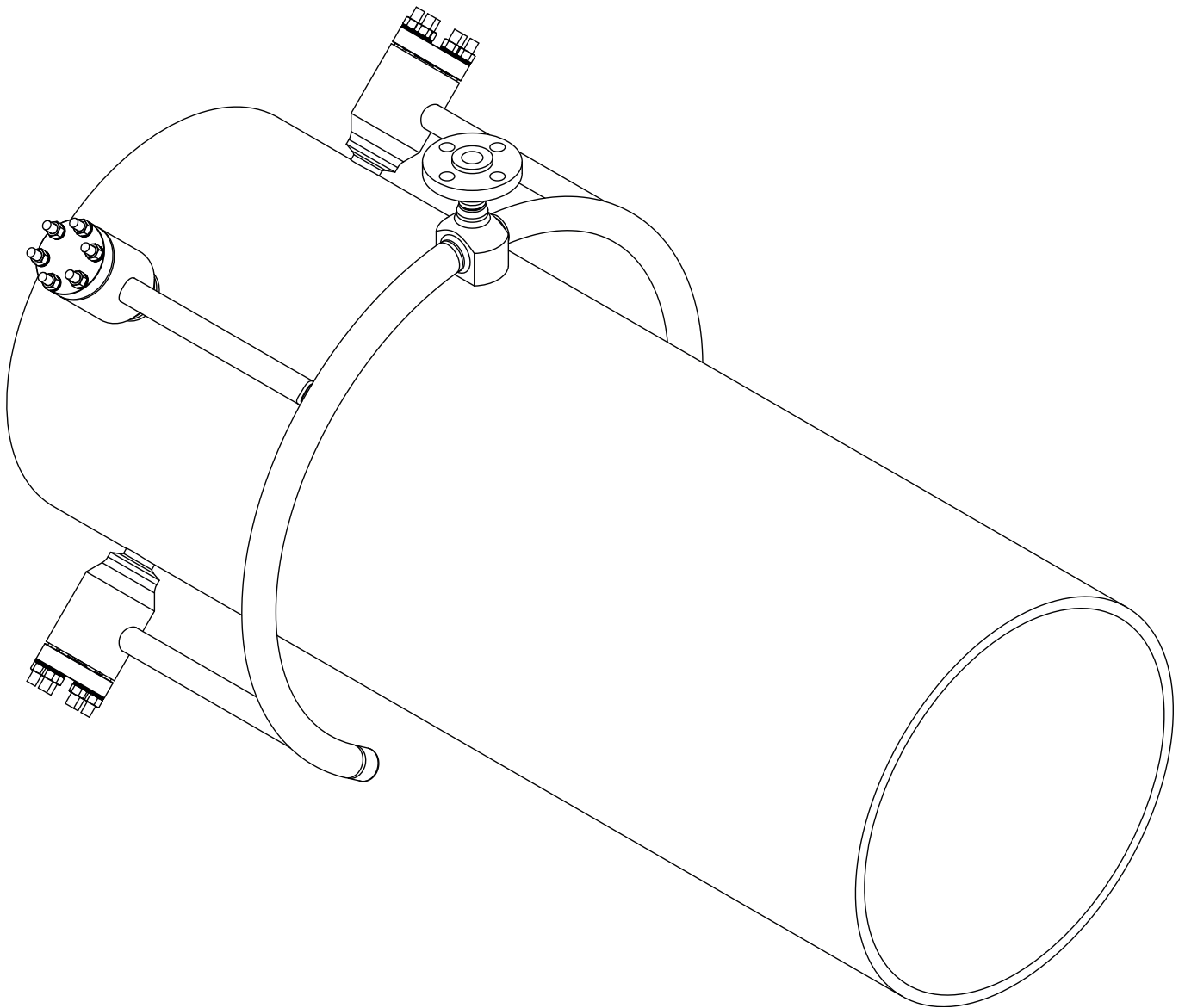


Product manual

BVT-DLP/B/H



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Introduction

This document is intended to be used with the product described within. Though these instructions are generally correct, any individual installation may require special considerations. Please contact BVT Sweden AB in case you have any questions. Note that these instructions are for information only. BVT Sweden does not take any responsibility related to omission in the precautions and instructions for installation, operation and/or maintenance.

Safety considerations

These instructions and the instructions of any accompanying service manual assume that the product is operated within a specified range of service conditions. Applying different conditions to our products could result in part damage, malfunction or loss of process control. Do not expose any valve or desuperheater for conditions or variables outside what the product was intended for.

