

# BVT-DLH

Steam attemperator  
with floating liner

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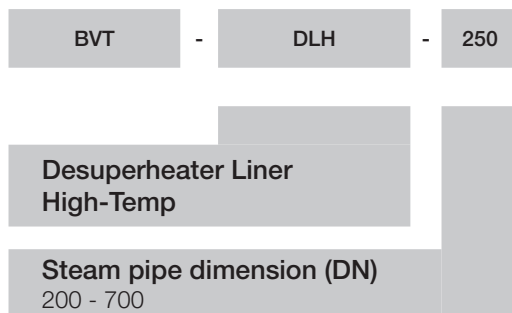
## About us

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 Säftele, 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.

## BVT-DLH Steam Attemperator

Attemperation is the process of controlling the amount of superheat in a boiler or a Heat Recovery Steam Generator (HRSG). Spray water is injected into the superheated steam, reducing its temperature. Spray water flow is controlled by an external water control valve and injected perpendicular to the steam flow using a series of spring-loaded spray water atomizing nozzles. The steam pipe is protected from thermal stresses by a floating liner which also acts as a flow profiler, increasing the relative steam velocity near the nozzles and improving evaporation.

The floating liner is installed without any welding, allowing it to move with the expansion of the material, making it more resistant to cycling.



**BVT-DLH PRODUCT CODE**

## Key features

- ✓ Very high reliability due to being able to handle thermal cycling
- ✓ Unwelded flow profiling liner
- ✓ Designed to handle large spray water flow
- ✓ Nozzles resistant to flashing
- ✓ Even distribution of spray water in the steam pipe
- ✓ Negligible pressure drop in the steam line

## Specifications

Nozzle material  
**Inconel 718**

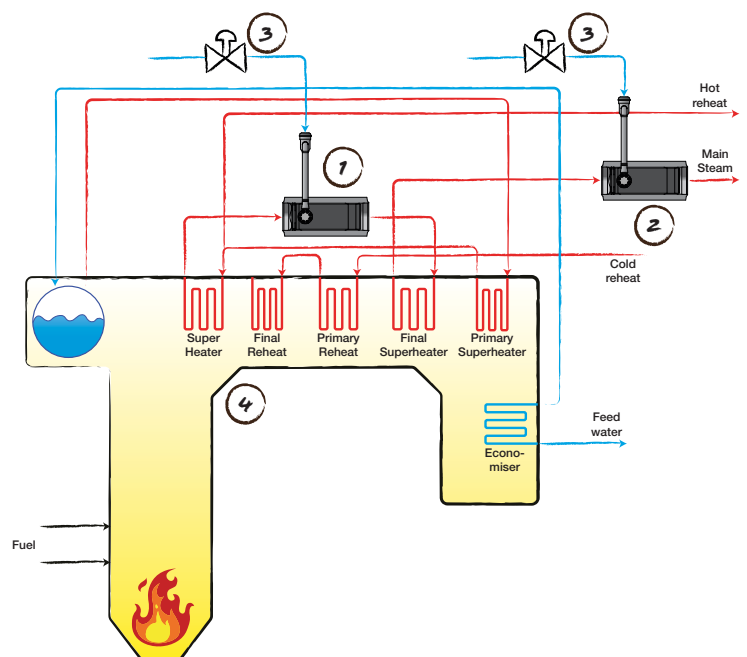
Rangeability  
**Determined by spray water valve**

Design pressure  
**Steam - 200 bar(g)**  
**Water - 320 bar(g)**

Design temperature  
**Steam - 630 °C**  
**Water - 250 °C**

Cycling  
**Up to 6300 cycles / 25 years**

Installation  
**Horizontal installation or vertical with steam flowing upwards is recommended.**

