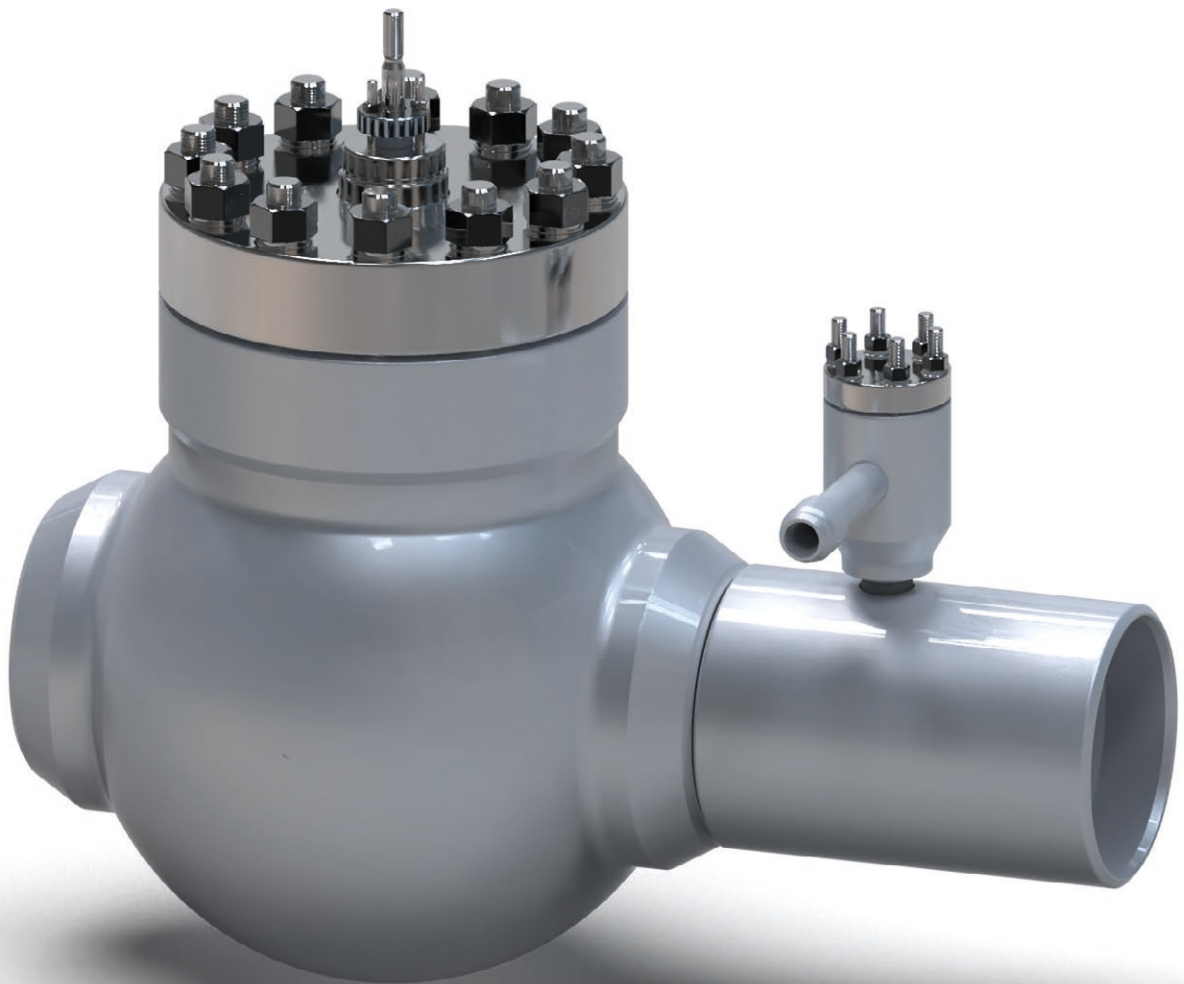


BVT-TBG

Steam conditioning valve



About us

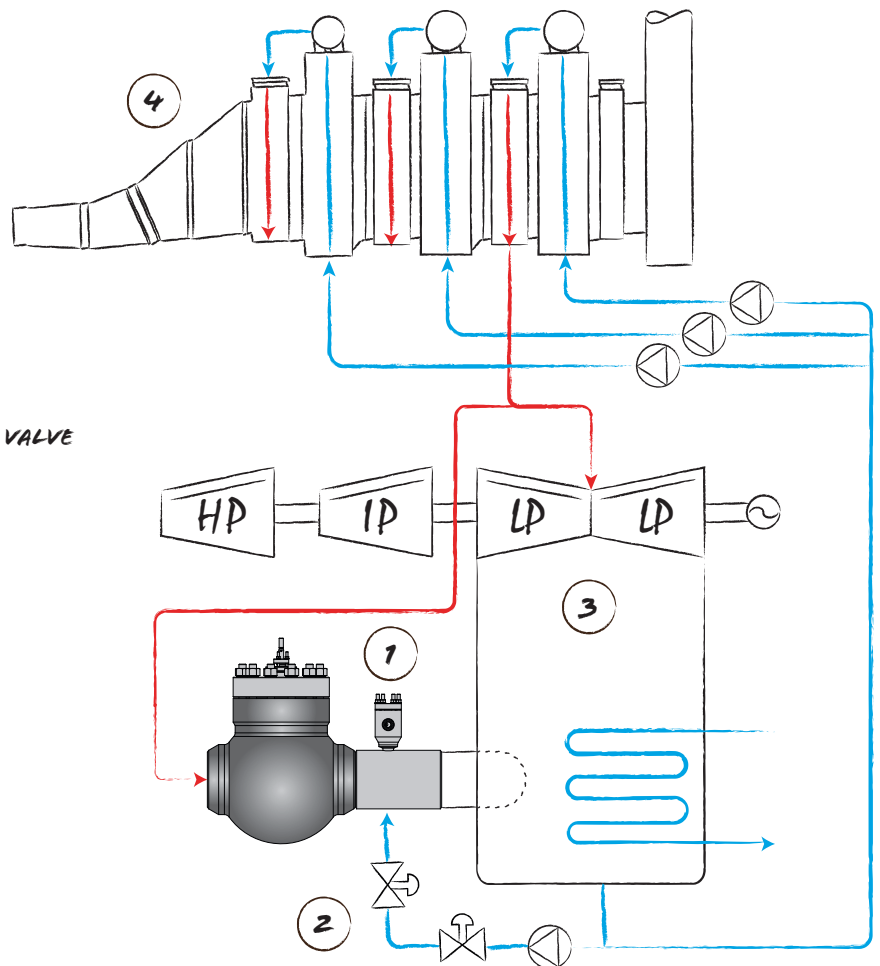
BVT Sweden was started with the ambition of becoming world leading in critical applications in process steam and thermal power plant turbine bypass. Based in Säfte, BVT Sweden employs experts with over 30 years experience in turbine bypass, steam conditioning, temperature control, design and manufacturing processes. We design turbine bypass valves, select actuation to fit our customer's requirements. Our products are optimized on a per-order basis, and we have the experience necessary to design special solutions. These products cover steam conditioning valves, pressure reduction valves, stop valves, desuperheaters and spray water control valves.

The turbine bypass system

The turbine bypass system consists of both pressure reduction and steam desuperheating. Turbine bypass valves are installed in parallel with the turbine's pressure stages and provide a secondary conduit for the superheated steam. The valves may be used for controlling the downstream pressure and temperature during turbine operation or during a turbine trip.

Bypass to condenser

The illustration on the right shows an example of a HRSG (4) and a steam turbine with a BVT-TBG steam conditioning valve (1) installed as bypass to condenser. The valve dumps steam to the condenser (3). Condensate is pumped from the condenser and passed to the HRSG and to the spray water control valve (2).