In addition to the instructions herein, any person working on our products must observe local and national rules and regulations in regards to safety. All personnel handling our products must be trained professionals and instructed properly prior to any disassembly or maintenance work.

- ⚠ **Confirm that any pressure vessel is depressurized before starting any work.**
- ⚠ **Always wear protective gloves, clothing and eye-wear when operating on pressure vessels to avoid personal injury.**
- ⚠ **Before any attempt at disassembling the valve, verify that its surface is sufficiently cooled down and that the valve is depressurized and isolated from system pressure.**

For a complete set of safety instructions, please refer to M-001 General Instructions.

Liner

Check for distortion and / or cracking in the liner by inserting a borescope into the desuperheater via the nozzle stud. Look for cracks around the nozzle injection points, on the surface of the liner and on upstream and downstream pipe welds. Inspect welds on the liner using non-destructive examination.

- ⚠ **A cracked liner is an indicator of installation or control problems and should be replaced. Contact BVT Sweden for recommendations and a complete evaluation of the system.**

Welds

Inspect welds at all joints, at the manifold and desuperheater / pipe connections. Perform a complete liquid penetrate examination of all welds on the water manifolds and the pipe connections. Check for thermal fatigue cracks or pinhole leaks.

- ⚠ **Cracks in welds is an indicator of system performance and operating problems. Contact BVT Sweden for recommendations and a complete evaluation of the system.**

Disassembly

1. Remove the nuts, the lock washers and then the stud bolts.
2. Remove the nozzle holder from the steam pipe.
3. Remove the bonnet gasket.
4. The NS nozzle is held in place with a bent tab washer.
5. Bend the tab washer so that it the nozzle can rotate in the nozzle holder.
6. Unscrew and remove the nozzle.
7. A used nozzle should be replaced with a new nozzle.

Reassembly

1. Slide a tab washer over the nozzle threads. Apply lubricant to the nozzle threads. Wipe off any excess lubricants.
2. Torque the NS nozzle into the nozzle retainer prior to securing the tab washer. Use torque values listed in.
3. Secure the nozzle using the tab washer by bending it as shown in fig.4. Make sure that one side of the washer is bent over the milled half of the nozzle and the other is bent over the nozzle holder. **Incorrect tab washer installation can result in damage to the system and to downstream components.**
4. Grind any excess unbent portion of the washer until it is flush against th surface of the nozzle holder. Clean the parts thoroughly.

