

## NEOTECHA SAPRO<sup>®</sup> - ASEPTIC SAMPLING VALVE SV

### INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Before installation these instructions must be fully read and understood



#### USE

Valves for aseptic sampling of liquid mediums in tubes.

#### 1 GENERAL INFORMATION ABOUT THIS INSTRUCTION

These instructions include all directs to safely install and operate the SAPRO-aseptic sampling valve. If any problems arise, which cannot be solved with these instructions, please call for more information at the manufacturer. These instructions are corresponding to the valid EN-safety standards.

Using this armature requires the operator, design engineer or the fitter of the plant to observe all valid national technical standards. Any technical change or improvement can only be lead trough the manufacturer. Using these instructions (and therefore also using the sampling valve) requires qualified personnel, installation and operating staff needs to be trained according to these instructions.

##### 1.1 Validity of these installation, maintenance and repair instructions

These installation, maintenance and repair instructions are valid for all SAPRO-aseptic sampling valves, built at Neotecha AG after March, 07. 2002. The period of validity ends with the release of a new revision of the instructions.

#### 2 SAFETY

Please read these instructions carefully.

##### 2.1 General danger potential

- Not paying attention to this instruction
- Incautious use or misuse
- Unqualified personnel or staff

##### 2.2 Use as directed

###### 2.2.1 Area of use

SAPRO-aseptic sampling valves are armatures, used for taking exact aseptic samples from mediums in tubes. In combination with the special aseptic bottle adapter, it is possible to take samples from any high-corrosive or hot medium without any contact of the medium with (maybe polluted) air. It is even possible to fill the sampling bottle with nitrogen before taking a sample, and also clean the inner parts of the bayonet sleeve and bottle adapter with cleaning liquid or to sterilize them with steam. When not taking samples, the SAPRO-aseptic sampling valve can be closed with a dummy adapter, preventing the bayonet sleeve from pollution. The SAPRO-aseptic sampling valve can only be installed in horizontal tubes, there is no possibility to install the valve in a vertical tube. All parts of the sampling valve in contact with medium are in stainless steel 1.4435 (316L), Hastelloy (different types), PTFE, PEEK or Perfluore.

###### 2.2.2 Detailed function of the aseptic sampling valve

The valve stem seals against the bottle adapter in the valve seat. By lifting up the stem with the dead man lever, the sampling medium flows through the bottle adapter into the bottle. The air (or nitrogen) in the bottle is blown out through a small drilling on the side of the bottle adapter, closed with a cross-cut silicone septum to prevent pollution reaching into the bottle. All parts in contact with the medium can be cleaned with cleaning liquid or steam before taking a sample, the bottle can be attached to the bottle adapter in the laboratory, the bottle may even be filled with nitrogen and the adapter keeps entirely closed until it's connected to the bayonet of the sampling valve. When not taking a sample, the bayonet sleeve of the valve can be closed with a dummy adapter as a protection against pollution.

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### 2.2.3 Technical data

|                    |                       |
|--------------------|-----------------------|
| Pressure range:    | 20Pa vacuum to 16 bar |
| Temperature range: | See diagram           |
| Sizes              |                       |
| DIN PN 16:         | DN 40 - 100           |
| ANSI cl. 150:      | NPS 1½ - 4            |
| Testing pressure:  | 1.5 x PN = 24 bar     |

### 2.2.4 Restricted use

The valve can only be used with products when the materials used (SS, PTFE, PEEK or Perfluore) are compatible. Information about the chemical resistance of these materials is found in technical literature or may be asked at the manufacturer.

### 2.2.5 Illegal technical changes

It is illegal to do mechanical changes of the design of the SAPRO-aseptic sampling valve, or to use parts of other manufacturers for repairs, otherwise Neotecha can not guarantee for the safety of the valve. Repairs can only be done by Neotecha or personnel specially trained by Neotecha.