1. LP STEAM CONDITIONING VALVE
2. LP WATER CONTROL VALVE / WATER STOP VALVE
3. WATER COOLED CONDENSER
4. HRSG

BVT-TBG TURBINE BYPASS VALVE WITH HRSG AND CONDENSER

BVT-TBG turbine bypass valve

The BVT-TBG is a globe-style steam conditioning valve, used for both process and turbine bypass applications. It is designed to reduce temperature and pressure of steam to match downstream requirements. Pressure is controlled using a proven trim technology which reveals a series of perforations in the valve cage as the plug moves. The balanced valve plug design is optimized for low actuating forces, allowing for smaller and pneumatic actuators. Control of temperature takes place in the outlet, where spring-loaded spray water atomizing nozzle(s) are installed perpendicular to the steam flow. The selection, placement and design of these is chosen to match the desuperheating requirements of the system as well as reducing risk of free water being injected into the downstream piping.

Specifications

Valve sizes

Up to 14"

Pressure class

Up to ANSI 600 (higher rating on request)

Design temperature

Up to 580 °C

Leakage class

ANSI Class III, IV, V

Rangeability

Up to 25:1 for the complete valve

Regulatory requirements

ASME, PED, IBR, CRN, GOST, ISO 9001/14001

Materials

WCB, WC6, WC9

Actuation

Pneumatic, Electrical, Hydraulic

Options

- Quick change type seat
- Erosion resistant trim with long cage
- Live load gland seal packings

