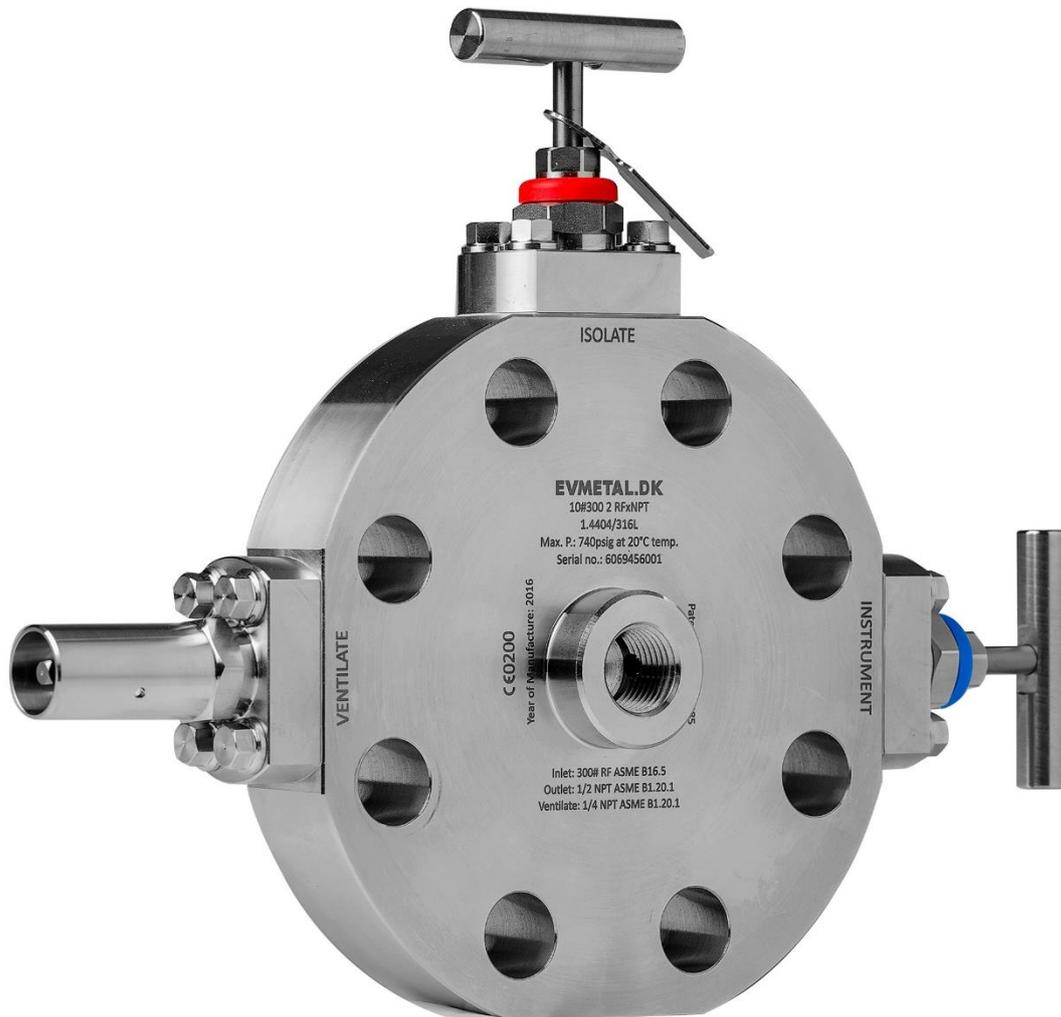


Project:

## Slimline Double Block and Bleed Valves (SDBB)/ Monoblock Instrument valves.



Title:

## User manual for Slimline Double Block and Bleed Valves (SDBB)

Document No.:

SDBB-0014

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Rev.	Purpose of issue	Date	Prepared by	Re-viewed by
1	Warning on lifting valves using the T-bar handle added.	02-10-2020	BBF	
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## 1. Safety:

The operator should read and understand this manual before operating the valve. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death.

## 2. Product description:

EV METALVÆRK A/S SDBB valves (Patent No. 2015 70100).