### 2.2.6 Warning of misuse

The Sapro aseptic sampling valve with all connection pipes and actuators can never be used to climb up or to stand on it.

### 2.2.7 Liability to obtain all directs about operation, maintenance and repair

These instructions are a part of the product delivery and has to be available for all operators of the valve, stored well protected from pollution.

## 2.3 Danger sources

### 2.3.1 Chemical external

The sleeve on the actuator should not be cleaned with solvents, use alcohol or a mild detergent.

### 2.3.2 Electrically

To prevent static charges, the entire aseptic sampling valve is made of conductive metal.

### 2.3.3 Thermically

With a sample medium temperature range between -20°C to 200°C, the surface of the sampling valve may assume the same temperature. It is therefore necessary to wear gloves to avoid injuries when operating the valve.

### 2.3.4 Protection against opening the valve by mistake (see fig. 1)

To prevent opening the valve by mistake, the locking pin (3) can be used. A padlock (10, not included in delivery) can additionally be used against deliberate opening.

## 2.4 Requests for the operators

Operators are people who are familiar with the installation, operation, maintenance and repair of the SAPRO-aseptic sampling valve. They also have to be qualified enough to safely handle the valve and they have to:

- Keep all technical, internal and national regulations and instructions.
- Be trained according national safety standards, for example the use of their personal safety clothes or heat gloves, which have to be appropriate to production conditions.
- Have read and understood these instructions.

## 3. TRANSPORTATION AND STORAGE

The SAPRO-aseptic sampling valve is delivered with protection caps. Please leave these caps on the valve until it is ready to be installed. The aseptic sampling valve has to be stored in a dry, dust-free place until it's installed.

### 3.1. Transportation

- Transportation temperature range -20°C to 65°C.
- Protect against mechanical stress (shock, punch, vibration).

### 3.2. Storage

- Storage temperature range -20°C to 65°C, dry and dust-free.
- Please use driers or heating against condensation water in humid storerooms.

### 3.3. Handling before installation

- Remove the protection caps just before installation.
- Protect the sampling valve against wetness (otherwise dry before installation).
- Handling as directed protects from damage.

## PRESSURE/TEMPERATURE DIAGRAM

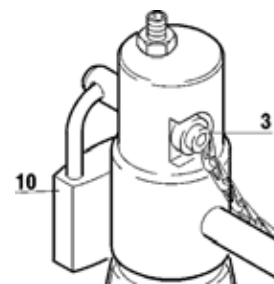
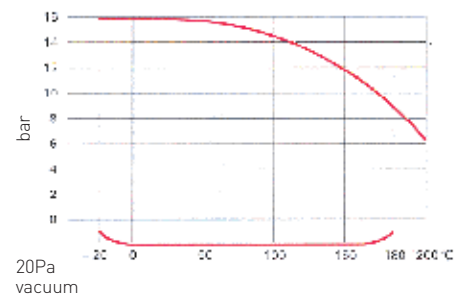


FIG. 1

# NEOTECHA SAPRO® - ASEPTIC SAMPLING VALVE SV

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### 4. CHARACTERISTICS

#### 4.1 General characteristics

##### Connection versions:

I-Clamp  
Tri-Clamp  
Other connection versions are available, ask the manufacturer.

##### Body styles:

Flanged DIN-length  
Flanged ANSI-length

##### Screws:

Screw quality A2 for all pressure loaded screws

##### Adapters:

Aseptic bottle adapter for glass bottles, thread ISO GL45  
Dummy adapter to protect the valve from pollution

##### Cleaning/sterilizing connections:

3 connections threads 1/4" NPT for steam, rinse (with cleaning liquid) and drain

##### Blocking medium connections:

2 connection threads 1/4" NPT for blocking medium (normally alcohol)

##### Operating:

Dead man lever for manual operation  
Pneumatic actuator for automatic operation

##### Weights:

Weight table is only approximately, because of different connection- and adapter versions

#### 4.1.3 Description of the connections

The 3 connection threads 1/4" NPT on the bayonet sleeve are:

