VOLUMETRIC SAMPLING TAP

PVL

Instructions

Reference: PVL_NOT_EN

Version F

SERVINOX

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1 INTRODUCTION

1.1. The manufacturer

SERVINOX is a specialist, making process equipment for the brewing, food, cosmetic and chemical industries.

Skill and knowledge about process equipment:
In areas such as the protection of tanks, sampling, injection of gas in liquids, scouring or cleaning pipes with patented products.

SERVINOX is certified ***ISO 9001: 2015*** and makes products complying with the following applicable standards and directives:

- Pressure Equipment Directive ***(PED)*** **2014/68/EU**
- European Directive concerning Devices for Use in Explosive Atmospheres ***(ATEX) 2014/34/EC***
- Hygienic standard for manufacturers US 3A

We are an active member of the association ***EHEDG France*** (hygienic standard for European manufacturers).

1.2. Instructions

To ensure the integrity of the device and the safety of people, you should be aware of the information contained in these instructions before installing and using the device.

Depending on the installation and the fluid, the specific directives and regulations apply, and should be complied with.

In addition to these instructions, the general instructions for safety at work and protection should be applied. The regulations concerning the protection of the environment must also be followed.

1.3. About the equipment

THE PVL TAP ALLOWS THE AUTOMATIC AND SEQUENTIAL SAMPLING OF A CONSTANT VOLUME FROM YOUR FLUID TRANSFER PROCESS

This valve is a process line accessory according to article 4, paragraph 3 of European Directive 2014/68/EU.

This valve should be used on a circuit conveying clear or viscous liquid products of group 2 (compliant with article 13 of European Directive 2014/68/EU).

1.4. Signs

If you have difficulties these instructions cannot resolve, you should ask for further information from the manufacturer or from the equipment distributor.

It is essential to mention the SERVINOX order and/or the serial/production order number, beginning with SVX, for all special requests (spare parts, etc).

2 SAFETY INSTRUCTIONS

This technical manual contains basic instructions that should be followed. It is therefore essential to read it before installation and commissioning.

2.1. Indications and symbols

The following pictograms are designed to draw your attention to important points relating to the safety of people and the integrity of the device:

SYMBOL	DEFINITION
	Direct danger for people
	Possible damage to the product or its environment
	Useful information and application guidelines
	Minimum number required for certain operations. (The number of characters in the pictogram indicates the minimum number of persons).
	Minimum technical skill level. (the number in red indicates the minimum level required).

Some jobs require special technical skills and qualifications, such as for maintenance repairs or work on electrical equipment.

Three levels specify the required technical skill (knowledge of the equipment concerned, experience, training, etc):

	WORKER'S PROFILE	QUALIFICATIONS
Level 1	**End user** with no technical knowledge	**Default level** if the skill pictogram is not present. Permits only **ordinary use and routine maintenance**.
Level 2	**Experienced professional**	**Trained and experienced - knowing the equipment and the technologies used**.
Level 3	**The manufacturer's personnel** / expert of the product	**Work reserved for the manufacturer** of the documented device.

2.2. Safety of workers

Installation, test, adjustment, maintenance and replacement should be performed:

- By qualified persons
- Following the recommendations and guidelines given in these instructions
- Complying with the arrangements for safety at work, procedures and resources of the fitter, and the legal notifications for the prevention of accidents, especially those concerning electrical installations.

Not following these safety instructions can result in the loss of all right to claim damages.

2.3. Intended use

Correct utilisation

Check that the device chosen is right for its intended use, using the documents supplied with it.

How it works

The PVL tap is an automatic device with pneumatic control; it consists of a body fitted with a sampling chamber, a sampling piston and a manoeuvring cylinder.

At each movement of the manoeuvring cylinder, a sampling piston takes a sample from the transfer line; a quantity of product corresponding to the volume trapped in the calibrated throat of the piston. On the return of the piston to its initial position, this volume is transferred into the sampling bottle through the outlet tubes.

The sampling is sealed by a series of gaskets.

This PVL must be cleaned on the Cleaning Line. To do this, set the device to the same cadence as for sampling. It should be rinsed after each utilisation. When used with the PEMS (cleaning option), on the Cleaning Line, the PEMS must swing during the opening and closing of the PVL.

Incorrect utilisation

The device must not be used for any other purpose other than its intended use. The manufacturer cannot be held responsible in case of incorrect utilisation.