The EV METAL.DK program of Slimline Block and Bleed Valves - in the following referred to as SDBB valves - offers a compact lightweight instrument double block and bleed function. These compact models have the lowest possible number of leak potentials from a process connection as it involves one joint only – the pipeline flange to the valve body. The SDBB valves can be mounted directly onto vertical or horizontal flanged connections, allowing a gauge to be kept in an upright position.

Suitable for both primary isolation (double block and bleed) and instrument (block and bleed) duties, Mono block provides isolation, venting and instrument mounting in a single compact unit.

SDBB valves from EV Metalværk A/S are manually operated.

The valves are intended as either instrument valves or as process valves in systems with high pressure fluids in fluid group 1 and 2 according to the pressure directive (2014/68/EU).

The valves are made in various variants, where different connection types can be combined with different raw material types. The SDBB valves are available from class 150Lbs up till class 2500Lbs according to ASME B16.34 and up to 10.000 psi (690 bar) according to API 6A.

Flanged connections are available on inlet, or on both inlet and outlet in a choice of sizes and ratings to suit each particular application. The standard connecting flanges is:

- RF (raced face),
- RTJ (ringjoint),
- Graylock®.
- All kind of male and female treaded connections can be made on request. (in one piece)

Instrument coupling is usually ½" NPT or RTJ flange. The drain connection is ¼" NPT female connection, as standard. Other connection types are made on request.

## 3. Main dimensions and materials:

The main dimensions depend on the type of required connection and pressure rating. See general assembly drawing for the specific valve for information on dimensions.

The valves are available in the following materials:

- Austenitic stainless-steel type AISI316 (EN number 1.4404).
- Duplex steel type 22% Cr. (EN number 1.4462), SAF2205
- Super duplex steel type 25% Cr. (EN number 1.4410), SAF2507
- High alloy austenitic stainless-steel type 6Mo (EN number 1.4547), 254SMo
- Other materials on request.

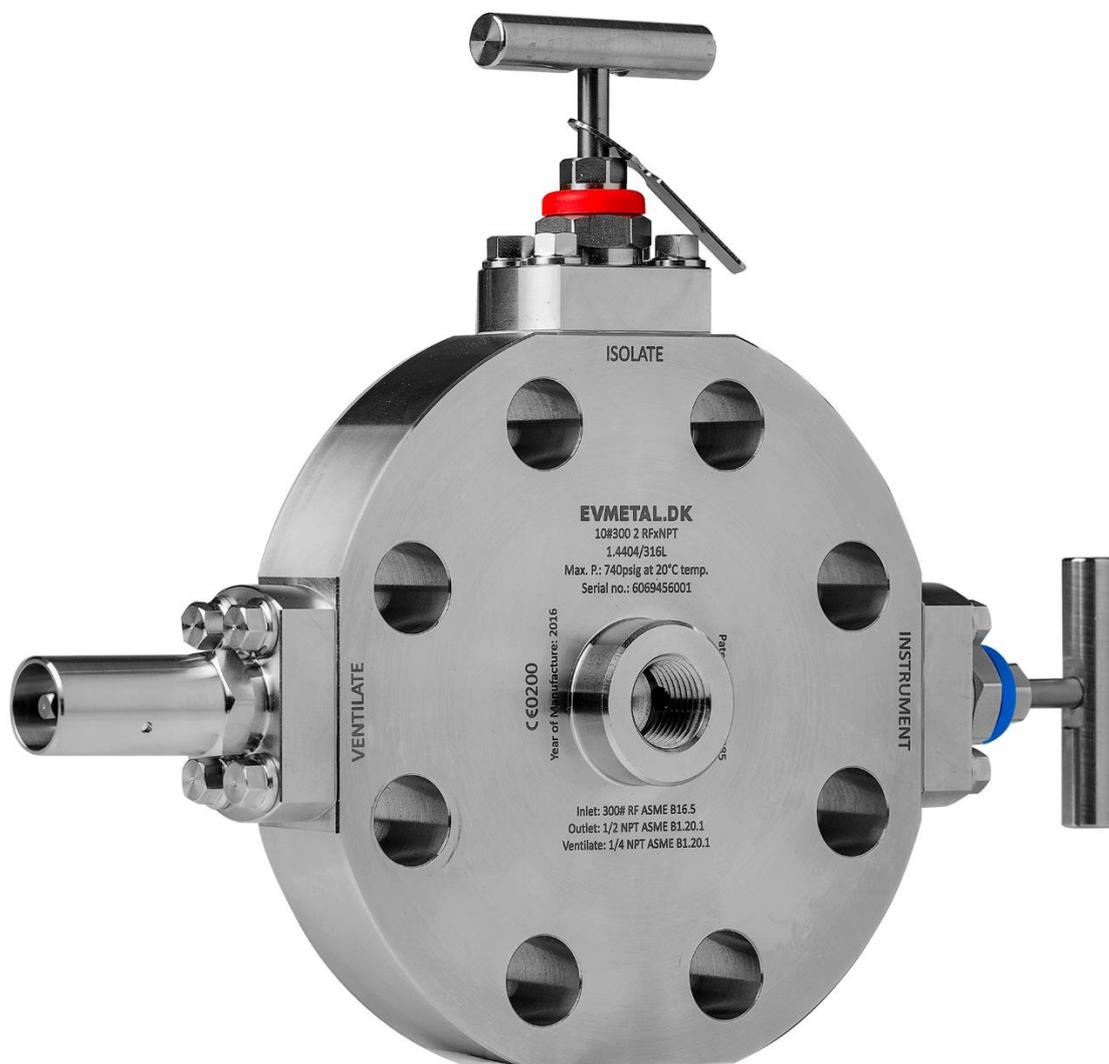
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## 4. Product Identification:

