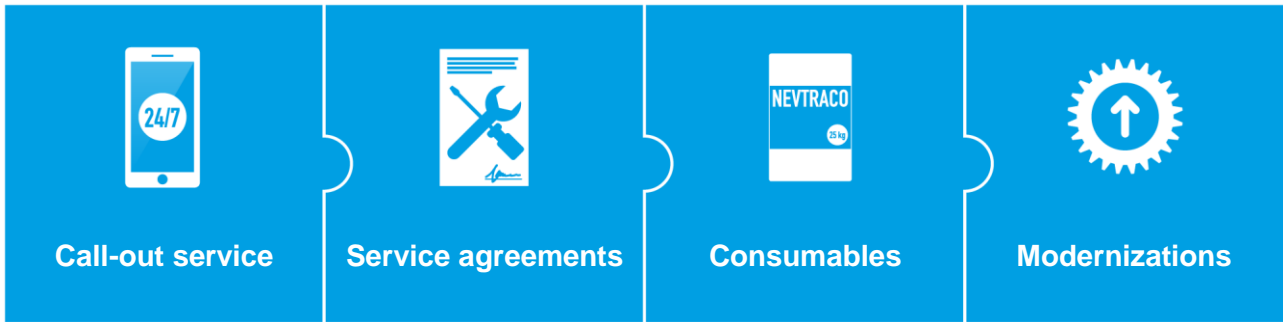


Instructions for SILEX 1C Mixed bed cartridge filter

With conductivity sensor | Gravity flow or pressure installation





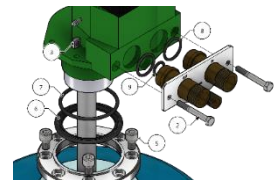
International after sales service

EUROWATER has an international sales and service organization with an experienced staff of engineers and specially trained service technicians. Our service is fully documented, characterized by a short reaction time and it is our goal to be easy to work with in all situations. We offer customized service agreements, high quality consumables and modernizations.

In order to keep your critical systems running EUROWATER offer call-out service for urgent needs, individual service agreement on preventive maintenance, access to high-quality spare parts and consumables as well as modernizations in all shapes and sizes.

Spare parts and consumables

We offer a wide range of spare parts, service kits, and consumables. Our service cars are equipped with a broad range of spare parts, mainly of our own make. We continuously supply spare parts for more than 25-year-old plants. Read more about spare parts and consumables in the last chapter.



Rental plants for temporary needs

In case of temporary needs, such as emergency or planned maintenance, EUROWATER offers a wide range of mobile rental plants, ready for use upon delivery.



Training

The more you know about your water treatment plant, the better equipped you are to deal with the routine operations of the plant, thereby minimizing down time. As part of our commitments to provide a first class service, we offer specialized operator training for your staff.



Contact

EUROWATER is an international group with subsidiaries in 14 countries servicing our customers through 23 local offices. Moreover, the company is represented in most of the other European countries through independent distributors who are all water treatment specialists.



Find your local sales and service office on our international website:

www.eurowater.com

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1. Introduction

The instructions are made so that they can be followed section by section. It is recommended to follow the instructions carefully since any service calls due to faulty installation, plant start, operation or insufficient maintenance are not covered by our guarantee.

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2. General information

2.1. Plant description

A complete SILEX plant comprises a tank, a cartridge, and a conductivity meter that continuously indicates the conductivity of the demineralized water.

The SILEX cartridge contains cation and anion exchange resins with a certain demineralization capacity. At exhausted capacity the used cartridge is exchanged for a regenerated cartridge. The used cartridge is returned in the original packing to **the address of the regeneration centre:**

Here the cartridge will be regenerated and then returned, ready for use.

2.2. Quality requirements of the untreated water

The temperature of the water to be demineralized must not exceed 35°C and must not contain iron, manganese, oil, or large quantities of organic matter. Common tap water will normally meet these requirements.

2.3. Dissolved salts in the water - conductivity

The electronic conductivity meter continuously indicates the conductivity of the demineralized water in µS/cm. The conductivity is a measure of dissolved solids in the water. Lower conductivity means fewer dissolved solids.

| Water type | Conductivity |
|---------------------------|--------------|
| Distilled water | 7-10 µS/cm |
| Demineralized SILEX water | < 0.1 µS/cm |

2.4. Storage of a SILEX cartridge

On account of the ion exchange resins the SILEX cartridge must be stored in a frost-free room. Unused cartridges must be stored as cool as possible – preferably at refrigerator temperature i.e. 4-8°C. Storage at higher temperatures adds to the risk of growth of micro-organisms just like the cartridge's ability to produce water of low conductivity is reduced.

