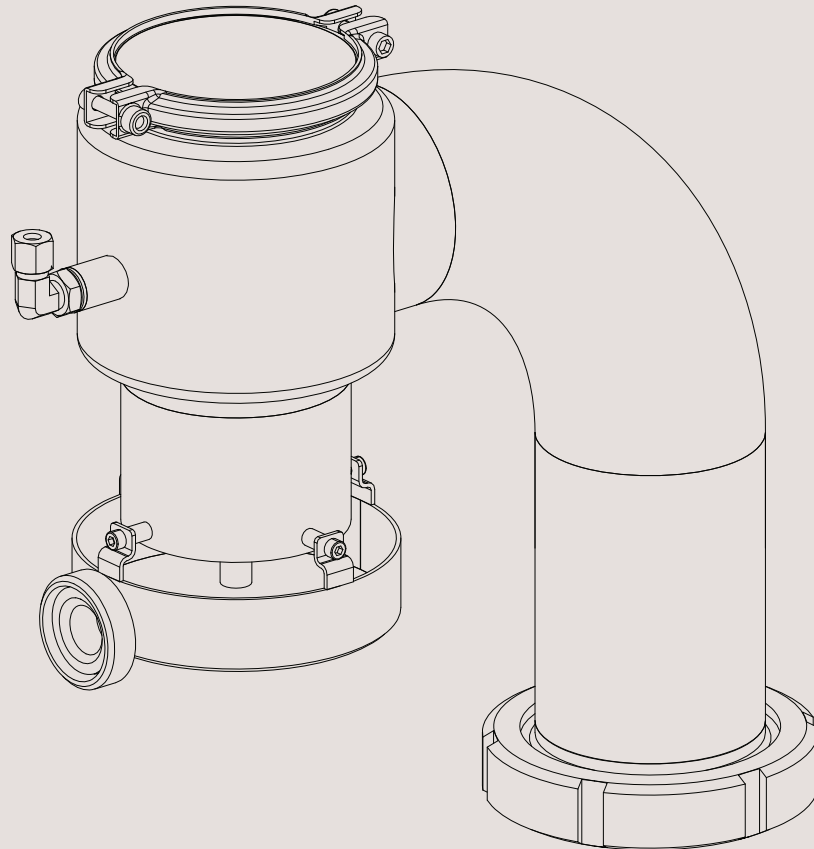




# Instruction Manual

## Alfa Laval SB Anti Vacuum House



ESE02964-EN3      2016-06

Original manual



The information herein is correct at the time of issue but may be subject to change without prior notice

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# 1 EC Declaration of Conformity

Revision of Declaration of Conformity: 2015-06-02

The Designated Company

Alfa Laval Kolding A/S  
Company Name

Albuen 31, DK-6000 Kolding, Denmark  
Address

+45 79 32 22 00  
Phone No.

hereby declares that

Valve  
Designation

Alfa Laval SB Anti Vacuum House  
Type

is in conformity with the following directives with amendments:

- Machinery Directive 2006/42/EC
- Pressure Equipment Directive 2014/68/EU of the European Community, Category IV
- Pressure Equipment Directive 2014/68/EU of the European Community, Fluida Group II


The person authorised to compile the technical file is the signer of this document

Global Product Quality Manager  
Pumps, Valves, Fittings and Tank Equipment  
Title

Lars Kruse Andersen  
Name

Kolding  
Place

2016-06-15  
Date

  
Signature



*Unsafe practices and other important information are emphasised in this manual.  
Warnings are emphasised by means of special symbols.*

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### 2.1 Important information

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**Always read the manual before using the valve!**

#### **WARNING**

Indicates that special procedures must be followed to avoid serious personal injury.

#### **CAUTION**

Indicates that special procedures must be followed to avoid damage to the valve.

#### **NOTE**

Indicates important information to simplify or clarify procedures.

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### 2.2 Warning signs

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General warning:



Caustic agents:



## 2 Safety

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All warnings in the manual are summarised on this page.

Pay special attention to the instructions below to avoid serious personal injury and damage to the valve.