The valves are permanently marked on the valve body, by laser marking.

The making is typically placed on the outlet side of valve body or on the side of the valve body.

Isolate and Ventilate is normally operated with a T-handle. Isolate valve is marked with red dust cap. The Instrument valve is marked with blue dust cap. The ventilate valve must be operated with a 5 mm square key.





## 5. Intended use:

The valves are intended as instrument valves in systems with high pressure fluids in fluid group 1 and 2 according to the pressure directive (2014/68/EU).

The intended service range for the needle valves is specified in section 7 of this manual.

## 6. Restrictions:

The valve should only be installed in systems which are protected against excessive pressure.

Do not carry valves above 4 kilos using the T-bar handle. The T-bar handle might be pulled off the stem and the valve will be dropped on the ground.

The valves should not be subjected to fluids or service conditions causing corrosion and/or deteriorate the materials in valve.

### Warnings!

- High flow velocities of the fluid might lead to cavitation.
- Abrasive fluids might damage the regulation function of the valve.
- Do not dismantle the SDBB valve by loosening the bolts holding the bonnets to the valve body.

The valve must not be subjected to loads or functional demands exceeding those of section 7 of this manual.

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## 7. Technical data:

Type: Slimline Double Block and Bleed Bolted Bonnet Isolation valve.  
Metal seated, Back sealing.

Pressure-Temperature rating: ASME B16.34 Class#150 to Class#2500 and/or API 6A

- Austenitic stainless-steel type AISI316 (EN number 1.4404) => ..... Material group 2.1
- Duplex steel type 22% Cr. (EN number 1.4462) => ..... Material group 2.8
- Super duplex steel type 25% Cr. (EN number 1.4410) => ..... Material group 2.8
- High alloy austenitic stainless-steel type 6Mo (EN number 1.4547) => .. Material group 2.8

Flow passage: Min.  $\varnothing$ 5 mm.

Maximum working pressure: According to datasheet for the actual valve.

Allowable temperature range: According to datasheet for the actual valve.

Connections: According to datasheet for the actual valve.

Materials:

Valve Body According to datasheet for the actual valve.

Sealing According to datasheet for the actual valve.

Intended for: Fluid group 1 and 2 acc. to PED

Applied Standards: According to datasheet for the actual valve.

Material certification: According to datasheet for the actual valve.

Fluid Group: 1 & 2 acc. to PED  
PED classification according to annex 2, diagram 6.

