this document.

Use soft and filtered water only. In case of salt water and/or of water containing solid particles of a size exceeding 360µm, the internal components of the valve will be subject to quick wear; furthermore, this might compromise the correct functioning of the valve. Addition agents can be used in the water, provided they are delicate, biodegradable and always complying with laws.

In systems for hot water production, the temperature of the liquid that comes into contact with the valve must always be lower than the value state in this instruction manual and or indicated on the valve itself. **Avoid the formation of steam or overheated water.** IMPORTANT: When the temperature of the liquid is close to the maximum value, the outside temperature of the valve body is only slightly less. Therefore, take care in case of contact with the hot surfaces.

After use and/or before performing any operation on the system or valve, release the pressure by using the adjustment knob/screw and opening the gun or the control device for a few seconds. The jet created by the residual pressure must be directed downward in order to avoid damages or danger.

For safety reasons, it is advisable to equip the high pressure feeding line of the system also with a relief or safety valve.

To connect the valve to the system it is preferable to use flexible hoses fitted in a way that they do not form 90° elbows, throttlings or siphons which could include harmful air bubbles. The inside diameters of the hoses and fittings must be equal to the correspondent inside diameters of the inlet, by-pass and outlet threads of the valve. Moreover, it is necessary to correctly choose the type of hose depending on the rated pressure and flow rate; the hoses must always be used within their operation limits as stated by the manufacturer and indicated on the hoses themselves.

Tighten the 1-1/2" inlet, outlet and bypass fittings of the valve (398 ft. lbs/540 Nm ±5%). In order to ensure the seal, fit a metal washer with a rubber ring between the fittings, or use a proper sealant on the threads. **WARNING:** Use parallel threads only (not tapered threads). The threads must comply with the working pressures and the rated torque wrench settings with reference to their material and shape.

Always connect the valve bypass fitting to a hose, in order to avoid the excessive noise caused by the water overflow through the bypass without hose.

Before operating the system it is advisable to start it for a preliminary test run in order to be certain the system is properly installed.

**WARNING:** If the valve is used at a low temperature involving the risk of frost, make sure that there is no ice formation inside and/or that the valve is not blocked.

## MAINTENANCE

Before maintenance and/or repair, make sure that the valve and the system are shut down and made unusable. Proper maintenance helps extend the working life and allows for better performance of the valve.

From time to time check the oil sight glass pos. 4 to verify the oil level. If necessary, add oil by the cap. pos. 1 up to the middle of the sight glass.

From time to time it is necessary to check that the valve is clean outside, and that there is no sign of oil or water leakage and/or malfunctioning. If necessary replace the involved parts.

Replace the valve parts with original spare parts only. Use only oil as recommended below:

The valve contains approx. 8-1/2 ounces ( .25 litres) of high viscosity hydraulic oil (cST 40° C=44.2) containing addition agents used to grant higher performances, with an excellent level of protection against wear and high oxidation and corrosion strength. It is possible to use other oils having similar features provided that they are VG 46 DIN 51519 ISO quality (or with 15W-20 SAE degree).

**Warranty is voided in case the valve is used for improper purposes, used at higher performances than the rated ones, repaired with non-original spare parts or if it turns out to be damaged due to the non-compliance with the operating instructions or to unauthorized tampering.**

# PARTS LIST

Pos	Part Number	Description	Qty
<b>KIT F0303 Repair Kit</b>			<b>1</b>
1	F99153700	Screw, TCEI M5x12	10
2	F96687500	Washer, Ø 5x9x1.5 AL., Kit F0303	4
3	F36015122	Cover	4
4	F99367100	Screw, TCEI M10x25	1
5	F90446000	O-ring, Ø56.52x5.34, Kit F0303	1
6	F36015062	Piston	1
7	F36014655	Valve Seat Piston, Kit F0303	1
8	F36014555	Valve Plate, Kit F0303	1
9	F94730750	Spring, Ø .4x11, Kit F0303	1
10	F36016555	Spring Guide	1
11	F96692000	Washer, Ø 5.5x20x1.5	4
12	F90386100	O-ring, Ø 26.65x2.62, Kit F0303	2
13	F90403500	O-ring, Ø 15.47x3.53, Kit F0303	2
14	F36016460	Guide Bushing	1
15	F98210400	Vented Plug	1
16	F36016600	Nozzle Oil Tank	1
17	F97593000	Oil Dipstick	1
18	F36015222	Upper Body	1
19	F99308400	Screw, TCEI Ø 8x30	8
20	F98642000	Jet, Ø .40	1
21	F36349371	Closing Plug	1
22	F90407700	O-ring, Ø 44.45x3.53, Kit F0303	1
23	F94746000	Spring, Ø .69x80	1
24	F99372000	Screw, TCEI M10x45	6
25	F36015322	Lower Body	1
26	F92222300	Nut, M8-8	8
27	F90445000	O-ring, Ø 43.82x5.34, Kit F0303	1
28	F36015756	Jacket	1
29	F90398000	O-ring, Ø 59x3, Kit F0303	1
30	F36015805	Intermediate Ring	1
31	F36015956	Valve Seat, PN4-200	1
	F36016056	Valve Seat, PN4-300	1
32	F90523000	Spiralback Ring, 40.8x46x1.5, Kit F0303	1
33	F90397300	O-ring, Ø 40x3, Kit F0303	1
34	F97675000	Spiral Pin	1
35	F36015405	Valve Body, LP	1
36	F98274150	Plate, PN4-200	1
	F98274250	Plate, PN40300	1
37	F92237400	Nut, M10	1
38	F96712100	Washer, Ø 10.5x21x2	2
39	F96729500	Washer, Ø 14x38x4, INOX	2
40	F36014882	Closing Plate, Kit F0303	1
41	F36016256	Primary Control Rod	1
42	F36014907	Valve Tab	1
43	F90382500	O-ring, Ø 10.78x2.62, Kit F0303	1
44	F90520400	Spiralback Ring, 38x11.26x1.3, Kit F0303	2
45	F90406500	O-ring, Ø 37.69x3.53, Kit F0303	1
46	F36016370	Piston	1
47	F92202100	Nut, M6	6
48	F96735800	Washer, Ø 16.2x80x4	1
49	F36014022	Membrane Support	1
50	F36014148	Membrane	1
51	F36013976	Membrane Plate	1
52	F99185200	Screw, M6x16	6
53	F90384700	O-ring, Ø20.24x2.62, Kit F0303	1
54	F36015656	Control Rod	1
55	F98872000	Safety Valve	1
56	F98643000	Jet, Ø 0.70	1
57	F90412500	O-ring, Ø 71.44x3.53, Kit F0303	1
58	F97666200	Spiral Pin	2

