300 Series

Automatic Hydraulic Control Valves

BC

PUMP CONTROL VALVE

30D-6-BC

DOROT model "BC" is an automatic, solenoid controlled valve, activated by the pressure of the pipeline.

The valve is installed on the pump discharge. It opens slowly on start-up of the pump, until it is fully open, and gradually closes prior to the pump shut-off, preventing pressure surges caused by a rapid change of water velocity in the discharge pipe.

Both opening and closing speeds are adjustable.

A limit switch, assembled on the main valve bonnet, is connected to the pump control panel and switches off the pump motor when the valve is completely closed.

In case of a power or pump failure, the valve instantly closes, performing as a fast-reacting check valve.

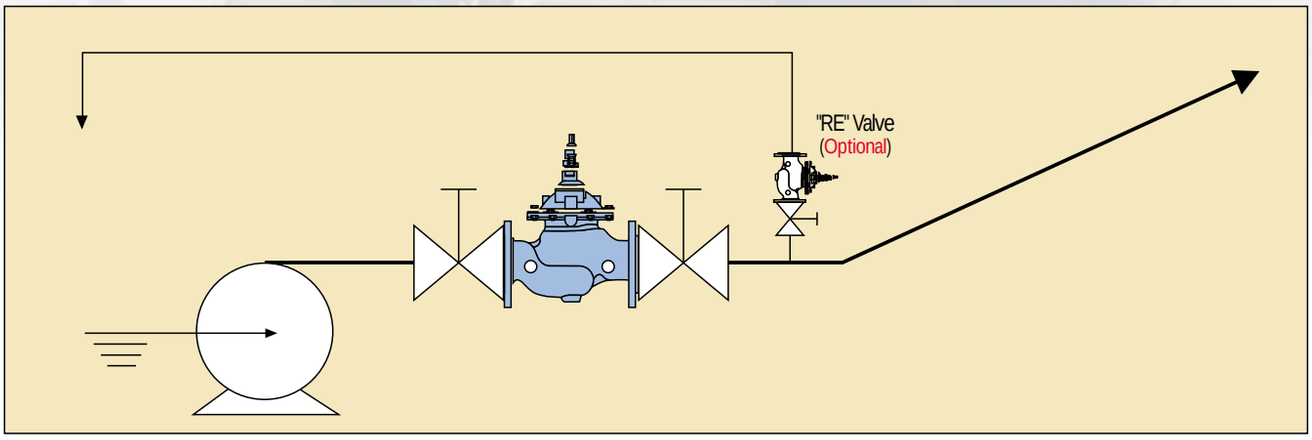
The main valve is "normally closed" (N.C.). The electric signal opens the valve.

The standard electric current of the solenoid is 24VAC, 50Hz.
Various coils, suitable to other electric current are supplied on request.

The main valve is supplied in two models:
Model 30D for medium pressures (up to 16 bar / 250 psi)
Model 31D for high pressures (up to 25 bar / 350 psi).

For further information see p. G5; and graph #1 on page G5-b.
For solenoid data refer to p. G6- f.

Typical Application:



The "BC" Valve prevents surges caused by the start-up of a pump. It closes slowly before the pump shuts off, gradually reducing pipeline velocity, protecting the network from water hammer and draining. Assembly of an "RE" Valve downstream of the "BC" Valve protects the network when electric power failure occures.

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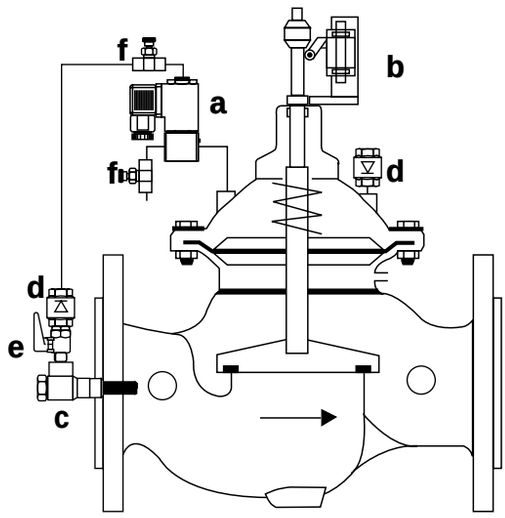
Schematic Control Diagram



a. 24VAC N.C. Solenoid
b. Limit Switch Mod.40-LS & Bracket Mod.48-LB
c. 1/2" Self-Flushing Filter Mod.81-1/2-2
d. Check Valve Mod.21-1/2
e. 1/2" Ball Valve Mod.34-1/2
f. Needle Valve Mod.34-1/2-NE

Design Notes

Refer to the head loss chart (in this section) and select the smallest valve which satisfies the allowed pressure loss at the duty point of the pump.

Closure time is related to main pipe length. Closure time should be extended as the pipe is longer.

The "BC" Valve cannot prevent water hammer in case of power failure. A surge-anticipating valve "RE" should be used if such an occurrence is expected.
*See **RE** p. 6F-1 for further information.*

A simple electric circuit should be added to the pump control panel, to facilitate the interlink with the "BC" Valve.

Optional Features

Pressure Sustaining *(add code "**PS**").*
See p. 3A-1 for further information.

Flow Rate Control *(add code "**FR**").*
See p. 4A-1 for further information.

Two-Stage Opening *(add code "**TO**").*
See p. 6C-1 for further information.

Extended closure *(add code "**CD**").*
See p. 6D-1 for further information.

Purchase Specifications

(Insert value)

- The valve will be controlled by an electric solenoid valve *(electric data)*. It will be equipped with a position indicator, a limit switch, and an opening/closing speed adjustment device.
- The valve will open simultaneously with the pump and will be in the "fully open" position through normal pump operation, creating a maximum pressure loss of *(value)*.
- On termination of the electric signal, the valve will begin closing slowly. It will initiate motor shut-off when completely closed.
- The valve will instantly close when the downstream pressure exceeds the upstream pressure, regardless of the electric control mode.
- The main valve will be a hydraulically operated, diaphragm actuated, double chambered, Globe Type.
- The main valve will consist of a removable SST seat and resilient Rubber seal fully supported by a seal disc.
- A removable separation disc will separate the diaphragm assembly from the controlled liquid, creating a control chamber below the diaphragm.
- The stem will be guided at the top by a replaceable guide bearing in the valve bonnet, and at the bottom, by a Bronze centering device, connected to the seal disc and moving freely inside the seat.
- The diaphragm will be fully supported, top and bottom, by rigid discs and will be connected to the stem in a way which enables fast and easy replacement on site.
- No external packing gland and piston activation is permitted.
- The valve will be equipped with a position-indicating rod.
- Face-to-face length dimension meets ISO 5752(S-1) Standard.
- Flange standard will be to *(network standard)*.

The control system will consist of:
- Solenoid Valve with Manual Override
- Needle Valves
- Check Valves
- Self-Flushing, Removable, Internal Filter.
- Limit Switch

The valve shall be DOROT mod. 30[D] *(31[D])* - *(size)* - BC or equal in all aspects.

Operating Data Checklist

(Please fill out and send to the distributor when ordering)

Maximum Flow Rate: _____

Operating Pressure: _____

Electric Control Current: _____

How To Order

Please specify the requested valve in the following sequence (see example below):

Model	Size	Connection Standard	Control Function	Additional Features	Special Instructions
30[D], 30A[D] 31[D], 31A[D]	(Inch): 1½" - 20"	ISO, ANSI, JIS etc.		Electric On-Off Control	
30[D]	6	ISO PN16	BC	/ EL (N.O.)	Bronze Body