Connections: According to datasheet for the actual valve.

Operation: Manually operated, T-bar

Protection: Fire safe - API6FA  
Anti-static by design – EN12266-2  
Sour Service – ISO 15156  
Anti-crevice-corrosion by design – Salt spray test according to ISO9227 (Wet/Dry)

Tests: Shell test with 1,5xPN according to:

- EN 12266-1 P10, P11.
- ISO 5208 - Shell test.
- API 6D – Stem backseat test and hydrostatic shell test.
- ANSI B16.34.

Shell Test with 6 bar Helium according to:

- EN12266-1 P11.
- ISO 5208 – Gas shell test.

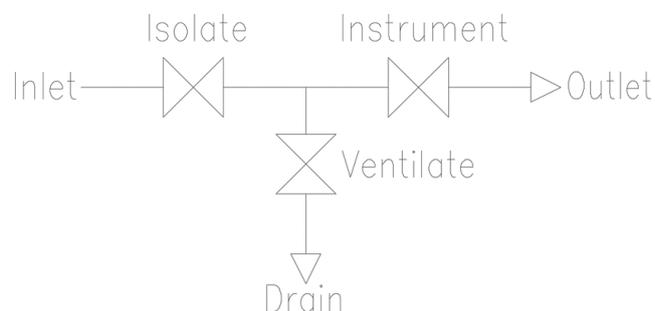
Tightness test with 1,1xPN according to:

- EN12266-1 P12, leakage rate A.
- ISO 5208 – High pressure liquid closure test, leakage rate A.
- API 6D – Hydrostatic seat test, ISO5208 leakage rate A.

Painting: N/A, as standard not painted, no matter material choice.

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Piping and Instrumentation diagram:



## 8. Installation:

Only trained personnel may install the SDBB valve.

The SDBB valves can be mounted in any direction.

### WARNING:

Do not carry valves above 4 kilos using the T-bar handle. The T-bar handle might be pulled of the stem and the valve will be dropped on the ground.

Make sure the system and components have been depressurized before any installation work is made on the components.

### Mounting:

- Unpack the valve. The valve is delivered skin-packed from EV-Metalværk A/S.

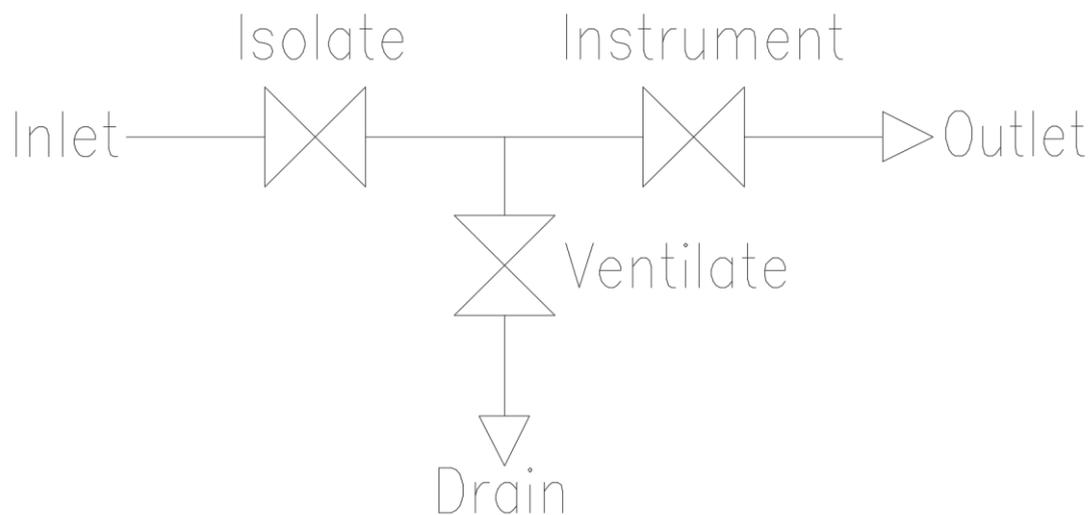


- Protect the valve from contamination.
- Protect the valve from ingress of moisture and particles.
- Open all the valves.
- Mount the inlet side of the valve to the process line using proper equipment corresponding to the connection type.
- Mount equipment or connection at outlet side.
- Test the connections for leakage.