2.5. Life

Cartridges that are stored at refrigerator temperature should be used within six months from the delivery date. When stored at room temperature the cartridges should be used within three months. It is of greatest importance for the life of the cartridges that they are stored and exchanged under as sterile conditions as possible, so that the risk of contamination from the surroundings and the operator is minimized.

3. Installation instructions

3.1. Gravity flow installation

1. Use the angle fittings supplied to mount the SILEX plant on the wall close to a stop valve. The water feed to the plant is regulated with the stop valve (pos. 1)
2. The maximum flow must not exceed 2 l per minute. If the flow can increase above this load, install a valve on the inlet set to a maximum flow of 2 l/min. at maximum mains pressure and lock the valve in this position (pos. 3).
3. The water is fed through the hose coupling (1/2") on the right side of the plant. The demineralized water exits through a hose connected to the coupling on the left side of the plant. This hose must not be fitted with any closing device and must be of synthetic or other corrosion-resistant material.
4. N.B.: A small and limited discharge of tiny particles (< 0.5 mm diameter) of ion exchange media cannot be excluded. If such a discharge can harm the subsequent installation in any way, please install a suitable mechanical filter after the outlet of the SILEX plant (pos. 13).
5. Provide an adjustable non-return valve between the mains piping and the SILEX installation. Check and follow local regulations.

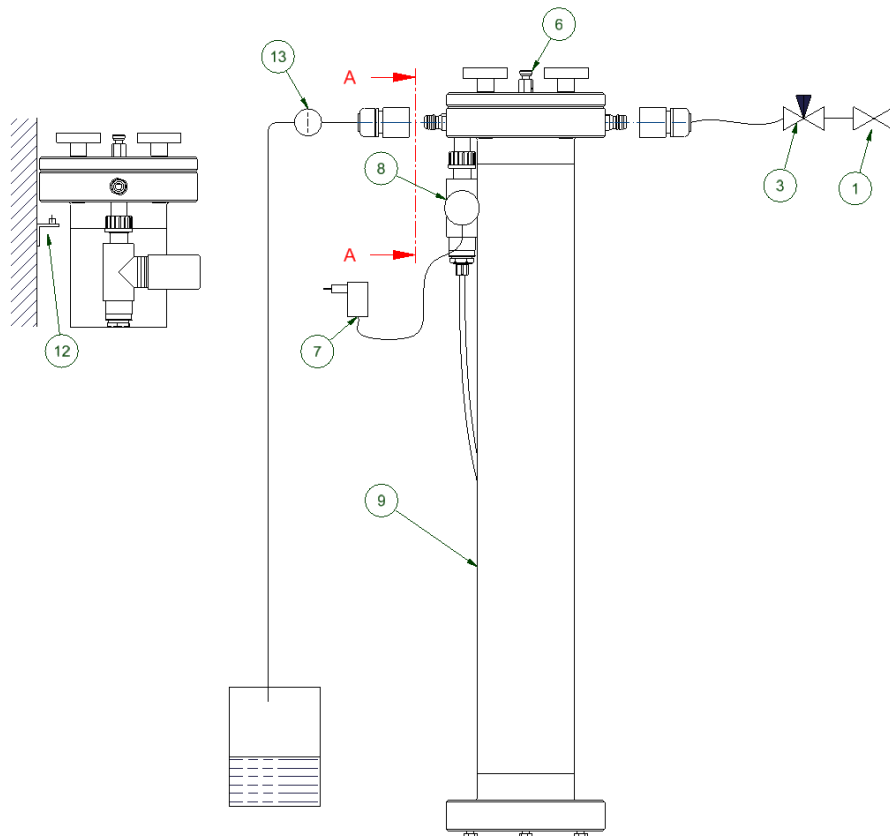


Figure 1 - Gravity flow installation

| | | |
|---------------------|-----------------------|--------------------|
| 1. Stop valve | 7. Transformer | 12. Angle fittings |
| 3. Regulating valve | 8. Conductivity meter | 13. Filter |
| 6. Air vent | 9. SILEX unit | |

According to EN 61010-1 item 1.4 the plant is installed under installation category II. The transformer shall comply with EN 60742.