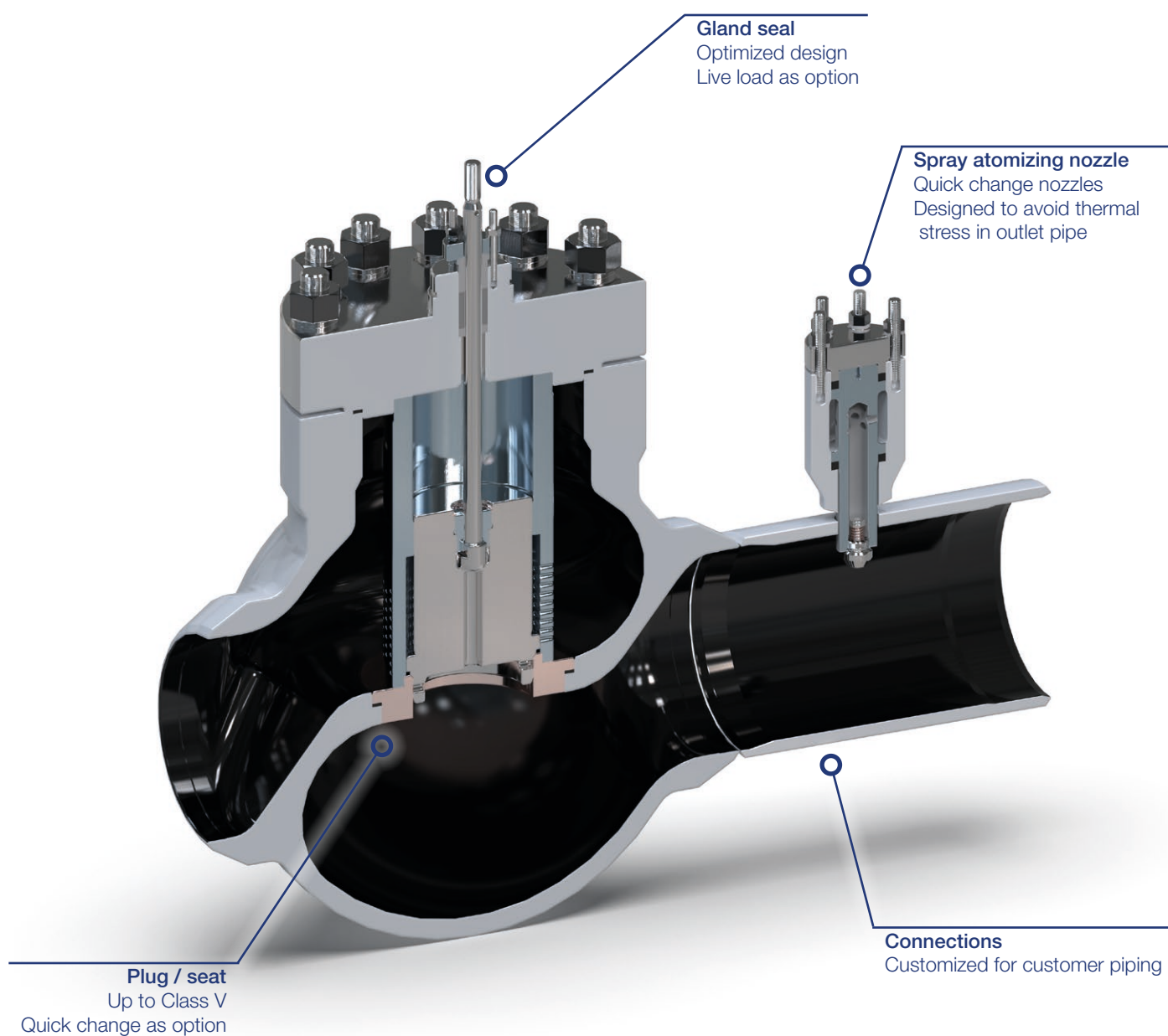
Key features

- ✓ Fully customizable inlet, outlet connections
- ✓ Complies with the following standards: ASME, EN, PED
- ✓ High shut-off class
- ✓ Great rangeability
- ✓ Balanced plug design requires smaller actuating forces, and so allows for smaller and pneumatic actuators
- ✓ Easily exchangeable seat as option for further reduced maintenance downtime
- ✓ Optimized packing design
- ✓ Erosion resistant design
- ✓ Spring loaded nozzles designed to avoid thermal stress in outlet pipe, and are quickly and easily maintained

BVT	-	SCG	-	90	B T C	-	Z1
Turbine Bypass							
Globe							
Seat size							
56 - 320 [mm]							
Trim options							
B: Balanced plug							
T: Tight seal							
C: Cage design							
Seat options							
(blank): Welded seat							
Z1: eZ change seat							
Z2: eZ change seat with stellite coating							
ZP: eZ change seat with long plug							

BVT-SCG PRODUCT CODE

Overview



BVT-TBG BYPASS VALVE

Water valves

BVT provides a multitude of spray water control valves, selected and designed to match operating conditions and customer requirements. The trims are chosen to prevent cavitation and flashing and prevent aerated liquids from corroding or eroding valve parts. They are equipped with quick exchange trims for more convenient inspection replacement. Among the options of trim designs are contour plugs, multi-step plugs, multi-cage and labyrinth disc stacks.

Trim types

PT (Plug throttling)

Cv Range: 1.4 ~ 9930

Rangeability: 25 to 1

Leakage class: IV / V

HSC (Micro High Step Cascade)

Cv Range: 0.24 ~ 406

Rangeability: 100 to 1

Leakage class: V

HST (Single seat, drilled cage)

Cv Range: 38 ~ 8900

Rangeability: Varies

Leakage class: IV / V



LEFT: ANGLE-STYLE VALVE BODY
RIGHT: GLOBE STYLE VALVE BODY

Pneumatic actuation

BVT valves can be equipped with pneumatic piston actuators. The cylinders are chosen to overcome the forces created by steam flow, and the accessories are chosen to handle the required stroke speeds and functionality.

Features and options

Cylinder types

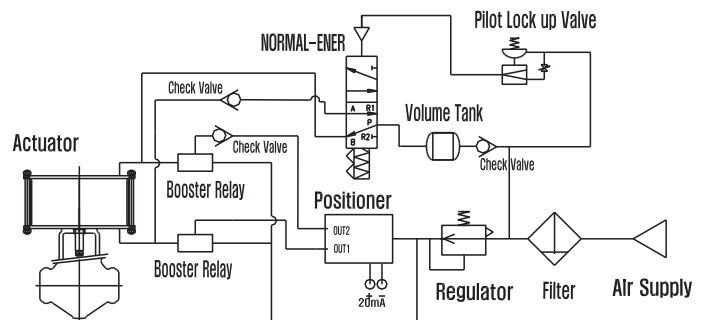
- Double Acting, Single Acting
- Spring Open, Spring Close
- Top mounted hand wheel, side mounted hand wheel

