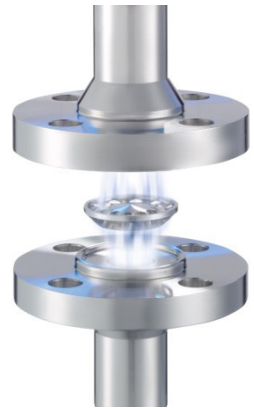


Installation and Maintenance Manual

NEUMO BioFlow Check Valve

Type VC – Body Seal BioConnect®
Type HVC – Body Seal BioConnect®
TCVC – Body Seal Tri-Clamp



1. Please read this manual carefully

NEUMO BioFlow check valves must be utilized, installed and repaired in compliance with this installation and maintenance manual only.

Observe all applicable rules and operational regulations.

In case of a leakage or damage, call certified service technician.

Further operation may result in system failure or general hazard.

Prior to maintenance, please make sure to have the system unpressurized ahead of and behind the valve.

2. Description

The valve types VC and TCVC are check valves designed for vertical installation.

Type HVC is designed for horizontal installation.

All models are characterized by a simple construction allowing the flow of a medium in one direction and prevent reflow in the other.

The valves consist of the following components:

- 1.) Upper housing (VC / TCVC) / Lid (HVC)
- 2.) Lower housing (VC / TCVC) / Body (HVC)
- 3.) Flowstop
- 4.) O-Ring BioConnect® (VC / HVC)
- 5.) Screws (VC / HVC)
- 6.) Nuts (VC)
- 7.) Clamp Ring (TCVC)

Product contacted parts are made of 1.4404 / 14435 (316L). Wetted surfaces have a surface finish of $Ra < 0,8\mu m$ (further surface finishes available on request). In addition, the valves types VC and HVC are electropolished on the inside.

3. Specified Normal Operation

NEUMO BioFlow check valve types VC and HVC are permitted for gas and fluid applications, up to an operational pressure of 16 bar (232 psi, pressure rating PN 10).

The chemical compatibility of the medium with the EPDM seal and the stainless steel alloy 1.4404 / 1.4435 has to be ensured.

The valves may also be utilized in steam applications up to 150°C (302°F).

4.0 Description

The valves are designed without a spring. The flow direction must correspond to the direction of the arrow engraved in the housing.

4.1 Welding Instructions

When welding the valves into the tube system, care must be taken that the body's O-ring as well as the Flowstop seal are protected against the resulting heat build-up.

In order to prevent any damage of the components caused by the resulting heat build-up, the O-ring (4.) and the Flowstop (3.) should be removed during the welding operation. Please refer to point 6.1 for a detailed description of the components' removal.

4.2 Check Valve Type VC and TCVC

The valves must be built into a vertical, rising tube in order to ensure safe functioning. The force of gravity supports the valve's closing.

4.3 Check Valve Type HVC

The valves must be built into a horizontal tube, lid facing upwards, to ensure a safe functioning.

5. Function

On reaching an initial pressure of 0,02 bar (0,3 psi) the valve opens automatically and enables the flow. When the pressure increases, the valve opens continually until fully open. During the pressure and flow increase the differential pressure in the valve may change. This may not occur proportionally to the pressure / flow increase.

The maximum differential pressure is 0,2 bar (3 psi) on full flow capacity.

When reducing the differential pressure the Flowstop sinks down toward the valve seat until a differential pressure of less than 0,02 bar (0.3 psi) is attained. The closing prevents a reflow of the medium against the actual product flow.

