Saturator

AEA

Instructions

Reference: AEA_NOT_EN

Version A

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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: 2008*** 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.

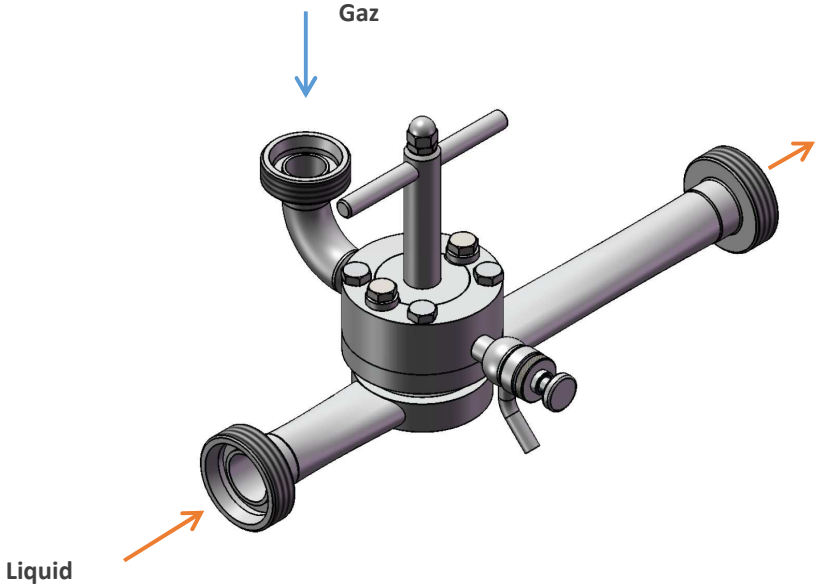
1.3. About the equipment

Process line equipment in accordance with European pressure equipment directive 2014/68/EU paragraph 3.3.

The saturator must be used for clear liquid products from group 2 (see article 9 of European directive no. 2014/68/EU).

How it works

The AEA saturator enables a gas to be injected into a liquid or viscous product.



The liquid circulates in the AEA saturator in the direction shown above (see diagram).

The gas enters the saturator through a side inlet and is diffused into the liquid through a pore stainless steel plate. The specific profile of this saturator optimizes dissolution of the gas.

A sampling valve welded to the lower part of the injection chamber enables CIP liquid to be drained off after a sanitation operation

Notes

Notes

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 batch 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
	Compulsory instruction
	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.

7 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

Dismantling of the saturator

These instructions should be following to dismanstle the saturator:

1) Disconnect the process inlet, the process outlet and the gas inlet.
2) Release the saturator.
3) Unscrew the screws (Ref. 24) to remove the pore plate holder and push on the handle.
4) Remove the nuts (Ref. 26 and 27) to dismantle the pore plate holder components.
5) Remove the gaskets (Ref 8-10-11-12).
6) Unscrew the screw (Ref. 23) in order to dismantle the injection sleeve.
7) Remove the gasket (Rep 8).
8) Remove the manual actuation (Ref. 7) from the sample valve
9) Remove the membrane (Rep. 14).

Dismantling of the saturator

These instructions should be following to dismanstle the saturator:

1) Replace all the gasket ant the membrane of the PEMS
2) Replace the membrane (Ref.14) of the PEMS
3) Replace the gasket (Ref. 9), replace the injection sleeve tighten the screws (Ref. 23).
4) Replace the gaskets (Ref. 8-10-11-12).
5) Set the pore plate holder components and control the positioning of the gaskets (silicone treatment can be done)
6) Position the screws to be tighten (Ref 24)

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

In the certification documents, check that the device chosen is right for its intended use.

This equipment is a safety device designed to protect device under pressure and/or installations against exceeding the admissible limits with regard to pressure.

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:

PARAMETER	LIMITS
Maximum admissible pressure (PS)	6 bar
Temperature - MINI/MAXI	+2°C / +120°C

This device has undergone a hydraulic strength test.

3 TECHNICAL SPECIFICATIONS

3.1. Specifications

SPECIFICATIONS	SERVINOX PROPOSAL
Connections	Male, female, clamp, flange
Size	DN15 DN20 DN25
Service temperature	+2°C / +120°C
Materials: • Part in contact with the product • Other parts • Seals	 Stainless-steel 1.4404 and/or 1.4409 (316L) Stainless-steel 1.4404 (316L), 1.4307 (304L). EPDM, VITON, Silicone