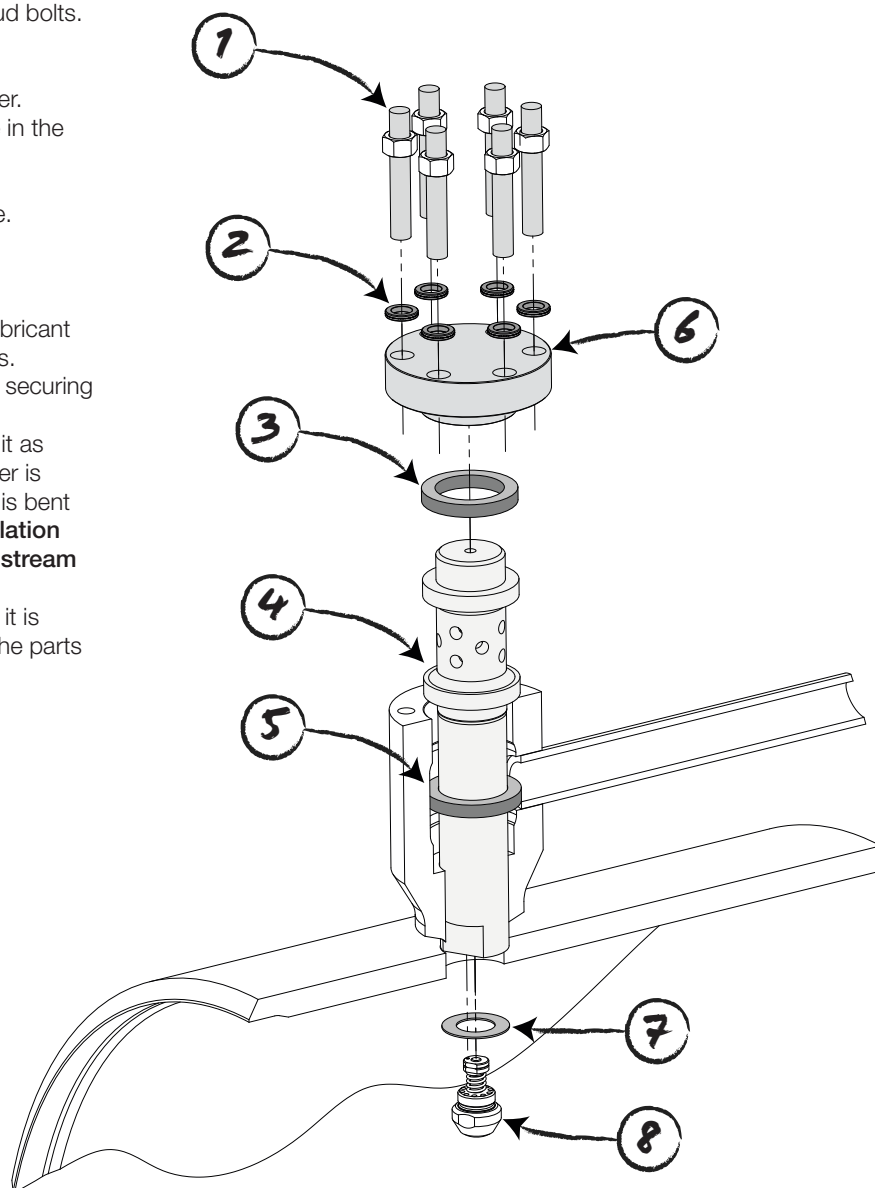


fig.2 Disassembling the nozzle holder

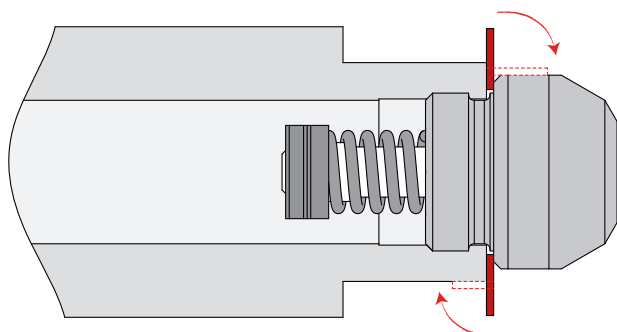


fig.1 Removing the nozzle

1. Stud bolts / nuts
2. Nord-lock washers
3. Gasket
4. Nozzle holder
5. Gasket
6. Cover plate
7. Tab washer
8. NS nozzle

Pressure seal bonnet

Disassembly

1. Remove screws and washers.
2. Remove stud bolts and nuts.
3. Remove the nozzle holder.
4. The segment ring is made out of 4 segments that need to be removed in the correct order. Push the short segments of the segment ring using the service holes in the valve body, and remove them.
5. Remove the long segments.
6. Remove the spacer ring, packing rings and the sleeve.
- Packing rings need to be replaced after every disassembly.**
7. Pull the nozzle holder out of the nozzle stud, and remove the nozzle following the instructions in the previous section.

Assembly

8. After installing the nozzle, lubricate and install the lower packing ring. **Note the direction of the lower packing ring.**
9. Install the sleeve and the upper packing ring on the nozzle holder.
10. Install the spacer ring on the nozzle holder.
11. Rotate the nozzle holder so that the holes in the top line up with the holes in the nozzle stud.
12. Insert the two long segments of the segment ring and orient them in order to make room for the short segments.
13. Place the short segments in the nozzle stud, making sure there is enough place for nozzle cover.
14. Place the nozzle cover in the segment ring and rotate it so that the holes line up with those in the nozzle stud and holder.
15. Insert washers, nuts, screws and stud bolts and tighten.