The equipment must not be used beyond the following operating limits:

PARAMETERS	LIMITS
Maximum admissible pressure	6 bar
Admissible fluid temperature	120°C

2.4. Breakdown of the risks

DANGER / RISK			
	Hot fluid	**Very hot surface**	**Aggressive fluid**
HARM	Burns	Burns	Burns
PREVENTION			
	Garments, goggles, suitable gloves	Suitable gloves	Gloves, goggles, suitable mask

3 TECHNICAL SPECIFICATIONS

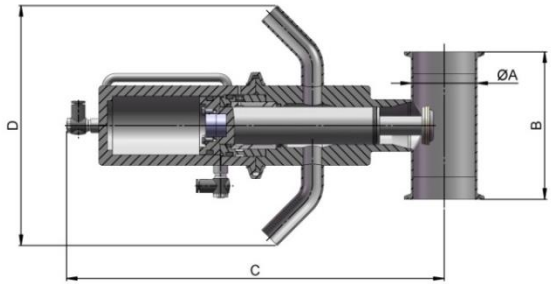
3.1. Standard version

Specifications

SPECIFICATIONS	SERVINOX PROPOSAL
Maximum service pressure	0.1 bar to 6 bar
Maximum frequency of sampling **Speed of the piston**	600 per hour maximum 16mm / s maximum
Service temperature	1°C to 120°C
Materials: • Parts in contact with the product • Other parts • Sealing	 Stainless-steel 1.4404 (316L). Stainless-steel 1.4404 (316L), PTFE charged PEEK EPDM, Perbunan
Diameter of the outlet tubes	10 mm
Connection	Clamp, Female, Male, Flange

Dimensions

Standard model



***Model 1:* sampling volume from 1 to 5 ml**

SIZES SMS (∅A): 51 mm (2''); 63.5 mm (2 ½ ''); 76 mm (3''); 104 mm (4'').

***Model 2:* sampling volume from 6 to 40 ml**

SIZES SMS (∅A): 63.5 mm (2 ½ ''); 76 mm (3''); 104 mm (4'')

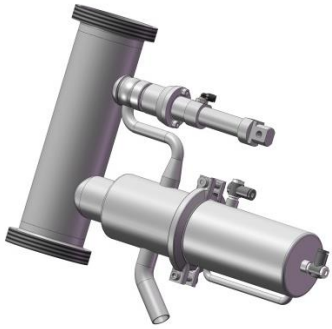
SIZES	MODEL 1	DN10
A	-	-
B	100	100
C	250	355
D	150	220

3.2. Options

- Inductive magneto detector (on cylinder) for sampling
- Cleaning the sampling chamber (addition of a PES).
- 2 outlets

View of the device

Standard model



PVL fitted with a PES for cleaning

PVL with inductive magneto detector

4 COMMISSIONING

4.1. Transport /Reception /Handling

Upon receipt, check:

- that ***the package is in good condition***
- that the device ***is delivered as ordered***
- that the device ***has not been damaged***

If the device is damaged, it must not be fitted on the installation. Contact the manufacturer or your distributor.

4.2. Storage

If the device is not fitted immediately after delivery, it should be stored ***carefully***.

It should be stored in its original packaging, in a covered area, with protection against dirt, rain, snow, insects and away from shock.

The safe storage temperature is between 5°C and 40°C, with relative humidity of the air < 50%.

If the device is stored at negative temperatures, the resistance of the materials to cold should be taken into account (e.g.: the seals).

If storage is for longer than one year, the seals need to be replaced before commissioning

4.3. Installation

General

Before any utilisation of the equipment, the user must visually verify good condition: absence of corrosion, bits of packaging.

If the fluid is harmful, inflammable, toxic, etc, fit the installation with discharge pipes going into a safe place.

Also, you are advised to check the compatibility of these products with the seals and materials before using them.

The workers

The work described below should be carried out by qualified and experienced persons.

The personnel must be fitted with gloves, helmet, and safety shoes.

Welded connection

<u>Before welding</u>: ATTENTION TO THE SEALS

Uncouple the "cylinder control" part of the volumetric sampling from the body (Ref.1) by removing the clamp collar (Ref.6).

<u>After welding:</u>

Refer to the maintenance chapter "refitting the equipment"

The device should be welded to the installation by qualified persons following the regulations in force in the country of installation. The weld must not contain impurities and should be carried out hygienically.

After all welding and/or polishing work, the device should be cleaned of all residues, dust, etc.

Outlet connection

The connection tubes to the outlet must have interior and exterior diameters identical to the valve.

Pneumatic connection

The pneumatic connection of the cylinder is designed for polyamide tube of 6mm on instant connections.