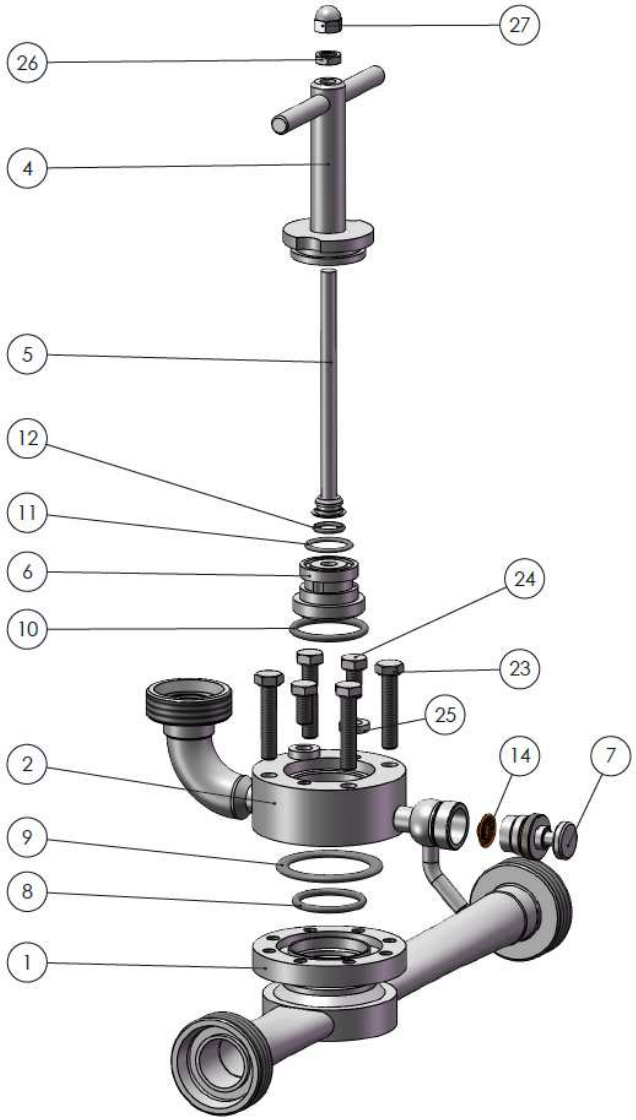
This valve should be used on a circuit conveying gaseous fluids (excluding steam) of group 2.

Nomenclature

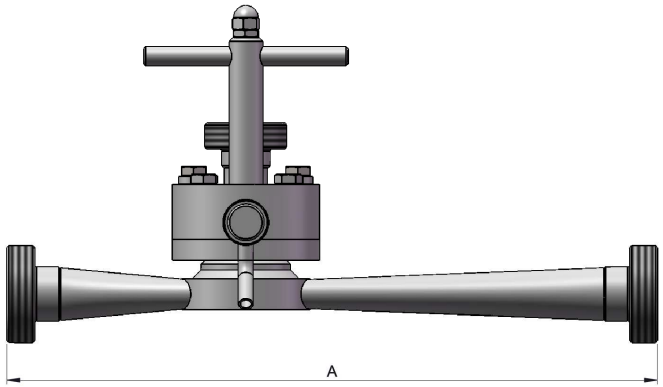
REFERENCE	QUANTITE	DESIGNATION
1	1	Saturator body
2	1	Injection chamber
4	1	Handle
5	1	Disc axis
6	1	Disc support
7	1	Head of the PEMS
8	1	Gasket
9	1	Gasket
10	1	Gasket
11	1	Gasket
12	1	Gasket
14	1	Membrane EPDM for PEMS II
23	4	Screw TH 8 X 40 A2
24	2	Screw TH 8 X 16 A2
25	2	Washer 16 X 8 thickness 4 A2
26	1	Nut M8
27	1	Nut HM M8 A2

6.3. Maintenance operations

Exploded view



3.2. Standard dimensions



The cotes are in mm

	TAILLES		
COTES	**DN15**	**DN20**	**DN25**
A	249	340	350

4 COMMISSIONING

4.1. Transport/ Reception/ Handling

When transporting, protect against all external danger (knocks, blows, vibration, etc)

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

6.2. Inspections and servicing

Required periodic maintenance:

Every 2 months for 6 months after commissioning

- The tightness of the assemblies
- No obstruction of the PEMS
- Absence of cracking or deformation of the saturator

Every 6 months and on commissioning:

- Internal cleaning of equipment
- Visual verification of the condition of the seals
- Absence of impurities or residue inside the saturator
- The tightness of the assemblies
- Absence of cracking or deformation of the valve

Every year:

- Change all the seals
- Change the connection seals.

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**	

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. Specify the production number and the product reference for all orders.

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.

Maintenance precautions

<u>Do the following before any work:</u>

- Stop the equipment or the process
- Depressurise the system
- The installation must be empty
- The fluid should be cooled to ambient temperature
- Aerate the system of pipes, if the fluid is corrosive and aggressive

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.

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 equipment must only be fitted when the installation is out of service and inert (absence of pressure and risk of transfer of fluid)

The saturator must be carefully handled when being unpacked. Nothing shall remain in the valve.

Generally speaking, the pressure and temperature of the liquid are key parameters that directly affect the pressure required in the saturator. This constraint must be taken into account in the dynamic equilibrium of the transfer line, in order to avoid any desaturation phenomenon in the saturator outlet.

The workers

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

The personnel must be fitted with equipment of personal protection against risks of the exhaust or contact with the fluid (burns, noise, projections, etc)

Connecting the valve

- The saturator should be positioned carefully taking into account the risks from the exhaust of the fluid (burns, noise, projections, etc).
- Do not voluntarily obstruct the exhaust orifice.
- The connection tubes must have interior and exterior diameters identical to the saturator.
- When fixing the saturator, you should be careful not to exert stress on its connections.
- Verify that the outlet PEMS pipe down

5 USE

You are advised to check the compatibility of your products with the seals and materials before using them

5.1. Functional checks

The saturator must only be fitted on an isolated and inert installation (no pressure and no risk of transfer of fluid)

In case of operating at high fluid temperatures, high temperatures can be recorded at the body surface: risk of burns.

5.2. Adjustment

Adjustments are reserved for the manufacturer of the documented device.

Contact SERVINOX or your distributor.