3.2. Pressure installation

1. Mount the SILEX plant on the wall with the fittings supplied.
2. The plant is designed for a maximum pressure of 6 bar. Exceeding the maximum operating pressure of the plant can cause reflux in the installation or temperature increase in the liquid during a standstill. In that case, please install a pressure reducing valve (pos. 4), a diaphragm pressure extension tank (pos. 10), or a relief valve on the plant inlet (pos. 11).
3. Provide a stop valve (6 bar) on the plant inlet and outlet in order to shut off the water supply for replacement of the cartridge.
4. The maximum plant flow is 2 l/minute. If the flow can exceed that, fit a valve on the plant inlet and set it at a maximum flow of 2 l/minute at maximum mains pressure. Lock the valve in this position.
5. The water is fed through the hose coupling (½") on the right side of the plant and the coupling on the left side carries demineralized water. The outlet line, including valves and fittings, must be of corrosion-resistant material.
6. N.B.: A small and limited discharge of tiny particles (< 0.5 mm diameter) of ion exchange media cannot be excluded. If such a discharge can harm the subsequent installation in any way, please install a suitable filter after the outlet of the SILEX plant (pos. 13).
7. Install a non-return valve (pos. 2) between the mains piping and the SILEX installation. Check and follow local regulations.

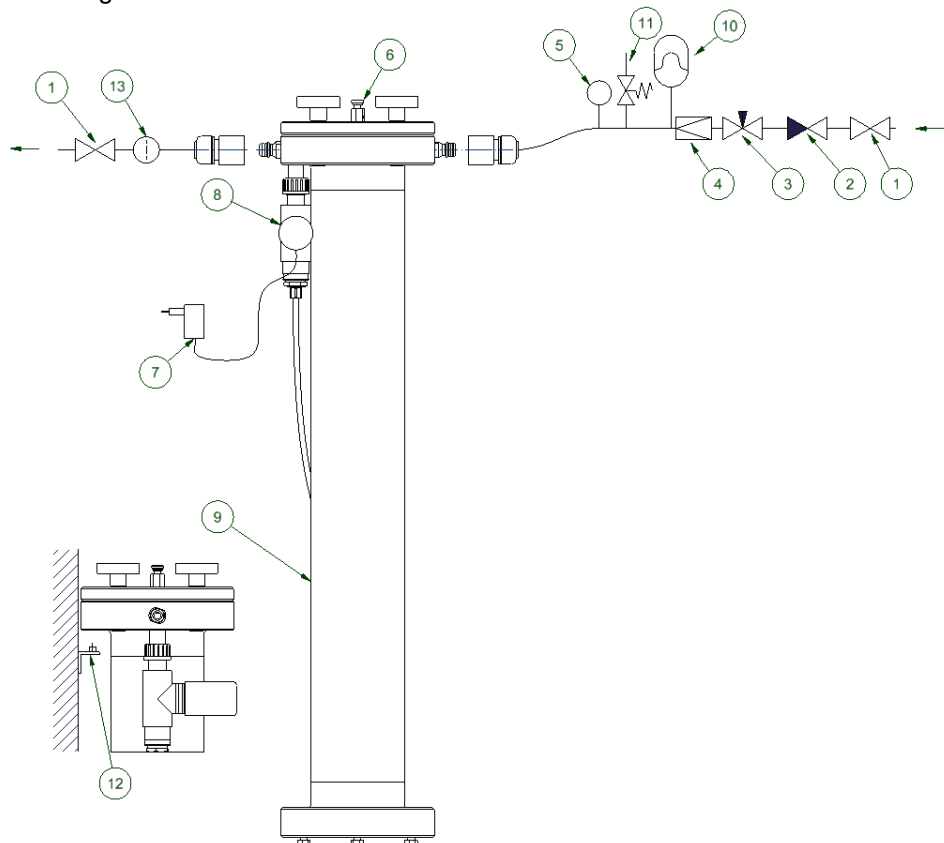


Figure 2 - Pressure installation

| | | |
|------------------------------------|----------------------------------|--------------------------|
| 1. Stop valve | 6. Air vent | 11. Relief valve, if any |
| 2. Non-return valve | 7. Transformer | 12. Angle fittings |
| 3. Regulating valve | 8. Conductivity meter | 13. Filter |
| 4. Pressure reducing valve, if any | 9. SILEX unit | |
| 5. Pressure gauge | 10. Diaphragm pressure extension | |

According to EN 61010-1 item 1.4 the plant is installed under installation category II.
Transformer shall comply with EN 60742

4. Conductivity meter

The electronic conductivity meter continuously measures and displays the quality of the demineralized water.

