



Application No. 1

# BOILER FEED-WATER LEAK-OFF VALVE

These valves are used to protect the boiler feed-water pumps from operating at too low a flow rate. Since full boiler pressure will be dropped across the valve, cavitation can be expected, that will destroy the body and internals of any standard valve design. In these applications the valve will be in the closed position, with the full pressure drop across the valve. Thus shut off is extremely important to avoid Micro cavitation between the plug and seat.



Customer - Arnot Power Station  
Date supplied – 2000.04.17

## Customer Application Data

The customer wanted the valve to operate under the following conditions:

- ◆ Max flow rate = 159 m<sup>3</sup>/h
- ◆ Inlet pressure = 218 bar (g)
- ◆ Pressure drop = 215 bar (g)
- ◆ Temperature = 120°C
- ◆ Fail open = Open under spring tension with no air

## Description of Valve Supplied

### Trim

- Type = StSt Energy Dissipating Disk Stack
- Plug material = Stellite coated 316 StSt
- = Soft seat insert
- Seat material = Stellite coated 316 StSt
- Seat diameter = 32mm
- CV selected = 13.5
- Flow direction = Under
- Leakage rate = ANSI V

### Bonnet

- Guide-Upper = Bronze
- Guide-Lower = Bronze
- Packing = PTFE braid
- Gaskets = StSt grafoil
- Live loading = Yes

### Body

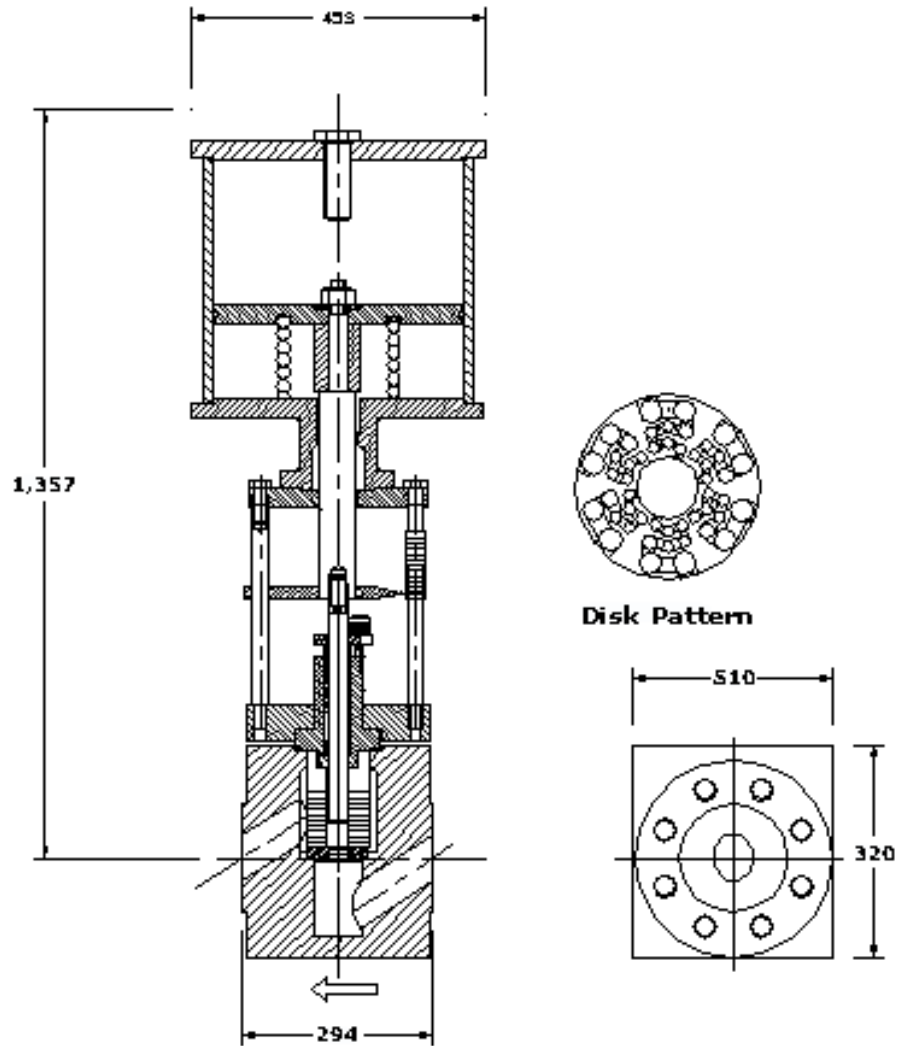
- Size = 80 mm
- Style Valve = Angle Control Valve
- Material = Carbon steel
- Flange type = Studded
- Body rating = ANSI 2500#

### Actuator

- Type = Pneumatic piston
- Fail position = Open - spring



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Previous Valve Used for Application:

Hopkinson Gate Valve and pressure reducing bottle

Problems experienced:

Body damage due to the full pressure drop at initial opening and closing of the valve, and no back pressure from the pressure reducing bottle.

The exit of the Pressure Reducing bottle is damaged due to the cavitation of the application.

Other references:

Callide Power Station, Queensland