5 USE

5.1. Functional checks

- Check the sealing, absence of leak
- Check the tightness of the assemblies
- Correct functioning of the cylinder in real conditions of utilisation
- Check that the detector fitted is operational.

5.2. Adjustment

Adjustments are reserved for the manufacturer of the documented device.

Contact SERVINOX or your distributor.

5.3. Sterile utilisation

For taps with an outlet ***before the sampling***, you are advised to sterilise the outlet tube by flame (of type butane torch) for 1 minute.

For taps with 2 outlets, the second outlet is for the arrival of the Cleaning Liquid not for taking samples, the other outlet is for the sample.

6 SERVICING AND MAINTENANCE

6.1. General

The equipment requires maintenance to make sure it functions correctly.

An inspection must be carried out at regular intervals. There should be an initial inspection interval of six months.

Certain properties of fluids (corrosive, aggressive, abrasive, residues, viscosity, etc) and certain environmental conditions (climate, pollution, etc) may require a reduction of these inspection intervals.

SERVINOX supplies the spare parts for proper maintenance and the warranty on the equipment.

We keep a store of sachets of wear parts (seals, etc) and we recommend that you keep a few sachets in stock for quick jobs.

You can contact SERVINOX for all advice about maintenance of the device.

6.2. Inspections and servicing

The PVL taps should be serviced periodically. The frequency of this servicing depends on the conditions of use and is to be decided for each case.

The minimum points to inspect are:

- Absence of leak
- Traces of corrosion
- The tightness of the assemblies
- The correct functioning of the tap

Frequency of maintenance required:

Every 6 months:

- The seals (Refs.: 7, 8, 10, 12, 17).

You are advised to check the diaphragm material before replacement in order to avoid problems of chemical compatibility.

We advise you to enter all the maintenance and test operations carried out on the installation in a form of this type:

Date	Company	Name of the worker	Signature
PREVENTIVE MAINTENANCE			
Operations		**Other, Comments**	
CHECKS ON CORRECT FUNCTIONING AND GOOD CONDITION			
Operations		**Other, Comments**	

The workers

The work described below should be carried out by qualified and experienced persons.

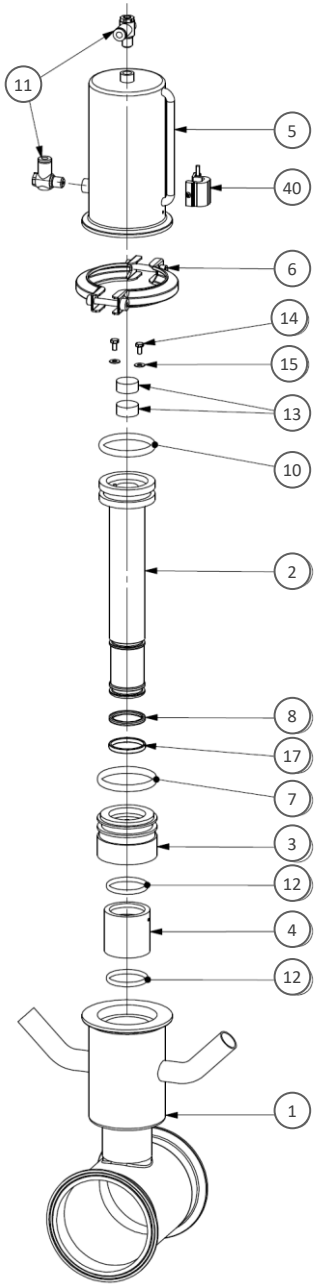
The personnel must be fitted with gloves, helmet, and safety shoes.

6.3. Replacing wear parts

Using parts not supplied by SERVINOX may void the warranty.

For changing wear parts, contact Servinox to be sure of obtaining a standard replacement.

