ALPINE ACV SERIES

Alpine Pressure Sustaining / Relief Control Valve IOM Manual

Relief/Sustaining Pilot P500

Installation, Operating and Maintenance Manual – BT116 Sustaining / Relief Valve

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Ultra/Alpine Series

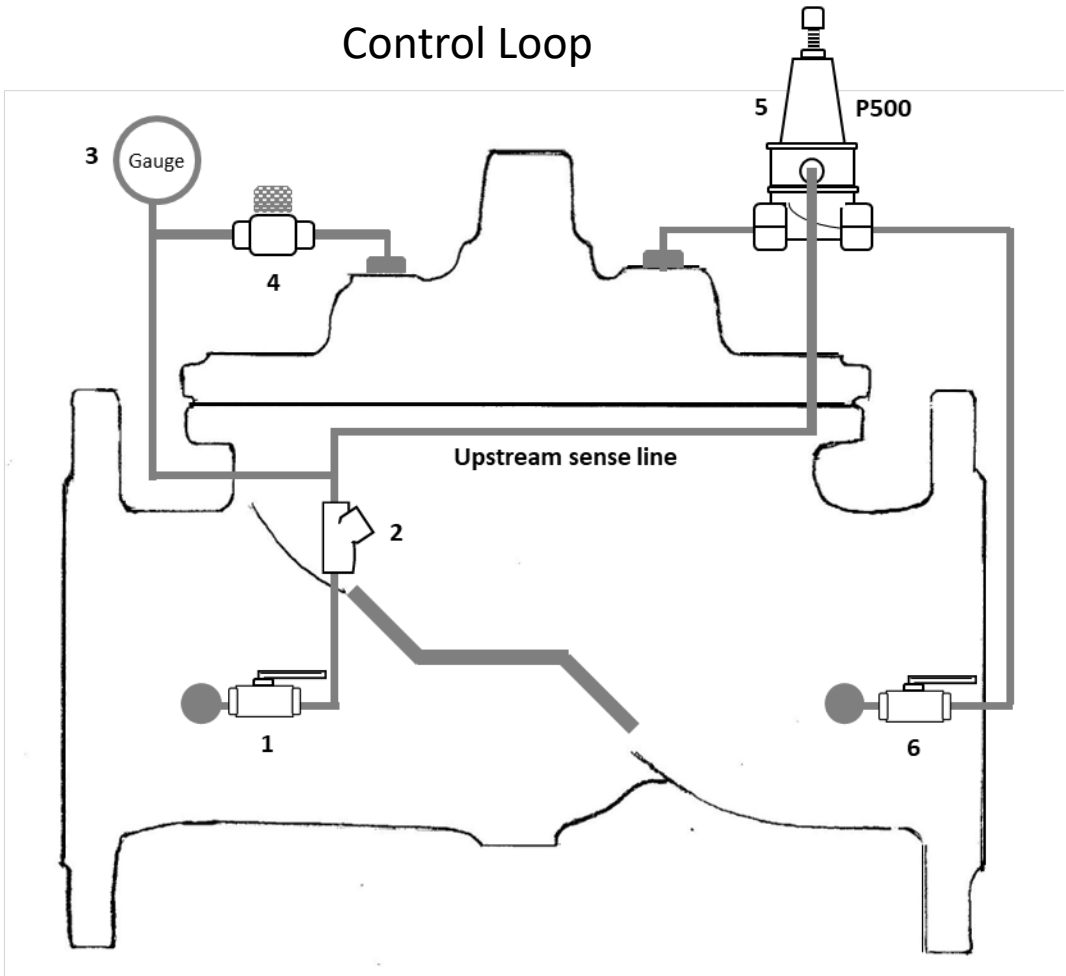
BT116 Sustaining/ Relief valve

LEGEND

1 Upstream Ball valve
2 Y-Strainer
3 Upstream Gauge
4 Flow controller
5 Pressure Relief Pilot P500
6 Downstream Ball valve

Note U.C.V. may have an added feature of a bonnet ball valve which when in the closed position freezes the valve in its set position. Enabling work to be done on the control loop without closing the pipe line. <u>This must remain open during normal operations</u>