4.1. Secon V3-10

The water quality is expressed as the water's capability of conducting an electric current and the conductivity is measured in $\mu\text{S}/\text{cm}$. A high conductivity means plenty of mineral salts in the water and thus a poor water quality. Conversely, a low conductivity means few mineral salts and a good water quality.

1. Connect the supplied wall plug transformer 100-240VAC / 9-24VDC to the conductivity meter. Plug the transformer into a 240 V wall socket and switch it on.
2. The meter is now in operation and the water conductivity is displayed by 5 LED lights with the following scale.



Figure 3 - Conductivity meter Secon V3-10

| | |
|------------------------|-------------------------------|
| 3 LED green ●●● | < 0,1 $\mu\text{S}/\text{cm}$ |
| 2 LED green ●● | < 0,5 $\mu\text{S}/\text{cm}$ |
| 1 LED green ● | < 1,0 $\mu\text{S}/\text{cm}$ |
| 1 LED yellow ● | < 5,0 $\mu\text{S}/\text{cm}$ |
| 1 LED red ● | < 10 $\mu\text{S}/\text{cm}$ |
| 1 LED red flashing (●) | > 10 $\mu\text{S}/\text{cm}$ |

5. Operating instructions

During normal operation, the SILEX runs by itself. There are no manual or automatic controls.

The only requirement is for the operator to monitor the conductivity sensor regularly to ensure it does not exceed the specified value for the intended application.

When the conductivity is too high for the application, or the ion exchangers are exhausted, the cartridge must be replaced with a regenerated one.

5.1. Replacing the SILEX cartridge

1. Close the stop valve at the inlet.
2. Close the stop valve at the outlet.
3. Release the internal pressure by loosening the air vent.
4. Disconnect the inlet and outlet hoses.
5. Remove the top flange by unscrewing the four bolts.
6. Remove the exhausted cartridge. Hang it to drip-dry only! Drying it completely destroys the resins!
7. Unmount the SILEX unit, place it on the floor by a drain, and tip it to drain the remaining water completely.
8. Open the plastic bag with the new cartridge, and use the bag itself as a funnel to slowly lower the cartridge into the vessel.
9. Remove the plastic bag and carefully tug the clamp on the cartridge to avoid creases on the sides.
10. Vibrate the vessel by tapping it, so the cartridge settles completely. It is very important that the cartridge fits tightly inside the unit.
11. Mount the top flange and tighten the hand screws until the top flange and vessel are flush. Make sure gasket, o-ring and bearing surfaces are completely clean before tightening.
12. Open the air vent.
13. Open the inlet stop valve and then close the air vent when water flows from it.
14. Open the outlet stop valve. The SILEX is now in operation again.

5.2. Handling the exhausted cartridge

1. Place the exhausted, but still moist, cartridge in the plastic bag. Seal it and place it in original packaging.
2. Dispatch the cartridge to the regeneration center.

| |
|-----------------------------------------------------------------------------------------------|
| IF THE ION EXCHANGERS DRY OUT THEY STOP WORKING AND CANNOT BE RETURNED FOR REGENERATION |
|-----------------------------------------------------------------------------------------------|

6. Disposing of plant

When the system or parts thereof are no longer in use, they must be disposed of through approved public or private systems, in accordance with environmental regulations.

When in doubt, please contact your local EUROWATER office or distributor.

7. Consumables and selected spare parts

EUROWATER plants last for many years, but consumables, such as filter media, salt for regeneration, ion exchange resin and filters, have a certain capacity or lifespan and must be replaced at certain intervals.

EUROWATER carries all consumables and spare parts necessary to keep your water treatment plant running for years, even decades.

Here are some common consumables, spare parts and upgrades you can order now.

> You can also contact EUROWATER and learn about your options.

7.1. Cartridges and regeneration

SILEX cartridges have a limited capacity and must be replaced when exhausted. EUROWATER has a well-established cartridge return system that ensures almost no down-time for the plant.



A regenerated cartridge with a mix of anion and cation ion exchangers, ready to be loaded into the SILEX plant.

7.2. Spare parts

A list of common spare parts can be supplied on request.



Spare parts list with detailed 3D drawings.