Process Automation

IMI CCI

VLB Steam Conditioning Valve



Breakthrough engineering for a better world



VLB

Steam Conditioning Valve

The VLB is an angle-style steam conditioning valve, used for turbine bypass or process control. It is designed to reduce the pressure and temperature of the steam to match the downstream requirements. The valve features a series of pressure reducing stages, designed specifically for each application to minimise noise. Regulation of the pressure is performed with a modulating plug, revealing a series of perforations in the valve bonnet cage as the valve opens. Temperature regulation is controlled by an external spray water control valve. Spray water injection takes place in the valve outlet, using a series of mechanical atomising nozzles.

Key features

- Thermally compensated forged body with uniform thickness.
- Fully customisable inlet and outlet connections.
- Pressure reduction stage and spray nozzle arrangement optimised for plant operating conditions.
- Balanced tight design resulting in reduced required opening forces.

- Available with SIL 3 certification.
- Pressure seal bonnet.
- Spring-loaded water injection nozzles.
- Compatible with hydraulic, pneumatic and electric actuators.
- Quick exchangeable seat as option.
- Extended outlet design as option.



Benefits

- Accurate steam temperature control and rangeability
- High performance and stable control despite plant load transients
- Quick exchange seat results in reduced maintenance costs and down time
- Extended outlet design increases velocity near spray water nozzles

Product specification

Valve sizes 56 - 500 mm seat diameter Other sizes available on request

Pressure class ratings Up to ANSI 4500 (higher rating on request) Above DN400

610 °C as standard (650 °C on request)

Leakage class ANSI Class V / MSS SP 61 as standard

Design temperature

Design features

Modified linear valve characteristic)



Allows for greater rangeability and flow control at lower flow rates. The graph shows how at the first ~15% of the stroke, the change in flow coefficient increases by only 5%.

Pressure seal bonnet



Results in a tight seal at the valve neck while allowing for easy valve disassembly

Reduces thermal stress, improves thermal cycling and increases the

Application example

- 1. HRSG
- VLB-HP bypass valve. 2.
- 3. HP bypass temperature control valve with stop valve.
- 4. LP bypass steam stop valve.
- 5. VLB-LP bypass to condenser.
- LP bypass temperature control valve. 6
- Condensate pumps. 7
- Condenser 8
- G. Gas turbine
- HP. High pressure steam turbine.
- IP. Intermediate pressure steam turbine.
- LP. Low pressure steam turbine.

Balanced tight design (BTC)



Provides a leakage tightness according to ANSI FCI 70-2 / EN 1349 Class V. The pilot plug lowers the pressure drop across the plug, which reduces the required actuating forces and allows smaller actuators to be used.

Fully machined circular section



lifetime of the valve

- and improves evaporation in installations where otherwise the outlet velocity would be too low - Low noise & vibration
- Leakage class V / MSS SP 61
- shut-off class as standard - Complies with the following standards: ASME, PED, IBR, CRN, FaMA, MoM, Gost, ISO 9001/14001/18001

Regulatory standards

ASME, PED, IBR, CRN, FaMA, MoM, Gost. ISO 9001/14001/18001, SIL

SIL classification

SIL 3 achievable for both quick open and quick close depending on system configuration

Materials Forged material adapted to connecting pipe material

Actuation

Electrical, hydraulic and pneumatic

Quick exchange seat (BTCQL)



Suitable for installations where erosion caused by wet steam, or where high velocities can have an adverse effect on seat leakage tightness. The distribution of pressure drops in this configuration reduces the steam velocity across the sealing surfaces.

Spring loaded spray nozzles



Injects spray water into the outlet, perpendicular to the steam flow. The high relative velocity of water to steam creates an efficient secondary atomisation.



Process Automation

The information in this brochure is provided for general informational purposes only. Specifications for products and services are subject to change without prior notice. IMI plc and its subsidiaries own all product brands mentioned herein.

IMI makes no warranties or representations about the accuracy or completeness of the content in this brochure and assumes no liability for any errors or omissions it may contain. We reserve the right to modify, enhance, or discontinue any product or service described herein without prior notification.

IMI CCI

CCI Valve Technology AB P O Box 603 661 29 Säffle Sweden Visit address Industrigatan 7 661 31 Säffle

www.imiplc.com/process-automation

01112.02/24en



