

VLBP Steam Conditioning Valve



Engineering
GREAT Solutions

**For combined heat
and power applications**

VLBP Steam Conditioning Valve

The VLBP valve is targeted at industrial and utility power plants for the conditioning of auxiliary and process steam. It can also be used in industrial and district heating applications for bypass to back pressure or bypass to condensing. The VLBP is a key element in the controlled startup and shutdown of different loops in the power plant with minimum heat losses. It handles abnormal conditions such as rejection, turbine, pump or fan trips, in order to return the system to normal running with minimum delay.

Key features

- > Multi-stage pressure reduction with single-stage controllability
- > Quick exchangeable seat
- > Spray water atomising nozzles
- > Noise / vibration reduction
- > Desuperheating downstream through injection of finely atomised water into the low pressure outlet
- > Optimal steam temperature control
- > High rangeability
- > Bolted bonnet

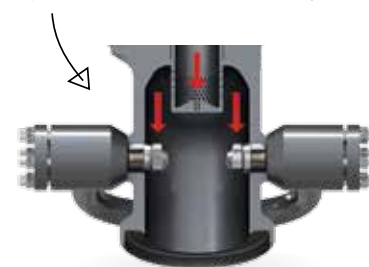
Benefits

- > **Easily replaced seat**
 - The easily replaced Q seat improves maintenance of the valve by allowing quick, straightforward replacements
- > **Spray water atomising nozzles**
 - OP spray nozzles are installed in the outlet of the valve and handle the injection of spray water into the steam. The nozzle features a spring which extends as the pressure in the nozzle holder increases. Water is rotated around the nozzle plug thanks to the special arrangement of the water channels. Stem and seat are designed to create maximum water velocity at the nozzle edge point, which improves water atomisation
- > **Improved atomisation**
 - An optional expander allows the diameter of the steam outlet to be smaller than the diameter of the connecting steam pipe which increases steam velocities close to the spray nozzles. This improves the evaporation of the spray water as well as rangeability
- > **Noise / vibration reduction**
 - The VLBP features multi-stage pressure reduction with single-stage controllability. The first stage takes place as the plug lifts from the seat, revealing a series of holes in the bonnet cage. The second stage takes place at the valve outlet, which is fitted with 1-3 perforated cylinders. The perforations break the steam into smaller fluid jets, resulting in a reduction in noise and vibration. This also shapes the flow pattern for more efficient desuperheating downstream
- > **High rangeability**
 - The VLBP features perforations in the valve plug which allows for finer control at low steam flow rates where these holes are the only conduit passing steam through the valve. This results in the modified linear valve characteristic, and increases the valve's rangeability

Specially designed 'Q Seat' allows for easy replacement



Optional expander improves water evaporation and rangeability



Spray water nozzles improve water atomisation

Technical specification

Valve type

VLBP

Selection

Use IMI CCI PowerSiz sizing programme

Pressure class

Up to ANSI-900

Design temperature

Up to 585°C

Leakage class

ANSI class V for valves with BT-plug.

ANSI class IV for valves with B-plug

Rangeability

Up to 1-20 for the total system

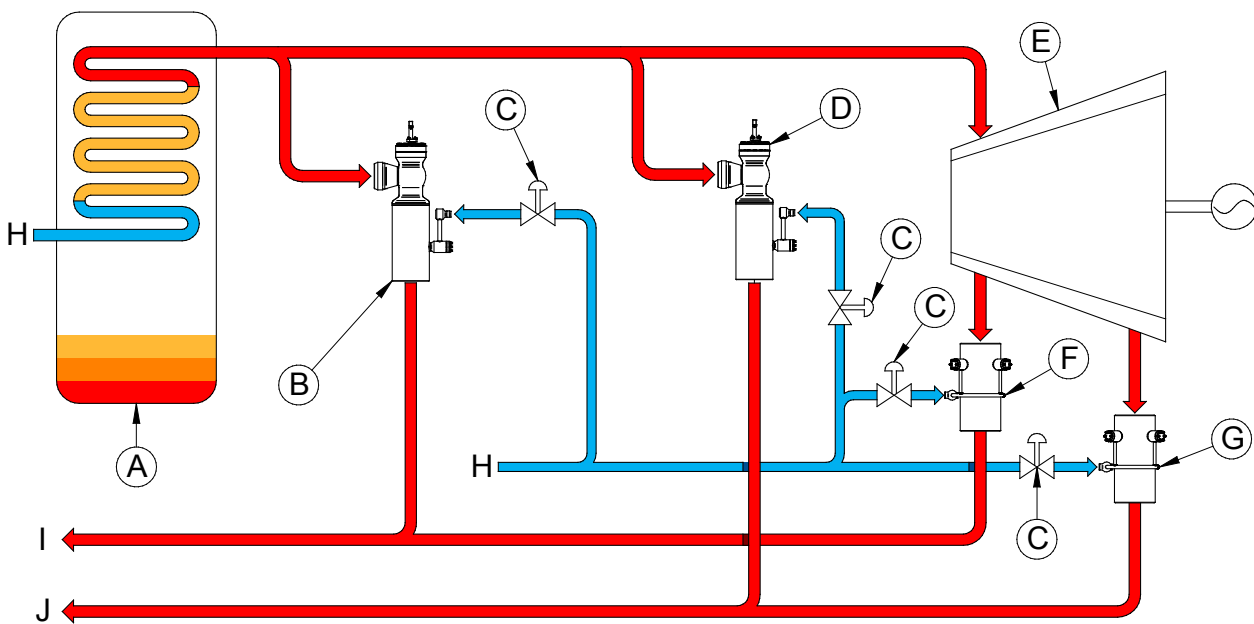
Regulatory standards

PED, ASME, ISO 9001/14001/18001

*Full valve selection
available on our website*

www.imi-critical.com

Installation example



- | | |
|----------------------------------------------|------------------------------------------------|
| A. Boiler | F. DAM turbine extraction desuperheater |
| B. VLBP turbine bypass valve | G. DAM turbine exhaust desuperheater |
| C. External spray water control valve | H. Feedwater/condensate |
| D. VLBP turbine bypass valve | I. Process steam 1 |
| E. Steam turbine | J. Process steam 2 |

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