Control Loop



FUNCTION : Refer to drawing No 1

This valve has two separate functions depending where it is installed in the main pipeline

a) If it is installed in an offshoot of the mainline into a storage tank or open – ended. The BT116 is used to relieve excess mainline pressure - as a pressure relief valve
b) If it installed in the mainline itself. The BT116 is used to the maintain upstream pressure at a set pressure - as a pressure sustaining valve

CONSIDERATIONS :

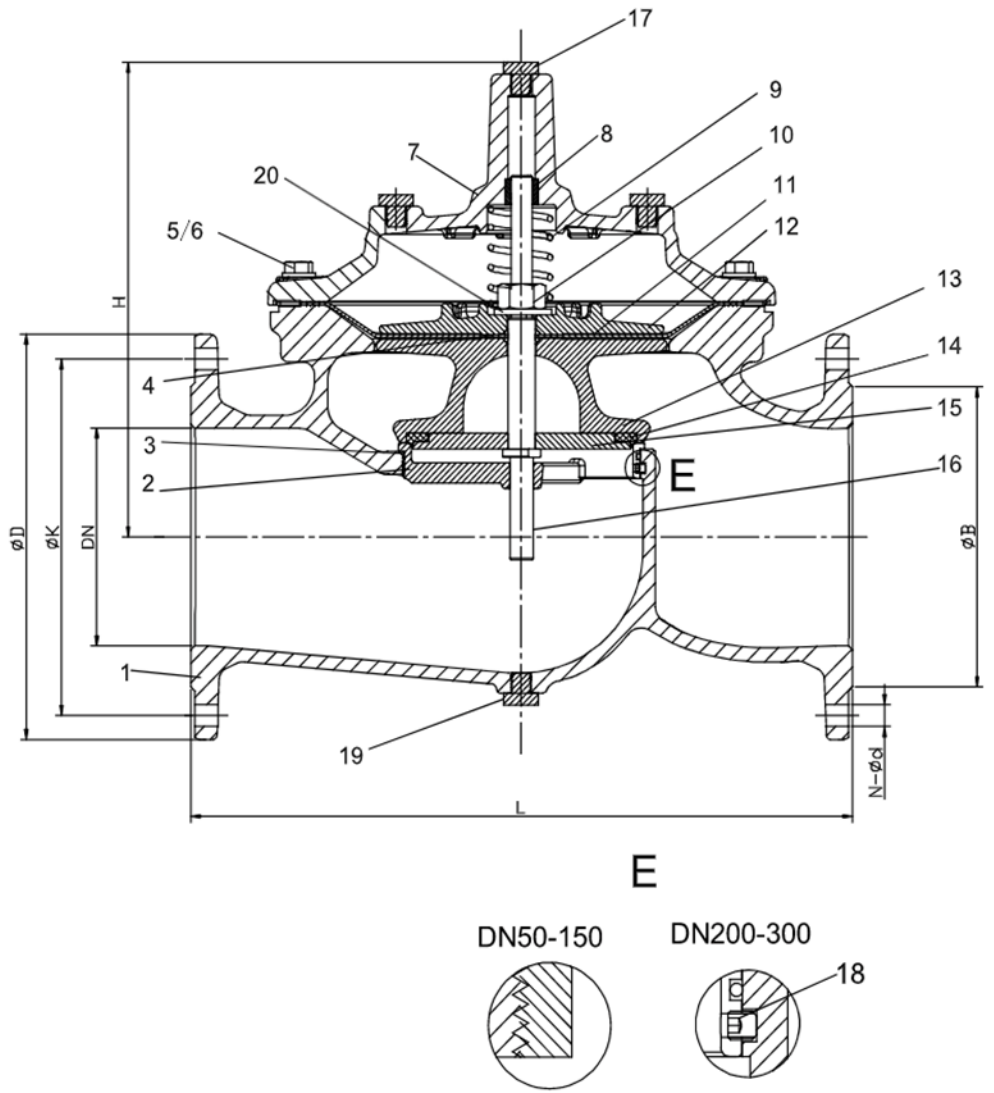
* If the BT116 is used as a Relief valve, the outlet should be outside the valve chamber to avoid flooding or into a storage tank
- If the BT116 is used as a Relief valve, The pressure setting should be above the dynamic head pressure i.e. with the pumps running