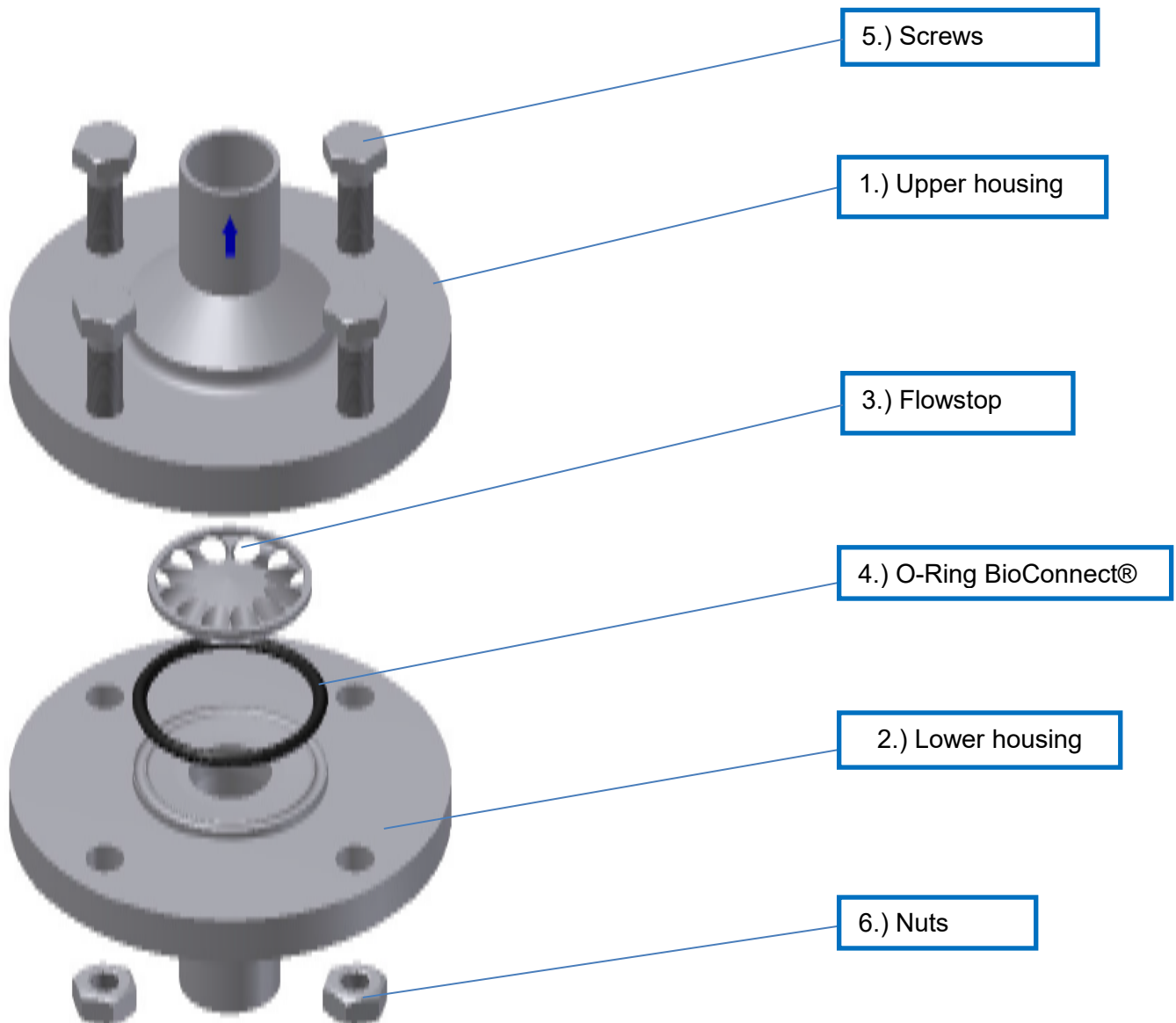
6.0 Maintenance

It usually does not become necessary to service the valve. In case of damage or tear and wear of the Flowstop seal and/or a leakage, the complete Flowstop (incl. a vulcanized seal) must be changed. Additionally, the O-ring must be inspected regularly and replaced if necessary.