1. Steam inlet connection to sterilize the sample passage in the bayonet sleeve and the bottle adapter in pos. 1
2. Rinse connection to clean the sample passage in the bayonet sleeve and the bottle adapter in pos. 1
3. Drain connection to let the steam or cleaning liquid flow out before taking a sample

The 2 connection threads 1/4" NPT on the upper part of the valve body are:

- 4 + 5: Connections for blocking media (normally alcohol), one of them is used to fill in the alcohol, the other can be used to take a sample of the alcohol. By taking an alcohol sample at this point the state of the blocking media and the stem seal can be monitored

#### WEIGHT TABLE

| DN  | NPS | Weight flanged version |      |
|-----|-----|------------------------|------|
|     |     |                        | kg   |
| 25  | 1   |                        | 6.5  |
| 40  | 1½  |                        | 8.7  |
| 50  | 2   |                        | 10.6 |
| 65  | 2½  |                        | 16.0 |
| 80  | 3   |                        | 18.0 |
| 100 | 4   |                        | 20.0 |

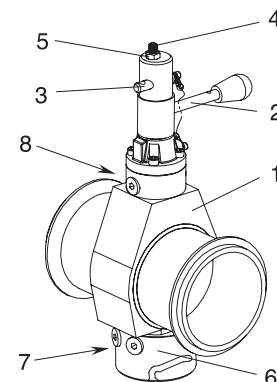


FIG. 2

#### 4.1.1 Aseptic sampling valve (see fig. 2)

1. Sapro-aseptic sampling valve body flanged version, I-Clamp or Tri-Clamp (DIN/ANSI)
2. Dead man lever
3. Locking pin (can be completed with a padlock, not included), fixed with a SS chain
4. Set screw for medium flow regulation
5. Hexagon nut to fix the regulation set screw
6. Bayonet sleeve for the aseptic bottle adapter
7. Connections 3 x 1/4" NPT for steam/rinse/drain
8. Connections 2 x 1/4" NPT for blocking medium

#### 4.1.2 Aseptic bottle adapter and dummy adapter (see fig. 3 and 4)

1. Sapro-aseptic bottle adapter with thread ISO GL45
2. Sapro-aseptic dummy adapter (used when not taking a sample)
3. Sampling bottle 100 ml to 2000 ml ISO GL45 (standard version is 250 ml)
4. Vent, closed with a cross-cut silicone septum
5. Grips aluminium black anodized

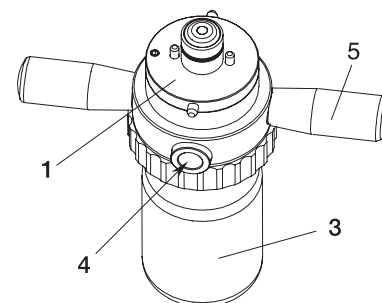


FIG. 3

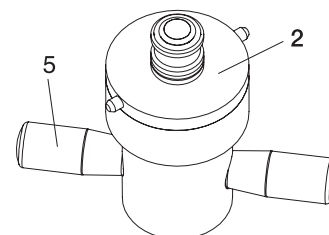


FIG. 4

#### 4.1.4 Description of the bayonet positions (see fig. 5)

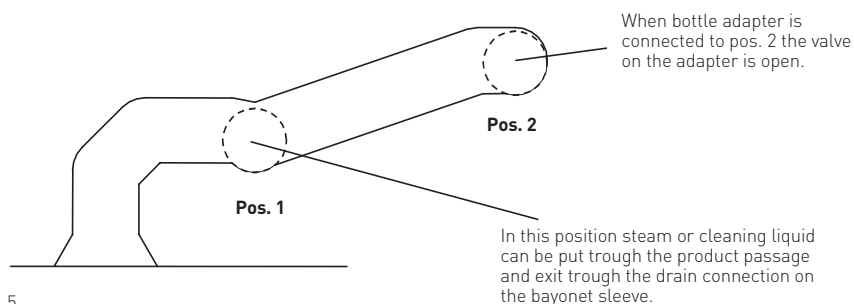


FIG. 5

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### 5 MARKS ON THE VALVE (see fig. 6)

The CE-mark on the valve is only needed, if the product is according to PED/DGRL 97/23/EG.