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### 2.3 Safety precautions

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#### Installation:

**Always** read the technical data thoroughly (see chapter 6 Technical Data.)

**Never** touch the moving parts if the actuator for force opening is supplied with compressed air.

**Never** dismantle the valve or actuator for force opening when under pressure.

**Never** dismantle the valve when it is hot.



#### Operation:

**Never** dismantle the valve or actuator for force opening when under pressure.

**Never** dismantle the valve when it is hot.

**Always** read the technical data thoroughly (see chapter 6 Technical Data)

**Never** touch the moving parts or actuator for force opening when supplied with compressed air.

**Never** cover or in any way restrict the valve must be able to work unobstructed at all time.



**Always** handle lye and acid with great care.



#### Maintenance:

**Always** read the technical data thoroughly (see chapter 6 Technical Data)

**Never** service the valve when it is hot.

**Never** service the valve or actuator when under pressure.

**Never** put your fingers between the valve and actuator for force opening.

**Never** touch the moving parts if the actuator for force opening is supplied with compressed air.



#### Transportation:

**Always** ensure that all bolt connections are disconnected before attempting to remove the valve from the installation.

**Always** drain liquid out of valves before transportation.

**Always** ensure sufficient fixing of the valve during transportation.

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*The instruction manual is part of delivery. Study the instructions carefully.  
The items refer to the Parts List and Service Kits section.*

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### 3.1 Unpacking/delivery

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#### Step 1

##### CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

#### Check the delivery for:

1. Complete valve
  2. Drain collector (option)
  3. Force opener (option)
  4. Proximity sensor (option)
  5. Pressure regulator (option)
  6. Pressure relief valve (option)
  7. Blind plate (option)
- 

#### Step 2

Remove any packing materials from the valve/valve parts.  
Inspect the valve/valve parts for visible transport damage.  
Avoid damaging the valve/valve parts.

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### 3.2 General installation

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#### Step 1



**Always** read the technical data thoroughly.  
See chapter 6 Technical Data



**Always** release compressed air from the actuator for force opening after use.

##### CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

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### 3 Installation

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*The instruction manual is part of delivery. Study the instructions carefully.  
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#### 3.3 Valve assembly

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The Anti Vacuum House is delivered as a fully assembled valve.  
In the case of a Pressure Relief valve option, the weight and lever must be fitted by customer.

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#### 3.4 Installation of valve and accessories

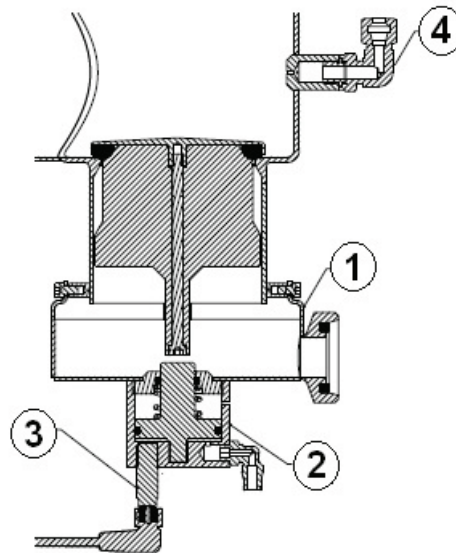
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The valve will normally be fitted with a 90-degree bend with a nut and liner or a flange connection.  
The valve must be fitted in an upright position. An inclination of max 5° is acceptable.

The valve is equipped with a CIP nozzle and pipe fitting suitable for an OD8 mm steel pipe.  
Connect CIP supply or blind of connection.  
Ensure all connections are tight.

##### Options

1. Drain collector
2. Force opener
3. Proximity sensor
4. CIP nozzle (standard)





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### 3.5 Recycling information

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#### Unpacking

- Packing material consists of wood, plastics, cardboard boxes and, in some cases, metal straps.
- Wood and cardboard boxes can be reused, recycled or used for energy recovery.
- Plastics should be recycled or burnt at an authorised waste incineration plant.
- Metal straps should be sent for material recycling.

#### Maintenance

- All metal parts should be sent for material recycling.
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling.