## 9. Operating instructions:

Only trained personnel may operate the SDBB valve.

Piping and Instrumentation diagram for the SDBB valve:



Isolate and Ventilate is normally operated with a T-handle. Isolate valve is marked with red dust cap. The Instrument valve is marked with blue dust cap. The ventilate valve must be operated with a 5 mm square key.

### Replace, calibrate or repair an instrument:

- 1) Close the connection to the process media by closing the ventilate valve.
- 2) Check the drain opening is free, remove plugs, caps or any other blocking of the drain opening.
- 3) Open the instrument valve and the VENTILATE valve to ensure that all pressure is removed from the system.
- 4) Close the INSTRUMENT valve and remove/replace the instrument.
- 5) When the instrument is mounted open the INSTRUMENT valve, VENTILATION valve and ISOLATE valve until all air is removed from the system.
- 6) Close the VENTILATE valve.
- 7) Close INSTRUMENT valve if connection between INLET and OUTLET must to be closed.
- 8) Close ISOLATE valve if the connection from INLET to DRAIN and OUTLET must be closed.

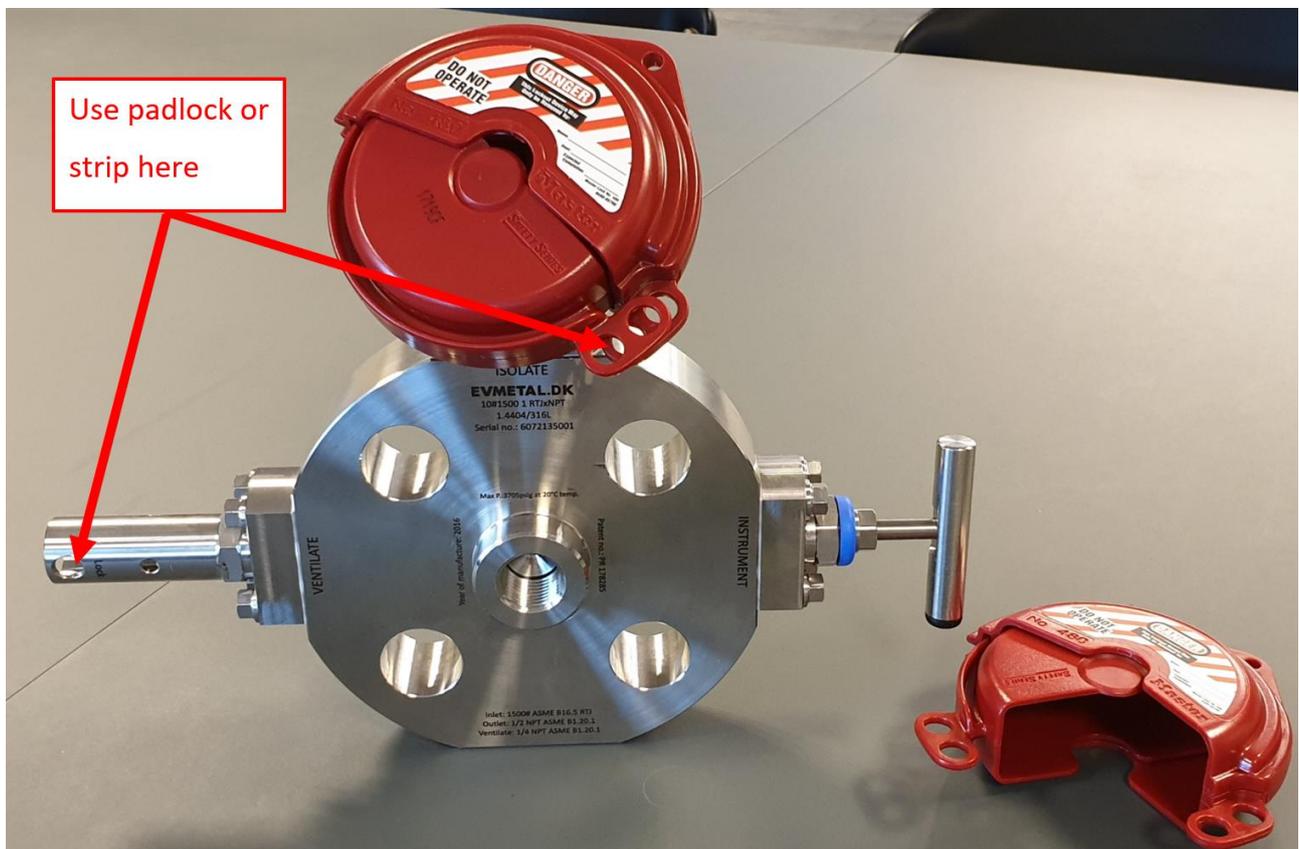
## 10. Valve locks - When opening/closing of valves is prohibited.