### 6 INSTALLATION

#### 6.1 General

##### 6.1.1 Preparation for the installation

The Sapro-aseptic sampling valve is designed for installation between flanged tubes. The standard clamp is an I-clamp with a standard (DIN or ANSI) face-to-face length. Please check the correct flange version before installing the valve.

The dimensions of the valve are in the catalog otherwise ask the manufacturer

The installation flanges need:

- Cleaned and undamaged connection flanges.
- To have the same size and standard as the connection flanges on the sampling valve have. Please check this out before any installation.

##### 6.1.2 Installation position of the Sapro-aseptic sampling valve (see fig. 7)

The Sapro-aseptic sampling valve can only be installed in horizontal tubes, where the sampling bottle stands vertically. There is no possibility to install the valve in a vertical tube.

#### 6.2 Installation between the flanged tubes

The flow direction of the sampling medium is not relevant for this aseptic sampling valve, but please check out if any special flange seals (gaskets) are needed.

A sampling valve should not be used to spread the connection tubes, this could damage the connection flange surfaces.

##### 6.2.1 Installation step by step (see fig. 8)

1. Check the correct size and type of the connection flanges on the sampling valve. Also check if the length of the valve body is correct for the installation.
2. Spread the connection tubes with a special tool (do not use the sampling valve itself to do this operation).
3. If needed, attach the connection gaskets to the connection flanges.
4. Turn the valve to the correct position and tighten the clamps (I-clamp or Tri-clamp) on the connection flanges. The valve is now ready to install the additional connections.
5. On the bayonet sleeve (6), there are 3 connections (1/4" NPT). Connect the steam connection to an external steamer (if possible) and the rinse connection to a cleaning medium connection. The drain connection needs normally no external connection.
6. On the upper side of the body, there are 2 connections (1/4" NPT). Connect one of them to enter with the blocking media (normally alcohol), the other connection is to take samples of the alcohol (to check the state of the blocking media and the stem seal can also be monitored).

#### WARNING

*Please do not apply any welding procedures when the sampling valve is already installed! The inner parts like the soft seat or the packing sleeve could be damaged!*

*Always tighten the clamps well before testing the sampling valve, even in low-pressure lines, never apply pressure to the valve without having all clamps tightened!*