#### Scrapping

- At the end of use, the equipment should be recycled according to relevant local regulations. As well as the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.
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## 4 Operation

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*The instruction manual is part of delivery. Study the instructions carefully.  
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### 4.1 Operation

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**Never** obstruct or any way modify the valve plug.  
Alfa Laval cannot be held responsible for incorrect operation.

#### Operation range

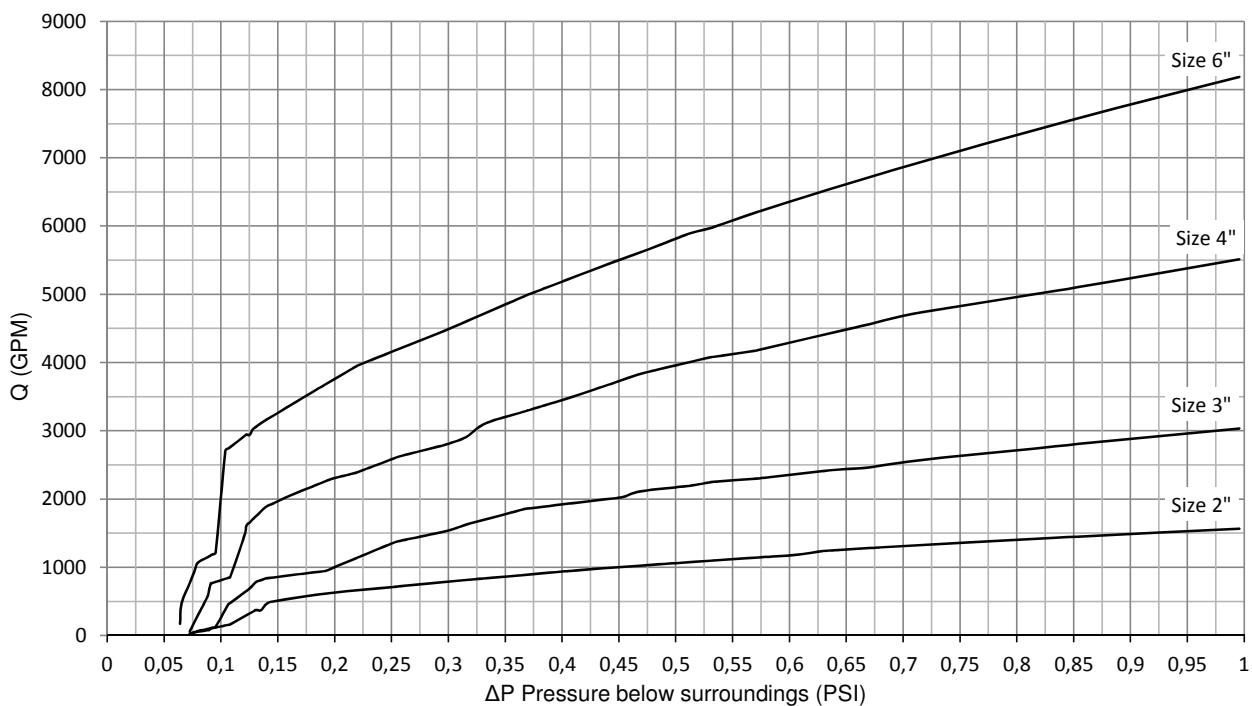
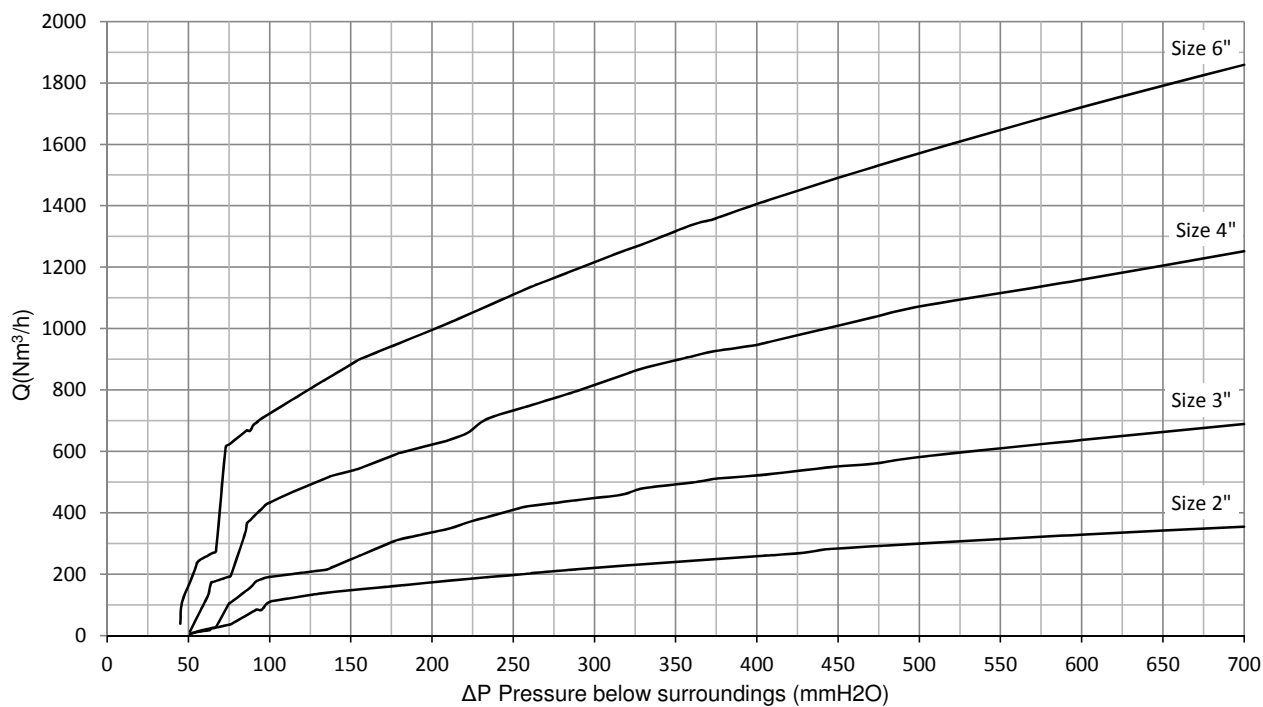
Nominal size	Opening pressure	Allowable pressure PS
2"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)
3"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)
4"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)
6"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)