COMMISSIONING :

- Close the mainline upstream and downstream isolating valves on either side of the control valve
- Set the Flow controller (No 4) to the halfway position (Clockwise closing)
- Make sure the upstream ball valve (No1) is in the open position
- Close the downstream ball valve (No 6)
- Slowly open the mainline upstream isolating valve
- Bleed off all the accumulated air trapped inside the bonnet by loosening one of the gland nuts at the highest point on the valve
- Open the downstream mainline isolating valve. The valve should remain in the closed position
- **RELIEF SETTING** Turn the adjustment screw of the P500 relief pilot (No 5) all the way in (clockwise)
- Open the downstream ball valve (No 6) The valve should remain closed
- If the line has pumps start the pumps
- Slowly turn the P500 adjustment screw out (anti-Clockwise) until the valve starts opening, then turn the P500 adjustment screw back in one full turn. The valve is now set
- **SUSTAINING SETTING** Turn the P500 (No 5) adjustment screw all the way out (anti-clockwise)
- Slowly open the downstream ball valve(No 6). The valve should open
- While monitoring the Upstream Pressure gauge turn the P500 Pilot adjustment screw in (Clockwise) keep turning it in until the sustaining upstream pressure is achieved

NOTE : Ball valve operation……. Closing the Upstream ball valve No1 will open the main valve
Closing the downstream ball valve No 6 will close the main valve

Drawing No 2



PARTS LIST - SPECIFICATIONS

No	Description	Material	Standard
1	Body	Ductile Iron	GJS 500 – 7
2	Seat	Stainless Steel	AISI 304 / 316
3	O-ring	Rubber	NBR
4	O-ring	Rubber	NBR
5	Bolt	Stainless Steel	A2 / A4
6	Washer	Stainless Steel	A2 / A4
7	Bonnet	Ductile Iron	GJS 500 – 7
8	Bush	Bronze	C61900
9	Spring	Stainless Steel	AISI 304 / 316
10	Caulking Nut	Stainless Steel	A4
11	Diaphragm	Nylon Reinforced Rubber	EPDM + Nylon Fabric
12	Fixing Holder	Ductile Iron	GJS 500 – 7
13	Disc Holder	Ductile Iron	GJS 500 – 7
14	Seal	Rubber	EPDM
15	Seal Retainer	Stainless Steel	AISI 304 / 316
16	Stem	Stainless Steel	AISI 304 / 316
17	Plug	Stainless Steel	AISI 304 / 316
18	Screw	Stainless Steel	A2 / A4
19	Plug	Stainless Steel	A2 / A4
20	Washer	Stainless Steel	A2 / A4

MAINTENANCE (Refer Drawing No 2)

The Ultra Sustaining Relief needs periodic maintenance of 1 – 2 years depending on the severity of operating conditions
N.B. Make sure there is no pressure In or directly upstream of the valve - Use the mainline isolating valves to ensure personnel safety

- Check the tightness of the Control Loop fittings
- Check the flanges for leaks
- Remove the bonnet and check the diaphragm (11) for Rips or damage
- Lift the diaphragm assembly out
- Check the O Rings (3 & 4) and seal (14)
- Check the Disc Holder (13) for cavitation wear

TROUBLE SHOOTING GUIDE

Valve refuses to open

- Stem Jammed or blockage on top of stem
- Blockage on the downstream Control Loop
- Leak on the upstream Control Loop
- Diaphragm torn
- Downstream ball valve closed
- Relief Pilot blocked or damaged
- Low upstream pressure

Valve Refuses to close

* Debris underneath the stem
- Blockage on the upstream Control Loop
- Leak on the downstream Control Loop
- Torn Diaphragm
- Upstream ball valve closed