The Master Lock® device is used to surround the valve operating handle (T-bar) of the SDBB in order to protect against accidental valve opening. The unique rotating design allows for easier installation in confined space applications. The tough dielectric Zenez™ Thermoplastic body withstands chemicals and performs effectively in extreme conditions.

One (1) valve lock-kit consists of: (**article number: 4000-300**)

- a. Two (2) Master Locks. One (1) for the **Instrument valve** and one (1) the **Isolate valve**, plus
- b. One (1) extended stem protection unit with a 6 mm padlock hole for a standard padlock or a plastic strip for the **Ventilate valve**.

This extended stem with padlock hole is mounted on the valve by ordering the valve kit.



## 11. Utility requirements and first fills:

There are no utility requirements. The valves are manually operated.

There are no first fills needed. The valves are operational without liquid medias.

## 12. Spare Part Interchangeability Report (SPIR):

Spare part interchangeability is not required during installation, commissioning and normal operation.

## 13. List of recommended start-up and commissioning spares (including both onshore pre-commissioning and offshore commissioning.)

Spare parts are not required during installation, commissioning and normal operation. Damaged valves should be replaced. Damaged valves to be refurbished by EV Metalværk A/S only.

## 14. Special tools list:

Only one (1) special tool is required to operate or service EVMETAL.DK SDBB Valves. A square key for the Ventilator valve. (used for safety of unintended open/close of valve).

## 15. Maintenance:

Note:

- Only trained personnel must maintain the SDBB valve.
- Only use original spare parts. Use of wrong or faulty spare parts might result in damages, malfunction or total failure.
- No modifications may be made to the valve without the written permission from EV Metalværk A/S.

### **WARNING!**

**Do not dismantle the SDBB valve by loosening the bolts holding the bonnets to the valve body.**

Maintenance activities:

- Visually check the valve for external corrosion and erosion.
- Check marking is legible.
- Check tightness of in- and outlet connections on the valve.
- Check tightness of stem connections.

The frequency of the maintenance activities depends on the service conditions. Adjustment of the valve packing rings to assure the tightness of the valve are necessary. The time between the adjustments depend on the service conditions.

**Adjustment of valve sealing for ISOLATE and INSTRUMENT valve:**

1. Remove the handle using a 3 mm allen key.



2. Loosen the counter nut by turning it counter-clock wise using a 22 mm key.



3. Tighten the stem sealing by turning the gland clock wise using a 13 mm key. Note, use a closed key to avoid damaging the hexagon.