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4.2 Discharge capacity

Medium: Air



## 4 Operation

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*The instruction manual is part of delivery. Study the instructions carefully.  
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### 4.3 Recommended cleaning

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**Always** handle lye and acid with great care.

**Caustic hazard!**



**Always** use  
rubber gloves!



**Always** use  
protective goggles!

It is important that the valve seat is kept clean.

The Anti Vacuum House can be cleaned during tank CIP cycle by connecting the CIP nozzle to main CIP supply.

To prevent CIP detergent from spilling on the tank top, the use of a drain collector is recommended.

When the tank is cleaned depressurised, a small volume of cleaning fluid will pass the vacuum body and clean the seat. To ensure thorough flushing of the valve seat, force opening of the valve is necessary.

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The instruction manual is part of delivery. Study the instructions carefully.  
The items refer to the Parts List and Service Kits section.

### 5.1 General maintenance

#### Step 1



**Always** read the technical data thoroughly.  
See chapter 6 Technical Data

#### Step 2



**Never** service the valve when it is hot.



**Never** service the valve with the valve or actuator under pressure.

Atmospheric pressure required!

Burning hazard!



#### Step 3



**Never** put your fingers between the valve and actuator for force opening.

Cutting hazard!



#### Step 4



**Never** touch the moving parts if the actuator for force opening is supplied with compressed air.

Moving parts!



Below are some guidelines for maintenance and lubrication intervals.

#### Valve

To ensure the valve operates correctly, test of function at regular intervals is required.  
Intervals are dependent on operation conditions and should be specified by the user or local regulations.

Alfa Laval recommends intervals of once every 6-12 months.  
Plug seal and gasket replacement every 2-5 years.

#### Actuator for force opening

Disassemble, clean and lubricate the actuator every 2-5 years.  
O-ring replacement every 2-5 years.

## 6 Technical Data

The instruction manual is part of delivery. Study the instructions carefully.  
The items refer to the Parts List and Service Kits section.

