ALPINE ACV SERIES

Alpine Solenoid Control Valve IOM Manual

Installation, Operating and Maintenance Manual – BT113-6 Solenoid Controlled Valve

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Ultra / Alpine Series

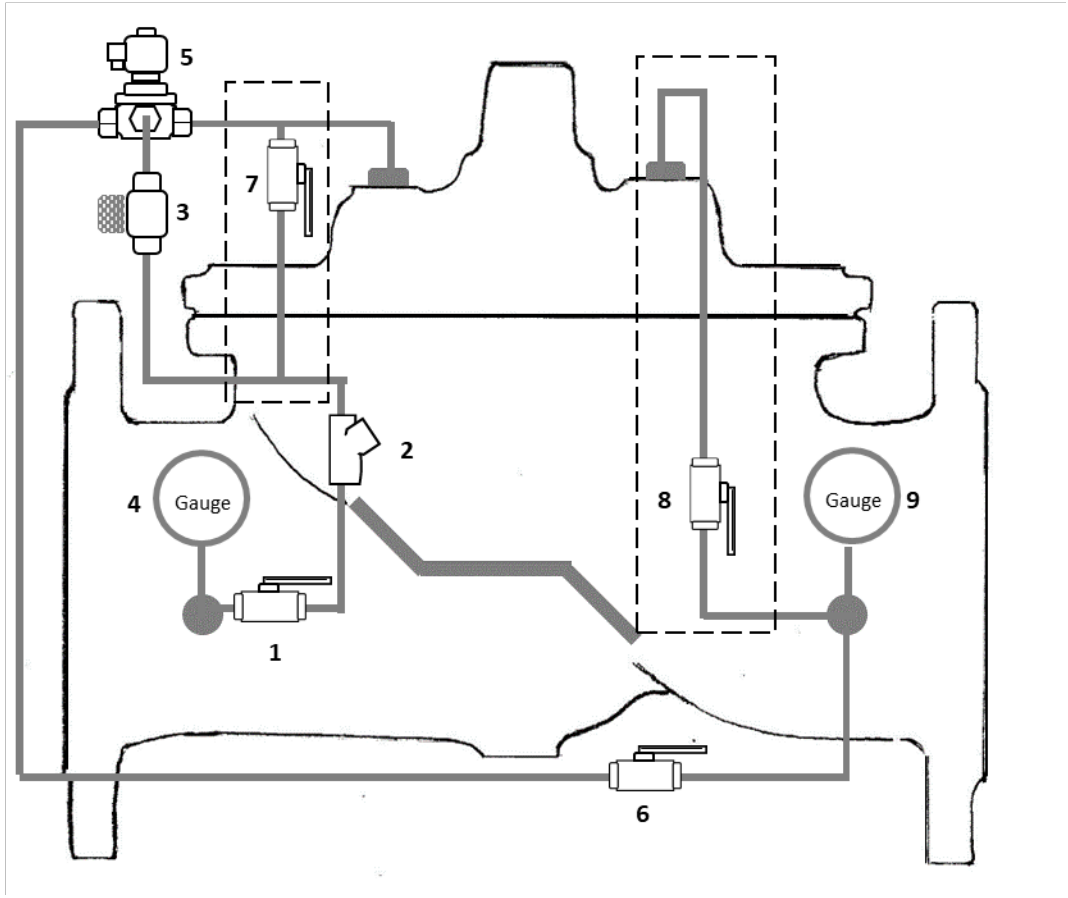
BT113 Solenoid Controlled Valve

LEGEND

1 Upstream Ball valve
2 Y – Strainer
3 Flow Controller
4 Upstream Pressure Gauge
5 3 Way Solenoid valve
6 Downstream Ball valve
7 Upstream Manual override.....Optional
8 Downstream manual override....Optional
9 Downstream pressure gauge

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:

Operated by a 3 way solenoid, they main valve opens fully or closes drip – tight depending on the actuation position of the solenoid.
Either energized to open or energized to close. The valve may be remotely operated by Timers, Relays, Probes, or Analog signals

CONSIDERATIONS:

- The valve can either be energized to open/close. This must be specified when ordering the valve
- The coil of the solenoid valve can be 24V AC…..24V DC……110V AC/DC…….220V AC ……..380A AC. This should also be specified when ordering the valve
  NOTE: 220 AC can be dangerous to personnel working on the valve around water.

