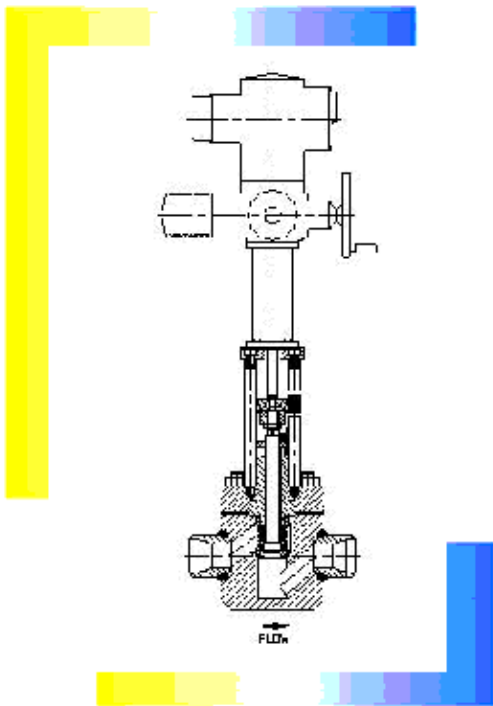




Application No. 3

ATTEMPORATOR SPRAY WATER

Water is added to the steam from the superheaters and the reheaters in order to control the temperature. This is to protect the downstream devices, including the turbine, from being subjected to too high a temperature. The valve that controls the flow of water to the attemporator sees a high pressure drop with low flow at start up conditions but normally operates with a low-pressure drop and relatively high flow. This means that the valve must have a trim that offers high rangeability and anti-cavitation capability as the valve first opens.



Customer – Hendrina Power Station
Date supplied – 1998.11.30

Customer Application Data

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

- ◆ Max flow rate = 15 kg/s
- ◆ Min flow rate = 0.5 kg/s
- ◆ Inlet pressure-norm = 132 bar (a)
- ◆ Inlet pressure-max = 158 bar (a)
- ◆ Norm pressure drop = 35 bar
- ◆ Max pressure drop = 94 bar
- ◆ Temperature = 219°C

Description of Valve Supplied

Trim

Type	=	ZZ / Cav Control trim
Plug material	=	Stellite coated 316 StSt
Seat material	=	Stellite coated 316 StSt
Seat diameter	=	41mm
CV selected	=	20
Flow direction	=	Over
Leakage rate	=	ANSI IV

Body

Size	=	3" – 80mm
Style	=	Globe Control Valve
Material	=	WCB Carbon Steel
Flange Type	=	Butt Weld
Flange Rating	=	ANSI 1500#

Bonnet

Material	=	Carbon Steel
Guide-Upper	=	Bronze
Guide-Lower	=	Stellite
Packing	=	Graphite Braid
Gaskets	=	SW Grafite Fill
Live Loading	=	Yes

Actuator

Type	=	Electric
Handwheel	=	Yes

Positioner

Type	=	Electric
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Application No. 3

Previous Valve Used for Application:

Blake Boroigh Control Valve

Problems experienced:

Poor controllability, start-up conditions they had low flow with high pressure drops. They selected wrong trims. Valve cavitated on low slow conditions.