

Manual and maintenance guidelines for volume-compensator Type CB 1,2 S

1. **Installation:** Please first compare and control the technical data of the volume-compensator with the operating data. Before the installation, the armatures and ducts and the volume-compensator have to be cleared of any possible debris (packing material, welding beads, dirt etc.). In case of admission of the spring cavity with N₂ a pressure reducer has to be placed before the volume-compensator.
2. **Mounting position:** With the connection flange downward, as upright as possible.
3. **Manner of fixation:** any!
4. **Functional description:** The volume-compensator functions like a pressure (volume) accumulator that takes the medium with rise of pressure in the duct and releases it back into the piping with decrease of pressure. With the aid of a superimposed N₂-cussion the pressure range can be raised. Please read the contract note for exact technical data.
5. **Maintenance:** Under normal circumstances the volume-compensator requires no maintenance at all. With superimposed N₂-cussion the pressure of the superimposed N₂-cussion must be monitored. Should the N₂-pressure rise above the value adjusted on the upstream pressure reducer, the mounted bellows are probably leaky and have to be replaced.
6. **Repetitive inspection:** The volume-compensator must be checked for functional efficiency at least once every two years. Therefore proceed as follows:
 - 6.1 Venting of the duct and of the volume-compensator.
 - 6.2 Pressurize the volume-compensator with a testing pump on the medium side (flange DN 25 in part 2) with water and pressure p₁. Here the movement of the track shaft (part 6) is to be observed with a probe through the port DN 25 in the flange cover. Under p₁ the track shaft moves upwards. The track shaft must move approximately 50..60 mm by a test pressure of p₂. Should this movement not occur, the spring collar (part 9) and the bellows (part 5) have to be replaced.
 - 6.3 **Warning:** Only trained staff should disassemble the volume-compensator, because the volume-compensator is on spring tension **there is risk of injury**. We strongly advise that the volume-compensator should only be disassembled in an emergency.
7. **Disassembling: Only proceed after consideration of item 6 through trained staff:**
 - 7.1 Loosen four of the twelve flange nuts M10 and replace the stud bolts M10 x 250 with at least 300 mm long stud bolts and tighten with a torque of approximately 50 Nm with washers and nuts. Afterwards remove the remaining stud bolts M10 x 250. Then slowly loosen the four nuts on the stud bolts in turn (counter clockwise) without tilting the flange (part 4). After approximately 25..30 mm distance between flange (part 3) and housing (part 2) the integrated spring collar (part 9) is relaxed.
 - 7.2 After the complete dismantling of the nuts the flange (part 3) can be detached from the housing. Now the parts 5, 6, 8 and 9 can be removed.

8. Assembly: After the inspection of the removed parts and possible renewal of the defective parts the assembly can begin.

- 8.1 First all parts have to be cleaned and visually inspected; the seal face must be cleaned and new seals inserted. All parts have to be prepared for the assembly.
- 8.2 The assembly is carried out in reversed order of the descriptions in item 7. The screws are to be tightened with a torque of 50 Nm.
- 8.3 After the assembly a test as described in item 6 is to be carried out by an appointed and trained third person.

9. Completion: After a successful test the volume-compensator is again operational.

10. Enclosure: cut-view CS 1,2 S, drawing nr. 216.91475 Rev.00