Air supply

4 - 10 bar

Accessories and options

- Air filter regulator as standard
- 3-way valves (quick open/close)
- Limit switches (open/close position)
- Position transmitters, air locks, boosters as option



Certificates

 **Certificate No. / Zertifikat Nr: 50329/1**

CERTIFICATE
in accordance with the requirements of the **Pressure Equipment Directive 2014/68/EU**

ZERTIFIKAT
in Übereinstimmung mit den Anforderungen der Druckgeräterichtlinie 2014/68/EU

This is to certify that the quality assurance system of
Hiermit wird bescheinigt, dass das Qualitätssicherungssystem des Unternehmens

BVT Sweden AB
SE-653 46 Karlstad
Sweden / Schweden

has been assessed by LR Deutschland GmbH in accordance with the requirements of Annex III
durch die LR Deutschland GmbH entsprechend den Forderungen des Anhangs III

Module H

to the Pressure Equipment Directive 2014/68/EU and
conforms to the requirements for the products shown below:
der Druckgeräterichtlinie 2014/68/EU geprüft und bewertet wurde und für die folgenden Produkte die Anforderungen erfüllt:

**Valves and accessories for power and process applications,
for details see Annex 1 to this certificate.**
**Ventile und Ausrüstungsteile für Anwendungen in der Wärme- und Verfahrenstechnik,
Einzelheiten siehe Anhang 1 dieses Zertifikates.**

Approval is subject to continued maintenance of the quality assurance system
in accordance with the requirements of the above-mentioned directive.
Die Zulassung gilt unter der Voraussetzung, dass das Qualitätssicherungssystem fortlaufend aufrechterhalten wird und
die Forderungen oben genannter Richtlinie erfüllt.

Authorisation is hereby given to use the below-mentioned Notified Body Identification Number
of LR Deutschland GmbH in accordance with the requirements of the specified directive
in relation to the products as named above:
Hiermit wird die Genehmigung erteilt, folgende Kennnummer der LR Deutschland GmbH als Notifizierte Stelle
in Übereinstimmung mit der angegebenen Richtlinie in Bezug auf die oben genannten Produkte zu verwenden:

CE 0525

Certificate expiry date / Zertifikatsgültigkeit bis: **31.01.2022**


K. Wolf
Name, Signature, Certifier
Name, Unterschrift, Zertifizierer


Hamburg, 01.11.2019
Place and Date
Ort und Datum

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the "Lloyd's Register". The Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

ZE-1110 en Rev. 3, (08/19) Lloyd's Register Deutschland GmbH, Überseeallee 10, D-20457 Hamburg, Deutschland T: +49 349 700 10-100 F: +49 955 69 2625 Email: PressureSystems.Germany@lr.org Seite 1 von 1

This is a copy of an electronic document. In the event of any conflict or ambiguity between the copy and the electronic document, which is retained and published by Lloyd's Register, the original electronic and certified version shall always prevail.


MODULE H

 **Certificate of Approval**

This is to certify that the Management System of:

BVT Sweden AB
Körkarlsvägen 8, 653 46 Karlstad, Sweden


has been approved by LRQA to the following standards:
ISO 14001:2015 | ISO 9001:2015


P.G. Cornelissen - Area Manager North Europe
Issued by: LRQA Sverige AB
for and on behalf of: Lloyd's Register Quality Assurance Limited

Current issue date: -
Expiry date: -
Certificate identity number: 10169985

Original approval(s):
ISO 14001 - 1 February 2019
ISO 9001 - 1 February 2019
Approval number(s): ISO 14001 - 00002108 / ISO 9001 - 00002109

The scope of this approval is applicable to:
Sales, development, engineering, service and upgrades of valves and accessories for power and process applications.


001

Lloyd's Register Group Limited, its affiliates and subsidiaries, including Lloyd's Register Quality Assurance Limited (LRQA), and their respective officers, employees or agents are, individually and collectively, referred to in this clause as "Lloyd's Register". Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Issued by LRQA Sverige AB, Box 2107 Solbergavägen 14 42002 Skövde Sweden for and on behalf of: Lloyd's Register Quality Assurance Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7YS, United Kingdom

ISO 14001 AND ISO 9001