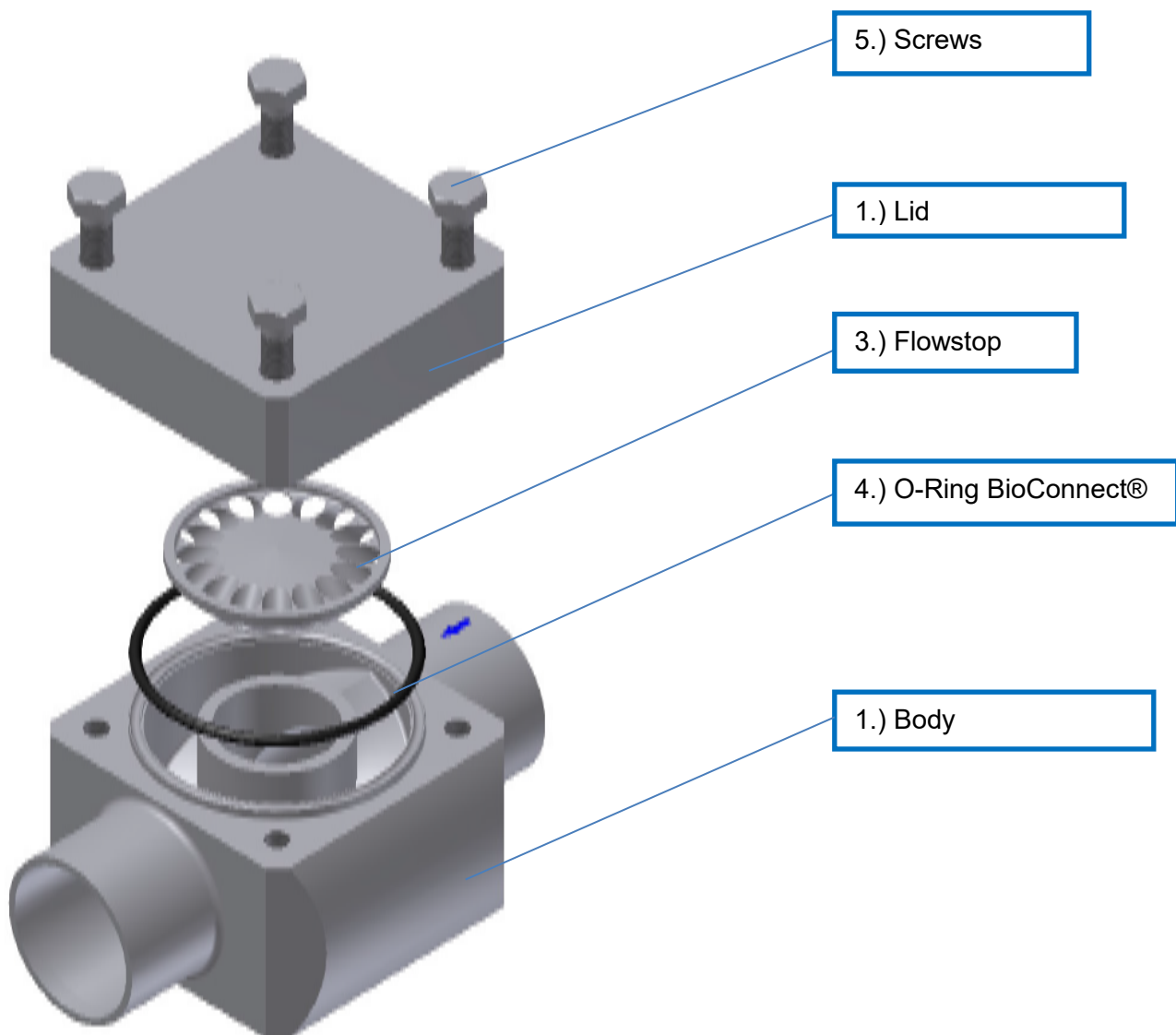
6.1 Disassembly / Assembly

Loosen and remove screws (5.) from nuts (6.) or Clamp Ring respectively as soon as the piping is without pressure. Then remove lid or upper housing (1.). We point out that the housing's exposed sealing areas must be protected from damages at any time. After that, remove Flowstop (3.) as well as O-ring (4.) and replace both components as required. Ensure that the Flowstop's (3.) sealing faces down when placed on the valve seat. Place lid or upper housing (1.). Assemble screws (5.) and nuts (6.) and tighten crosswise.

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