



ABN 71098869160

HPE PRODUCT INFORMATION

PRODUCT PART NUMBER: WAS/WAT

DESCRIPTION: PRESSURE REGULATORS



PURPOSE

The Pressure Regulator reduces the upstream pressure to a preset value downstream. The valve modulates to keep the downstream constant despite variations in flow rate and upstream pressure.

DESCRIPTION

The Pressure Regulator is controlled by a pilot regulator normally mounted on the top of the valve.

The design allows for rapid closure to prevent overpressure when the flow through the valve drops suddenly. The valve opens slowly in response to low downstream pressure.

The supply pressure must be higher than the desired pressure to allow for internal losses in the valve.

The wear parts are the same as are used in the HPE range of high-pressure water control valves that proved superior durability.

To avoid cavitation the pressure ratio over the valve must be considered.

FEATURES

- The main valve poppet and seat is of our proven labyrinth grooved type that has proven to be best in “wire drawing” erosion, cavitations and dirt resistance.
- Downstream pressure can be regulated up to 18 MPa but it is normally made to regulate in the range between 1.0 and 3.0 MPa in narrow limits to the set pressure.
- Robust poppet in sleeve design ensure good guiding and support of the moving parts and long life despite the substantial forces due to the high pressures involved.
- The internal parts are all of corrosion resistant materials.
- The seals are proven to be the best design that stands up to dynamic water cylinder sealing.
- Maintenance can be done in-line requiring access from one side only.
- Internal damping controls surging in very large systems with adjustable orifice rate control.

OPERATION

The upstream pressure is communicated to the control chamber above the poppet via an orifice. (This orifice consists of a hole through the poppet with a threaded pin through the hole. This orifice is non-clogging and is very resistant to erosion.) The pressure in the control chamber is determined by the pilot valve which either opens or closes depending on the downstream pressure and the spring setting in the pilot.

If the downstream pressure is too low, then the main valve poppet is too close to the seat, and is causing an excessive pressure drop. To open the valve, the main valve poppet has to rise. For this to happen water has to be bled from the control chamber faster than it is fed into the control chamber. The pilot poppet must therefore move further away from its seat. This will occur because the downstream pressure is lower than the spring force.

If the downstream pressure is too high, then the main valve poppet is too far from the seat, and is causing too little pressure drop over the main valve. To close the valve, the main valve poppet has to move downwards. For this to happen water has to be fed into the control chamber faster than it is bled from the control chamber. The pilot poppet must therefore move closer to its seat. This will occur because the downstream pressure is higher than the spring force.

The pilot valve incorporates a relief valve that will discharge if the downstream pressure is above the set point.

TECHNICAL SPECIFICATIONS

The valve is designed to ANSI B16.34.

The valve body is rated to 25 MPa (ANSI Class 1500), but the valve pressure rating is limited by the flanges fitted.

For fatigue life up to 10 million cycles, the valve body pressure rating is reduced to 14 MPa.

Valve size (NB in mm)	50	80	100	150	200	250	300
Minimum Pressure (MPa)	2,5	2,5	2,5	2,5	2,5	3	5
Minimum differential pressure for control (l/s)	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Minimum flow at which valve will control (l/s)	1,0	1.5	1.5	2.0	2.0	2.5	3.0
Working flow (l/s)--Note 1	15	35	60	100	150	220	255
Face-to-face HPE hubs (mm)	245	365	430	510	690	880	1100

Note 1—This flow is the recommended design flow rate for general reticulation. Higher flow rates higher than those above are possible, but careful consideration must be made to avoid cavitation. Consult HPE. HPE reserves the right to change these specifications without notice in the interest of improving its products.

Materials of construction

Valve body	Cast steel--ASTM A216 grade WCC
Flanges	Wrought carbon steel--AISI A105 or as specified
Hubs	As per body
Seals	Ultra-high molecular weight polyethylene polymer
O-rings	Nitrile—70 Shore hardness
Spindle guides	Bronze--ASTM B505C83600
Guide pin etc	AISI 304
Seats & poppets	AISI 431 hardened & ground

Corrosion protection & finishes

Externally painted	Standard
Alternative coatings	Available to suit customer requirements