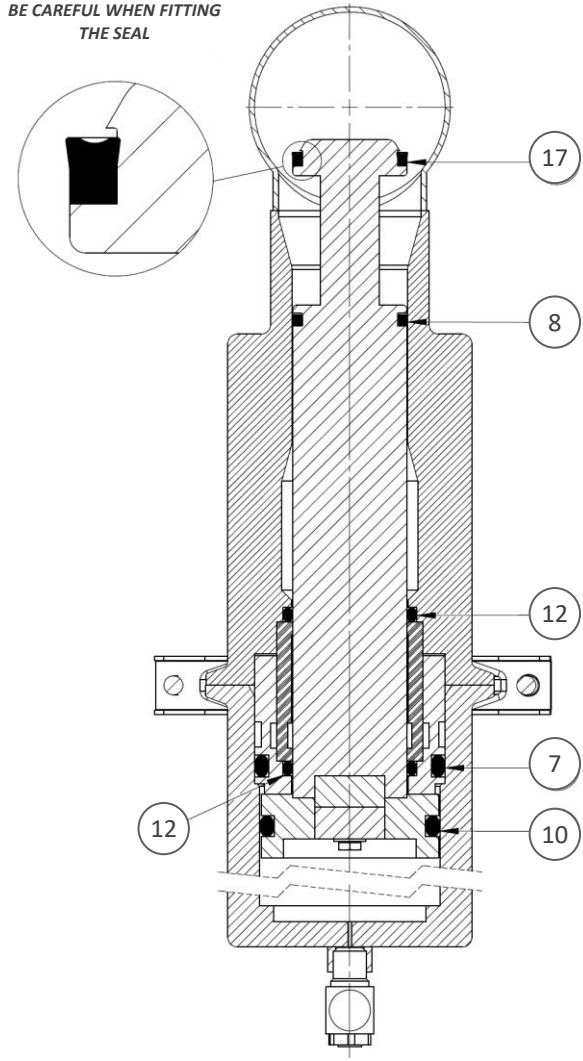
Exploded view of the device



Parts list of the device

REF	DESCRIPTION	QUANTITY
1	Body	1
2	Piston	1
3	Guide spacer	1
4	PTFE ring	1
5	Cylinder tube	1
6	Clamp collar	1
7	Seal	1
8	Seal	1
10	Seal	1
11	Unidirectional bracket 1/8 dia.6	2
12	Seal	2
13	Magnet for detection	2
14	Screw	2
15	Washer	2
17	Piston seal	1
40	Support assembly + inductive magneto sensor	1

Fitting the seals



Dismantling the equipment

To dismantle the sampling system, proceed as follows:

1)  Disconnect the electrical wires from the detector, if necessary.

2) Remove the fixing collar (Ref.6).

3) Detach the assembly "Cylinder tube (Ref.5) + Piston (Ref.2) + Guide spacer (Ref.3)" from the body (Ref. 1).

4) Withdraw the assembly "Piston (Ref.2) - Guide spacer (Ref.3)" from the cylinder tube (Ref.5).

5) Remove the seal (Ref.8) ***and the seal (Ref.17) which is destroyed with each dismantling***.

6) Remove the downstream seal (Ref.12), PTFE ring (Ref.4) and the upstream seal (Ref.12).

7) Detach the guide spacer (Ref.3) and remove the seal (Ref.7).

8) Remove the seal (Ref.10).

- ***Completely clean the tap***
- ***Replace all the seals***

Refitting the equipment

To refit the sampling system, proceed as follows:

1) Fit the seal (Ref.10) on the piston (Ref.2).

2) Fit the seal (Ref.7) on the guide spacer (Ref.3).

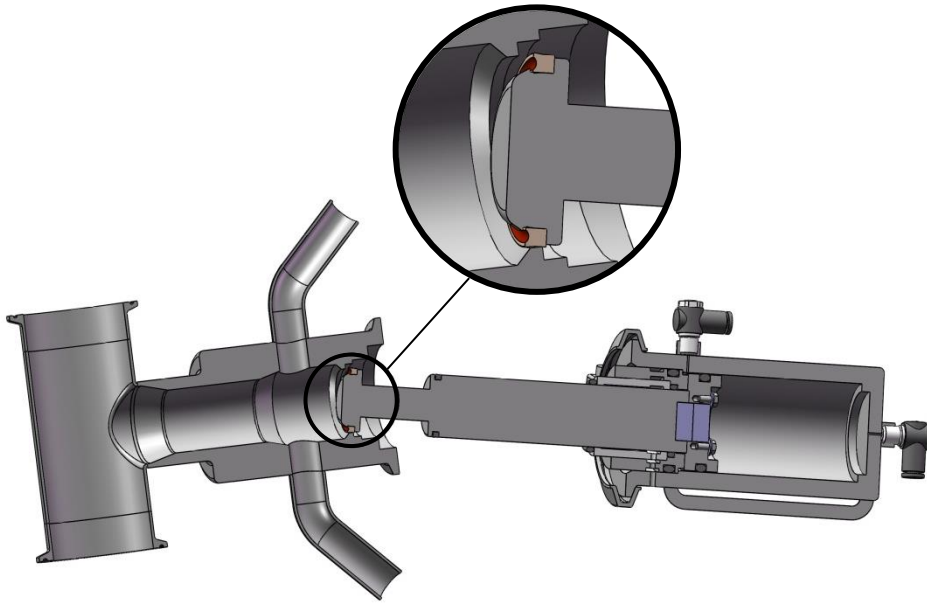
3) Fit the guide spacer on the piston (Ref.2).