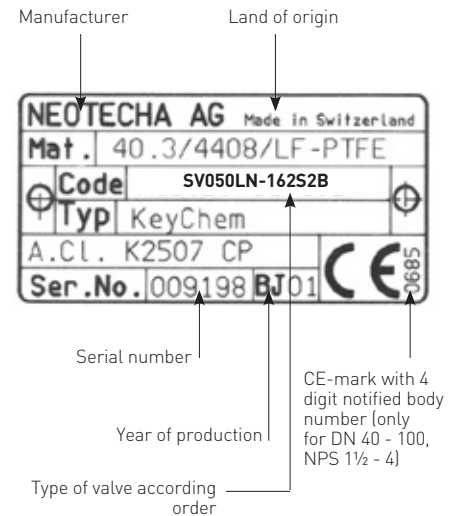


FIG. 6

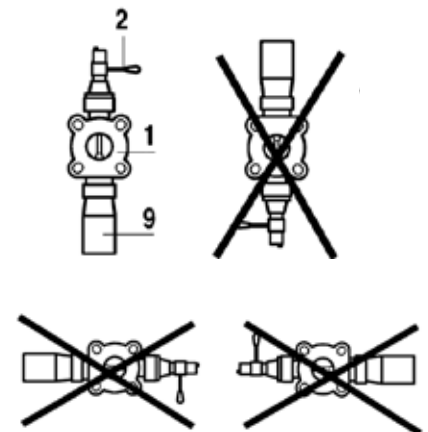


FIG. 7

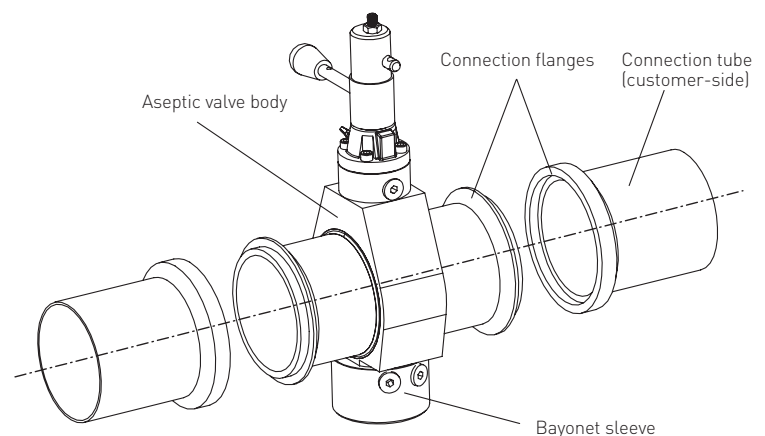


FIG. 8

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### 6.2.2 Final testing (see fig. 9)

Before you use the aseptic sampling valve for the first time, please rinse the system with cleaning liquid or water to prevent the soft seat of the valve of damage. Please also rinse and clean the bottle adapter and dummy before taking the first sample. The cleaning can be done by taking the padlock away (if there is one), taking the locking pin (3) out and operate the dead man lever (2) for a few seconds. The bottle adapter can be set in position 2 for cleaning. After cleaning, please put the locking pin in again.

## 7 STARTING

### 7.1 General

#### WARNING

*Before starting, all specifications like material resistance/pressure and temperature of the production process need to be checked again. Any pollution (for example from welding processes) could cause problems on the valve.*

### 7.2 Flow regulation (see fig. 10)

Attach the bottle adapter with the bottle to the bayonet sleeve of the valve. By operating the dead man lever, the bottle can be filled. To control the amount of medium flowing through the adapter, screw the set screw (4) in (less medium) or out (more medium). When having

found the right position of the set screw, it can be locked with the hexagon nut (5).

## 8 DANGER POTENTIAL DURING INSTALLATION, OPERATION AND MAINTENANCE

#### WARNING

*Safe operation of the Sapro-aseptic sampling valve is only guaranteed, when installed, operated and repaired by qualified personnel (see 'Qualified personnel'). All safety instructions and standards need to be fulfilled during installation, operation, maintenance and repair.*

## 9 OPERATION (see fig. 11)

1. To take an aseptic sample, the bottle should be attached to the bottle adapter in the laboratory, where it can also be filled up with nitrogen.
2. Take the dummy away from the bayonet sleeve and attach the bottle adapter (with the bottle connected) to the aseptic sampling valve, turn to position 1 (see point 4.1.4: Description of the bayonet positions).
3. The inner parts of the bottle adapter and the bayonet sleeve can now be sterilized with steam or cleaned with cleaning liquid through the two connections on the bayonet sleeve. Let the liquid flow through the drain connection.