* Due to local (Load – Shedding) problems Ultra Control Valves have added manual override systems to our electronically controlled valves

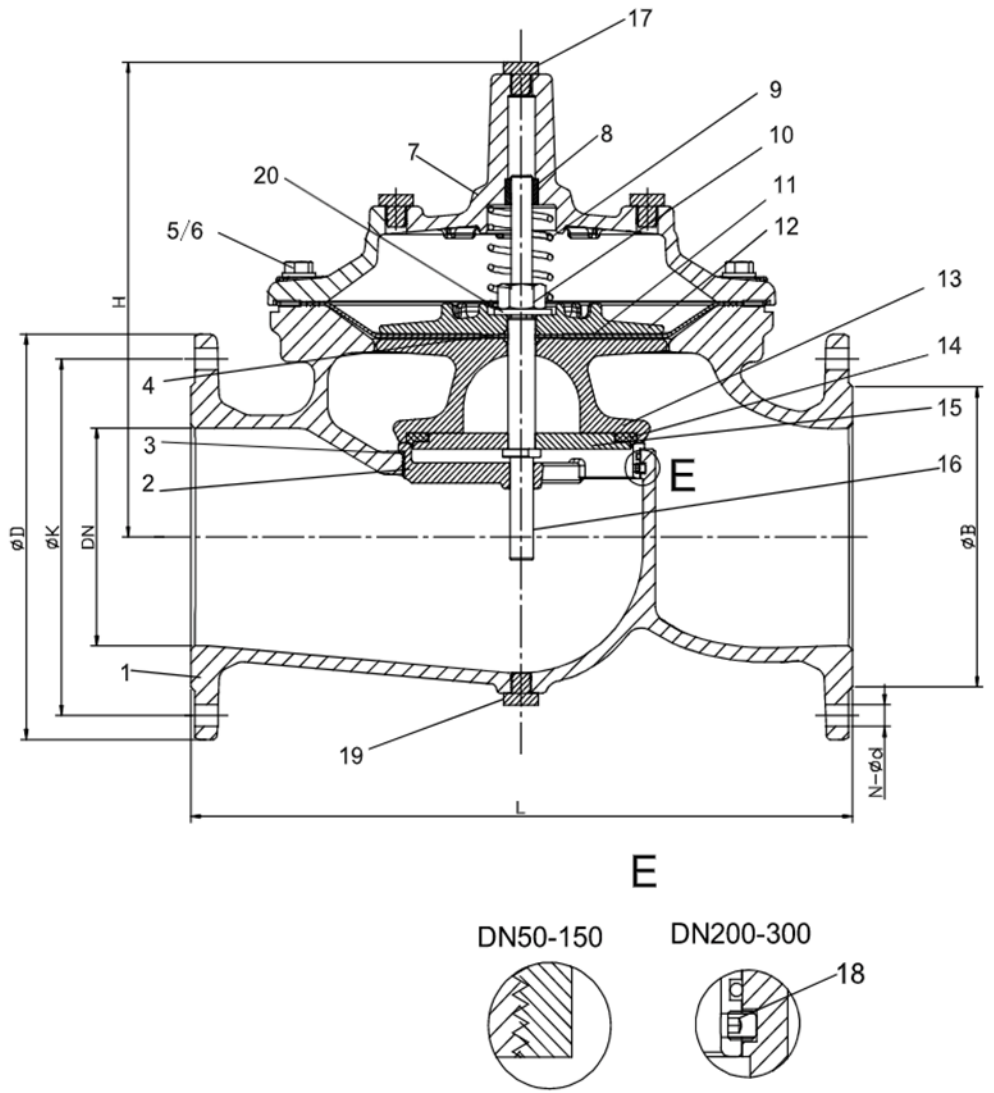
COMMISSIONING: Refer to drawing No 1 (NC solenoid energized to open)

* Close the mainline upstream & downstream isolating valves

- Set the flow controller (3) to the halfway position
- Open the upstream ball valve (No 1) and the Upstream manual override ball valve (No 7)
- Close the downstream ball valve (No 6) and the downstream manual override ball valve (No 8)
- The valve is now in manual override (Closed position)
- Slowly open the upstream mainline isolating valve and allow the valve to fill with water
- Bleed off all accumulated air trapped inside the valve bonnet by loosening one of gland nuts at the highest point on the valve
- Apply power to the solenoid coil to test if it is in working order (A load click should be heard). Remove power.
- Open the downstream mainline isolating valve
- Close ball valves 7 & 8
- Open ball valves 1 & 6
- The valve is now under solenoid control
- The valve should now be in the closed position
- Apply power to the solenoid. The valve should open
- Remove power to the solenoid. The valve should close

- To manually override the solenoid in the valve open position…….. Open the manual override ball valve (No 8)

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 Solenoid controlled valve needs periodic maintenance of six months:
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
- Check the coil of the solenoid valve
- 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
- Solenoid pilot 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