IMI CCI®

VLB

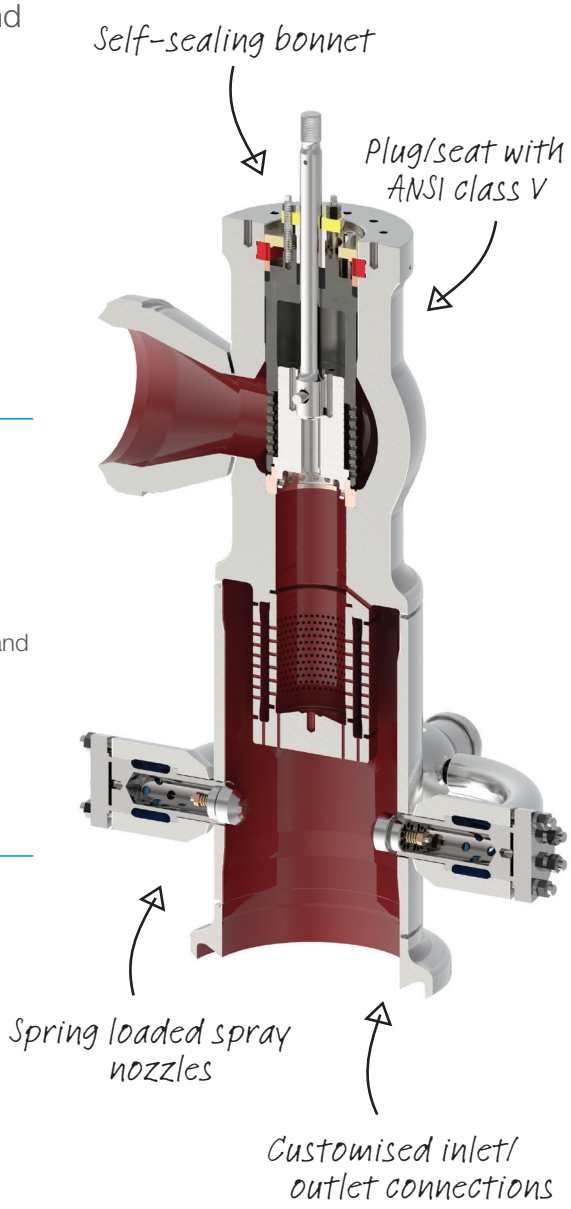
Engineering GREAT Solutions

Steam Conditioning Valve

IMI Critical Engineering

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 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

Product specification

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

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

Design temperature
610 ºC as standard (650 ºC on request)

Leakage class
ANSI Class V / MSS SP 61 as standard

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

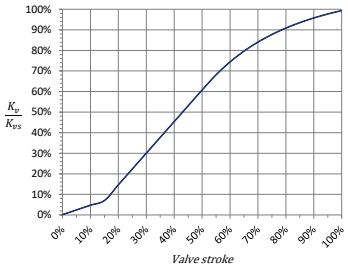
SIL classification
SIL 3 achievable for both quick open and quick close depending on system configuration

Materials
Forged material adapted to connecting pipe material

Actuation
Electrical, hydraulic and pneumatic

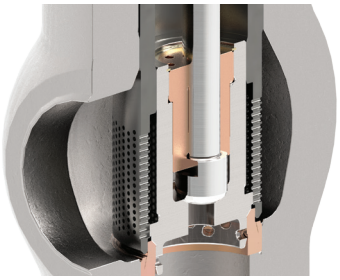
Design features

Modified linear valve characteristic



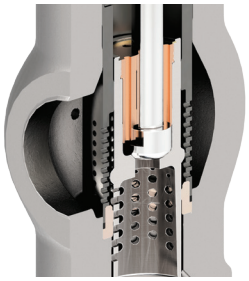
Allows for greater rangeability and flow control at lower flow rates. The graph shows how at the first ~15% of the stroke, the change in flow coefficient increases by only 5%.

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.

Quick exchange seat (BTCQL)

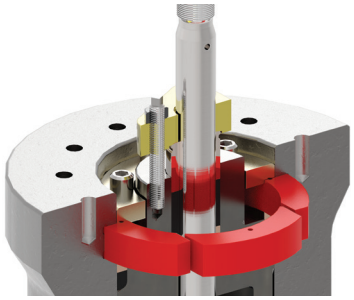


Suitable for installations where erosion caused by wet steam, or where high velocities can have an adverse effect on seat leakage tightness. The distribution of pressure drops in this configuration reduces the steam velocity across the sealing surfaces.

Spring loaded spray nozzles

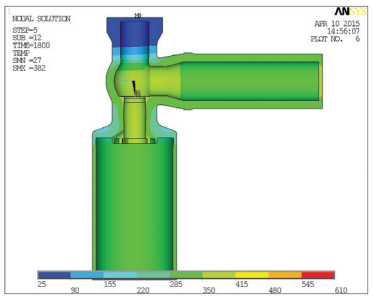
Injects spray water into the outlet, perpendicular to the steam flow. The high relative velocity of water to steam creates an efficient secondary atomisation.