- | | |
|--------------------|-------------------|
| 1. Screw | 8. Packing |
| 2. Washer | 9. Sleeve |
| 3. Segment ring | 10. Packing |
| 4. Spacer ring | 11. Nozzle holder |
| 5. Nozzle | 12. Tab washer |
| 6. Stud bolt / nut | 13. Long segment |
| 7. Nozzle cover | 14. Short segment |

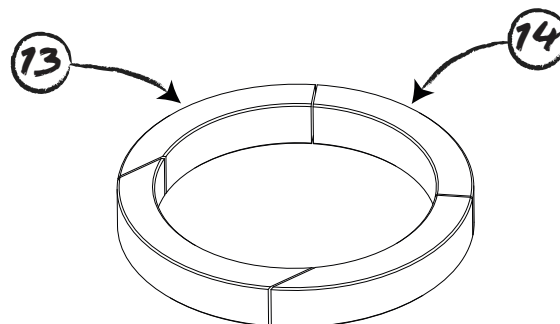
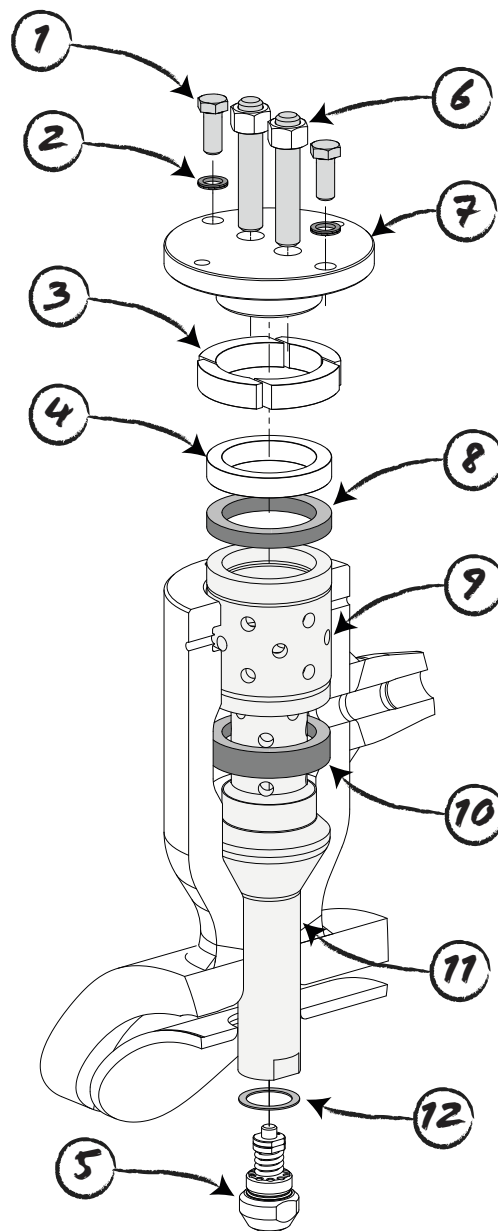


fig.3 Disassembling the nozzle holder

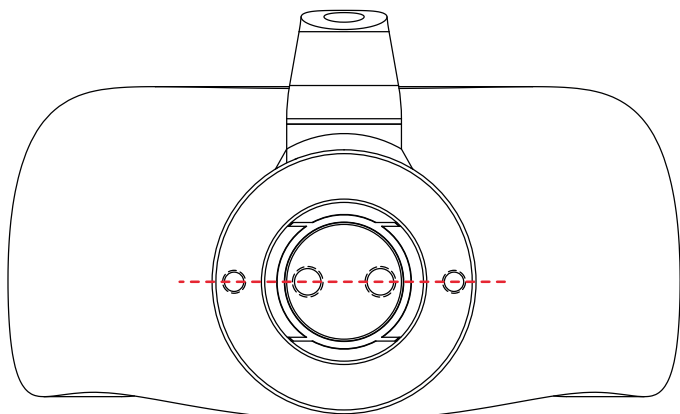


fig.4 Holes lining up

Tables

Size	B7 / B16	B8 / B8M
M8	15	7
M10	27	12
M12	68	27
M14	95	39
M16	129	54
M18	284	72
M20	400	95
M22	550	153
M24	690	227
M27	1030	333
M33	1890	468
M36	2400	633
M39	3100	834
M42	3900	1355
M45	4450	2054

tbl.2 Recommended torque (Nm)

Parts	Recommendation
Packings and seals	Never-Seez Dow Corning 111 Bostik NS-160
Body and internals	Never-Seez Dow Corning 111
Bolting	Never-Seez FelPro Blasolube 315

tbl.1 Recommended lubricants

Nozzle size	Torque
20.25 / 20.60	61 N-m (45 ft-lbf)
28.30 / 28.80	102 N-m (75 ft-lbf)
40.10 / 40.30 40H.10 / 40H.30	203 N-m (150 ft-lbf)
56.10 / 56.30	610 N-m (450 ft-lbf)

table 1. Nozzle torques