### 6.1 Technical data

The Anti Vacuum House is used to minimise the risk of implosion of tanks exposed to vacuum e.g. during emptying, cool-rinsing after hot-cleaning or caustic cleaning in a CO<sub>2</sub> atmosphere. The valve can be equipped with a force opener.

#### Valve data

Operation range			
Nominal size	Opening pressure	Allowable pressure PS	Weight
2"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)	1.5 kg
3"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)	3 kg
4"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)	5.8 kg
6"	50 mmH <sub>2</sub> O (0.07 psi)	4.5 bar (65 psi)	13.1 kg
CIP nozzle flow rate			
2"	0.35 m <sup>3</sup> /h @ 1 bar	(1.5 GPM @ 14.5 psi)	
3"	0.35 m <sup>3</sup> /h @ 1 bar	(1.5 GPM @ 14.5 psi)	
4"	0.35 m <sup>3</sup> /h @ 1 bar	(1.5 GPM @ 14.5 psi)	
6"	5.1 m <sup>3</sup> /h @ 1 bar	(22.45 GPM @ 14.5 psi)	

Materials	
Product wetted steel parts	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted seals	EPDM
Temperature	
Max. operating temperature	80°C

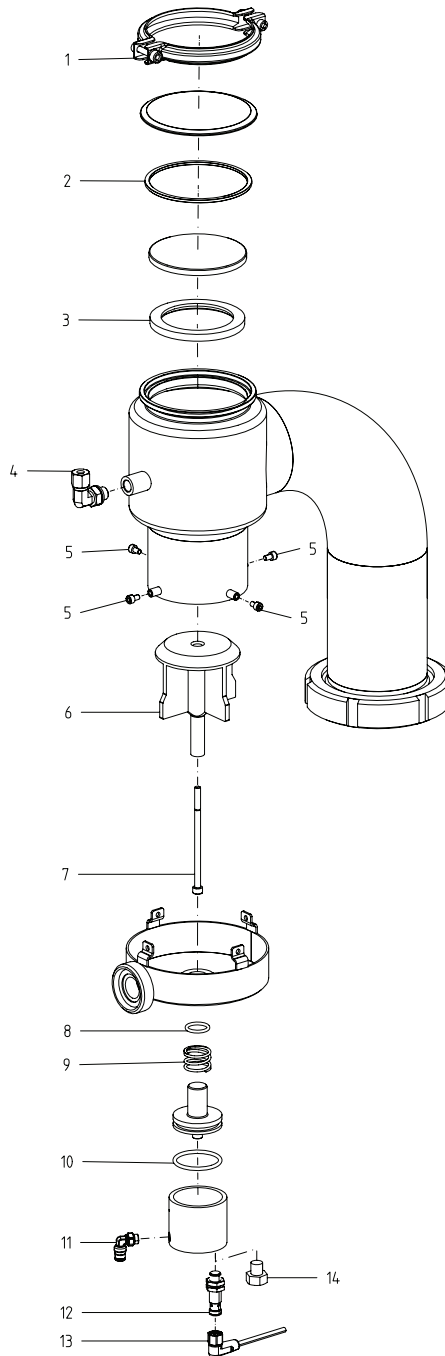
#### Actuator data

Actuator for force opening	
Max. air supply	10 bar
Min. air supply	5 bar
Noise	
Noise of actuator	75 dB(A)



## 7 Parts List and Service Kits

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## 7 Parts List and Service Kits

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### Parts list

Pos.	Qty	Denomination
1	1	Clamp
2 ♦	1	Seal ring, EPDM
3 ♦	1	Plug seal, EPDM
4	1	CIP inlet
5	4	Screw
6	1	Vacuum tail
7	1	Screw
8 □	1	O-ring, NBR
9	1	Spring
10 □	1	O-ring, NBR
11	1	Air fitting
12	1	Sensor
13	1	Sensor cable 5 m
14	1	Plug

### Service kits

Denomination	51 mm	76.1 mm	101.6 mm	DN150
♦ Service kit Anti Vacuum House .....	9611924329	9611924330	9611924331	9611924332
□ Service kit Force opener .....	9615151001	9615151001	9615151001	9615151001

**How to contact Alfa Laval**

Contact details for all countries are continually updated on our website.

Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information directly.

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