Pressure seal bonnet



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

Fully machined circular section



Reduces thermal stress, improves thermal cycling and increases the lifetime of the valve.

Application example

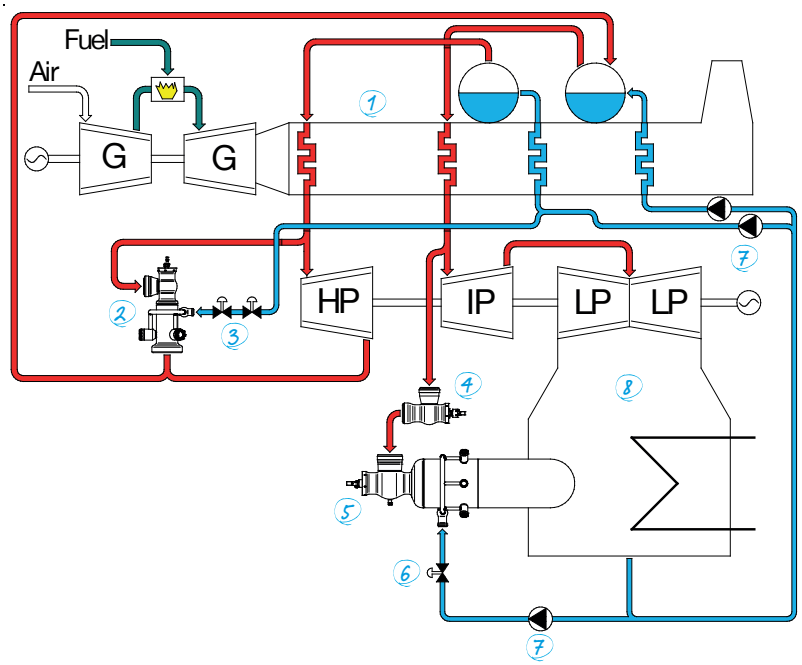
1. HRSG
2. VLB-HP bypass valve
3. HP bypass temperature control valve with stop valve
4. LP bypass steam stop valve
5. VLB-LP bypass to condenser
6. LP bypass temperature control valve
7. Condensate pumps
8. Condenser

G. Gas turbine

HP. High pressure steam turbine

IP. Intermediate pressure steam turbine

LP. Low pressure steam turbine



Americas

imiccisales.americas@imi-critical.com

IMI CCI Brazil
Sao Paulo
Brasil
Tel: +55 11 2691 3361

IMI CCI Houston
Texas
USA
Tel: +1 832 467 7200

IMI CCI RSM
California
USA
Tel: +1 949 858 1877

Asia-Pacific

imiccisales.apac@imi-critical.com

IMI CCI Australia
Melbourne
Australia
Tel: +61 3 9213 0800

IMI CCI Japan
Kobe
Japan
Tel: +81 78 322 1220

IMI CCI Korea
Paju-si
Korea
Tel: +82 31 980 9800

IMI CCI Malaysia
Kuala Lumpur
Malaysia
Tel: +60 3 6412 3500

IMI CCI Singapore
Singapore
Tel: +65 6653 7000

China

imiccisales.china@imi-critical.com

IMI CCI China
Shanghai
PR China
Tel: +86 21 3973 8000

Europe

imiccisales.europe@imi-critical.com

IMI CCI Austria
Wien
Austria
Tel: +43 1 869 27 40

IMI CCI Brno
Brno
Czech Republic
Tel: +420 511 188 288

IMI CCI Italy
Milano
Italy
Tel: +39 02 4345 8611

IMI CCI Sweden
Säffle
Sweden
Tel: +46 533 689 600

IMI CCI Switzerland
Balterswil
Switzerland
Tel: +41 52 264 9500

IMI CCI United Kingdom
Manchester
UK
Tel: +44 (0)161 655 1680

India

imiccisales.india@imi-critical.com

IMI CCI Bangalore
Bangalore
India
Tel: +91 80 4030 3500

IMI CCI SriCity
Andhra Pradesh
India
Tel: +91 85 7639 8000

Middle East and Africa

imiccisales.mea@imi-critical.com

IMI Critical MEA
Dubai
United Arab Emirates
Tel: +971 4 807 3111

IMI CCI South Africa
Witbank
South Africa
Tel: +27 13 697 3305

Other

imicci.sales@imi-critical.com

imicci.sales@imi-critical.com

IMI Critical Engineering
Lakeside, Solihull Parkway
Birmingham Business Park
Birmingham B37 7XZ
United Kingdom

Tel: +44 (0)121 717 3700
Fax: +44 (0)121 717 3701

www.imi-critical.com

IMI
Critical Engineering

01039.02-18en