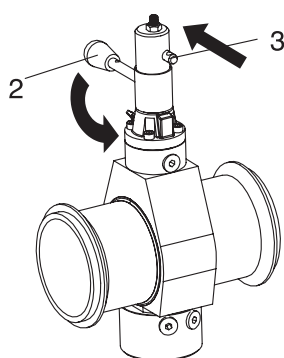


FIG. 9

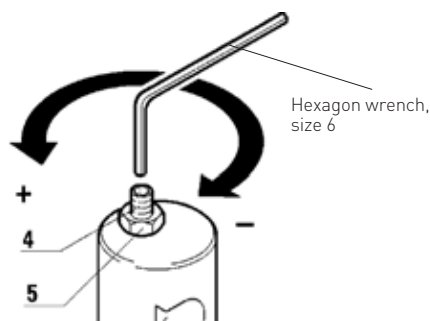


FIG. 10

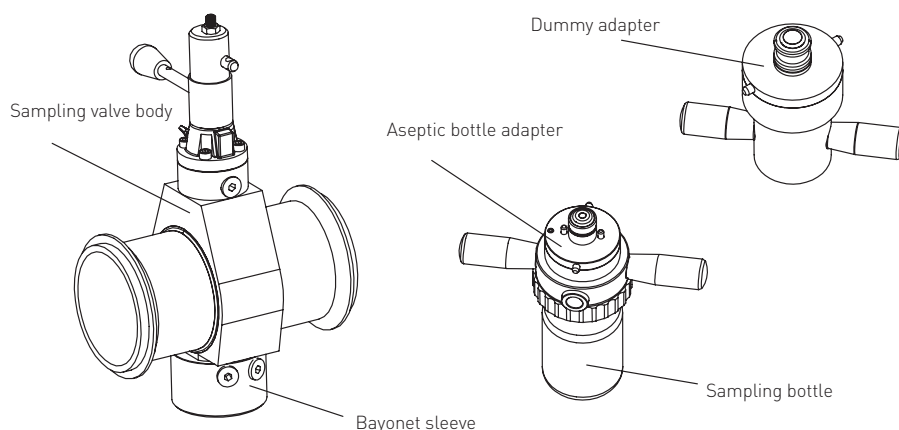


FIG. 11

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4. After cleaning, turn the bottle adapter to position 2, the bottle adapter now opens the sampling bottle.
5. Take the locking pin out and operate the dead man lever to the maximum opening position (see point 7.2: Flow regulation). Now, the stem is lifted up and the sampling medium flows through the bottle adapter into the sampling bottle. The air (or nitrogen) in the bottle is blown out through the silicone septum on the side of the bottle adapter. Control the filling of the bottle.

### WARNING

*Don't overfill the bottle!*

6. As the bottle contains enough sampling medium, let the dead man lever go, it closes the valve automatically.
7. Turn the bottle adapter back to position 1, the bottle is now closed again, do the same cleaning process as in point 3.
8. Take the bottle adapter away from the bayonet sleeve and attach the dummy adapter again.
9. The aseptic sampling process is now finished, the sampled medium can be taken to the laboratory to be analyzed.

## 10 MAINTENANCE AND REPAIR

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Though almost all parts of the Sapro-sampling valve are made of SS, only few maintenance or repair is needed. If any problems with crystallizing medium arise, it may be necessary to clean the soft seat and/or the bayonet sleeve of the sampling valve. This operation should only be done by qualified personnel and only when there is no medium or pressure in the tube anymore!

Prior to any maintenance or dismantling operation, the sampling valve and the tube needs to be empty and without any pressure! Depending on the medium flowing through the valve, the system has to be rinsed with water or cleaning liquid to protect the operator.

1. To clean the bayonet sleeve and/or dismantle the soft seat and valve seat, simply open the four screws on the bottom side which connect the bayonet sleeve to the sampling valve body.
2. All parts can be cleaned now, use normal cleaning liquids. If the soft seat looks really bad, it has to be exchanged, ask the manufacturer for spare parts.
3. Install all parts again, tighten the screws well!

If any problems on the upper part of the valve arise (dead man lever/problems with the stem seal), please contact the manufacturer.

## 11 DISPOSAL

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The valve needs to be cleaned before any disposal!

### WARNING

- *Incorrect cleaned sampling valves can cause injuries on hands or other parts of the human body, depending on the sampled medium.*
- *The manufacturer would not guarantee the safety of the valve when it is sold to other plants or factories after having it in sampling process.*