4) Fit in the order on the piston rod (Ref.2): the upstream seal (Ref.12), PTFE ring (Ref.4) and the downstream seal (Ref.12).

5) Put the seal (Ref.8) on the piston rod (Ref.2) in the throat.

6) Fit the wiper seal (Ref.17) on the piston rod (Ref.2) ***BE CAREFUL about the direction of the seal (See page 20).***

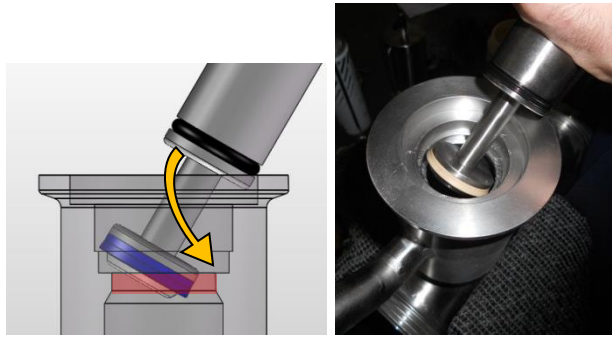
7) Fit the assembly "Piston (Ref.2) - Guide spacer (Ref.3)" in the body (Ref.1). ***ATTENTION, There is a risk of destruction of the seal when fitting. To do this, follow the instruction below and on the next page.***



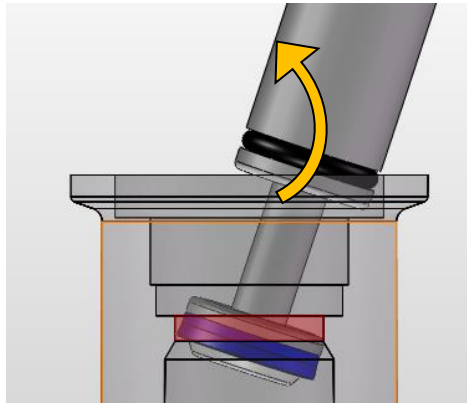
- Put food-standard lubricant inside the body (Ref.1), and especially on the area shown previously.
- Position the body (Ref.1) in a vice with a rag.

- ***Tilt the piston assembly (Ref.2) towards yourself so as to introduce the seal (Ref.17) very progressively into the body, then gently bring the piston to vertical:***

Step 1:



Step 2:



8) Fit the assembly "Piston (Ref.2) - Guide spacer (Ref.3)" in the cylinder tube (Ref.5).

9) Refit the fixing collar (Ref.6).

10) Connect the cylinder to air, then do the tests of forward and back in order to burnish the wiper seal and verify the absence of leak.

11) Connect the electrical wires of the detector, if necessary and check for correct functioning.

Notes

7 DIAGNOSTIC AID

The table below is a diagnostic aid and is intended to help you remedy simple functional problems

PROBLEM	POSSIBLE CAUSE	REMEDY
Leak of liquid	- Worn seals	> Replace the seals
	- Overpressure of the fluid	> Adjust the pressure
	- Poor tightness of the clamp seal	> Tighten the collar and check the other assemblies
Jamming of the cylinder rod	- Absence of compressed air	> Supply the cylinder with air
	- Foreign objects inside the tap	> Clean the interior of the tap

8 WARRANTY

Unless otherwise stated in the proposal, the device is guaranteed ***12 months as from the date of delivery***.

After an examination in our factory, the parts considered as defective will be replaced at our expense.

All replacement of the device's components (wear parts, seal, etc) must be replaced by SERVINOX original parts

The warranty does not cover damage due to:

- Poor fitting, inappropriate or abusive utilisation
- An accident or incorrect installation
- Modification of the equipment
- Leaks following the passage of impurities will not be taken into account
- Required maintenance not performed

The warranty on our products covers the free repair of parts returned when proved that they have become unusable prematurely, following a manufacturing or material fault.

We are not bound to any compensation or any other obligation of this kind.

This equipment has been inspected before leaving the factory.

THIS EQUIPMENT HAS BEEN CERTIFIED AS HAVING BEEN INSPECTED AND AUTHORISED FOR SALE

solutions
engineered for you
dprozesse: Proces
ösungen fluid
für Ihre dise
de solu
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indu

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