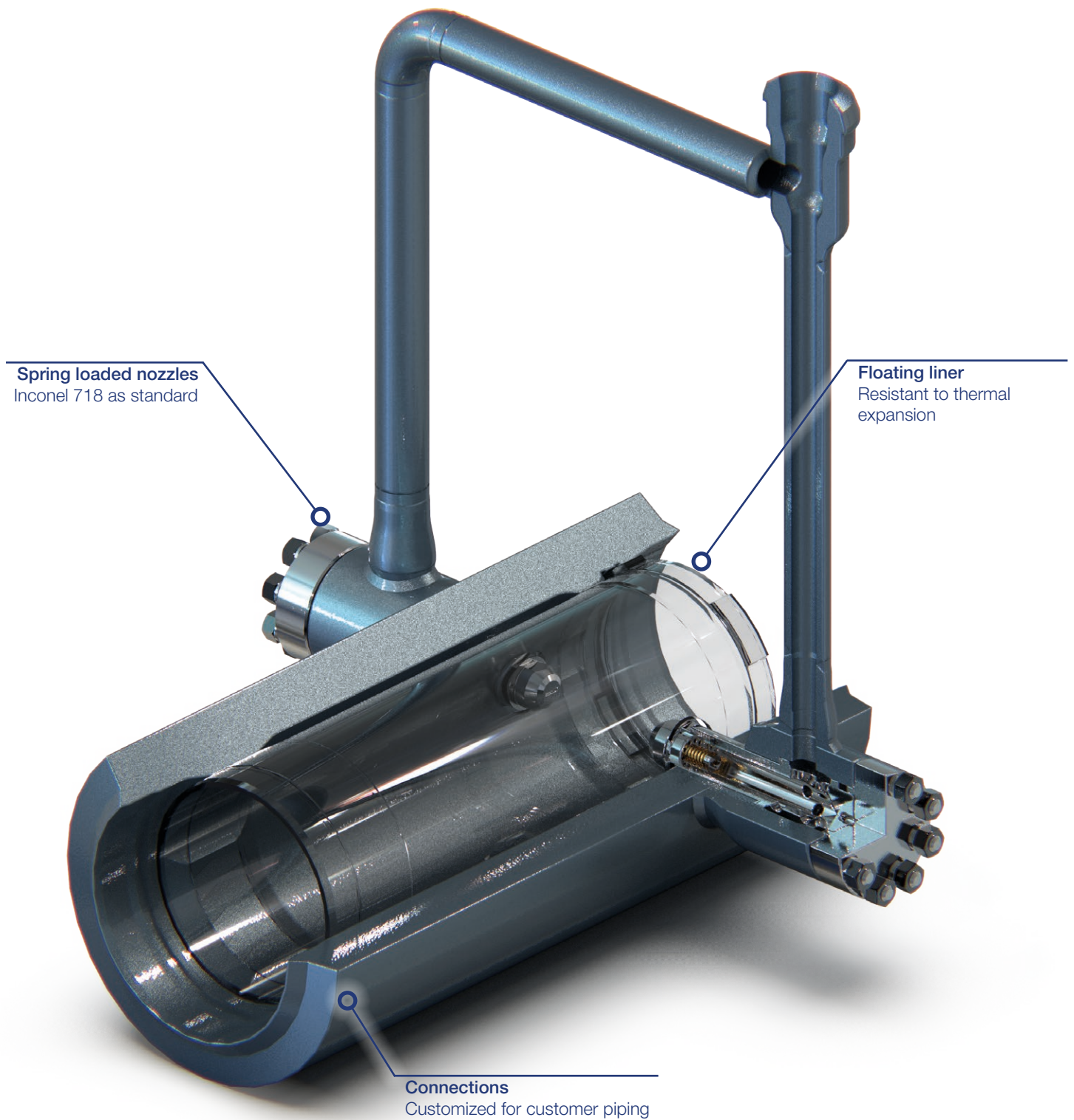


1. INTER-STAGE ATTEMPERATOR
2. FINAL STAGE ATTEMPERATOR
3. SPRAY WATER CONTROL VALVE
4. BOILER

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## Overview



**BVT-DLH ATTEMPERATOR**

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## 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**

HEST (Single seat, drilled cage)  
**Cv Range: 38 ~ 8900**  
**Rangeability: Varies**  
**Leakage class: IV / V**



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



### 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: -      Original approval(s):  
Expiry date: -            ISO 14001 – 1 February 2019  
Certificate identity number: 10169985      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.



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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**

Hamburg, 01.11.2019  
Place and Date  
Ort und Datum

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

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ZE-1110 en Rev. 3, (08/19)

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