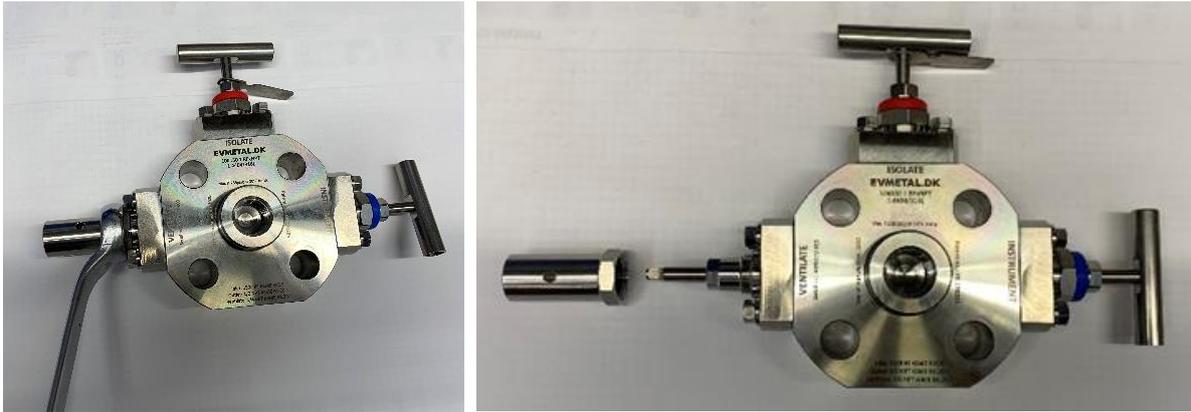


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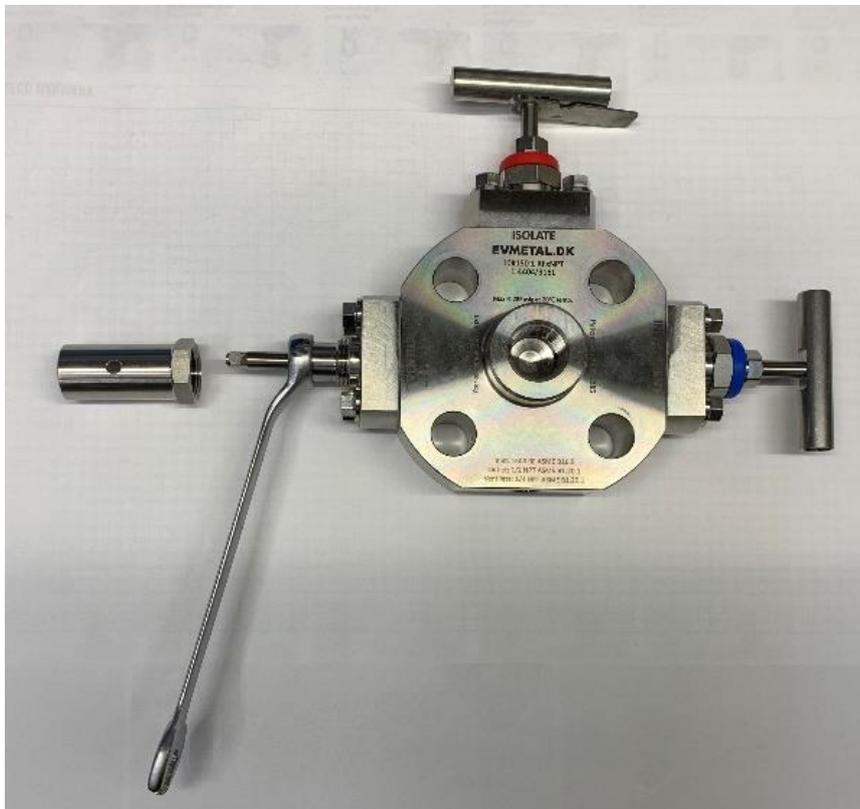
4. Tighten the counter nut by turning it clock wise using a 22 mm key.
5. Mount the handle.
6. Check the tightness of the stem connection.

### **Adjustment of valve sealing for VENTILATE valve:**

1. Remove the stem protection by turning it counter clock wise using a 22 mm.



2. Tighten the stem sealing by turning the gland clock wise using a 13 mm key. Note, use a closed key to avoid damaging the hexagon.



3. Check the tightness of the stem connection.
4. Mount and tighten the stem protection using a 22 mm key.

## 16. Disposal:

**WARNING:**

**Make sure the system and components have been depressurized before dismantling.**

At the end of its service life the valve should be disposed in accordance with national legislation.

Metallic and plastic parts can be re-cycled.

## 17. Compliance with directives:

The metering valves comply with;

- Pressure equipment Directive 2014/68/EC.

**Thank you for purchasing EV METAL.DK SDBB valves and thank you for reading this manual.**

**Best regards,**

**EV Metalværk A/S**