

General:

Sigma filters are effective, automatic filters with a large filtration surface area. Sigma filters contain the superior hydraulic self-cleaning suction scan mechanism. The combination of the advanced hydraulic design and the polymer construction offers the user a filtration system which is fully resistant to corrosion and which requires no external energy for its operation.

Sigma filters have been developed for use with a variety of screen types with filtration grades from 300 to 80 microns; they are supplied with a 4" inlet/outlet diameter and offer a capacity of up to 120 m³/h per unit.

Thanks to the unique design, Sigma filters are user-friendly and easy to maintain.

Filtering process:

Raw water enters the filter from the inlet pipe, and passes through the coarse screens, which protect the automatic cleaning mechanism from any large particles or debris. The coarse screens are not cleaned automatically.

The water then flows through the inner side of all the fine screens, which filter out the smaller particles.

Water that has passed through the fine screens is clean and passes into the filter's outlet pipe. Particles of dirt accumulate on the inner surface of the fine screens and form a "filtration cake," which starts to restrict water flow. As the restriction, or clogging, increases, the pressure in the outlet pipe becomes lower than in the inlet pipe. When this pressure differential reaches a pre-set value (0.5bar), the automatic self-cleaning cycle begins. The self-cleaning cycle takes approximately 25 seconds and does not interrupt the flow of clean water through the filter.



Manual

SIGMA Automatic Screen Filter

Self-cleaning process:

The self-cleaning of the Sigma filter is carried out by multiple suction scanners which scans the inner surface of the multi-screens. A common gear operated by single hydraulic motor drives the suction scanners. At a preset pressure differential (0.5 bar), the Rinse Controller activates the piston and opens the exhaust valve. The water from the rotor chamber flows out through the drain. The pressure in the rotor chamber drops, releasing a flushing flow out of the filter.

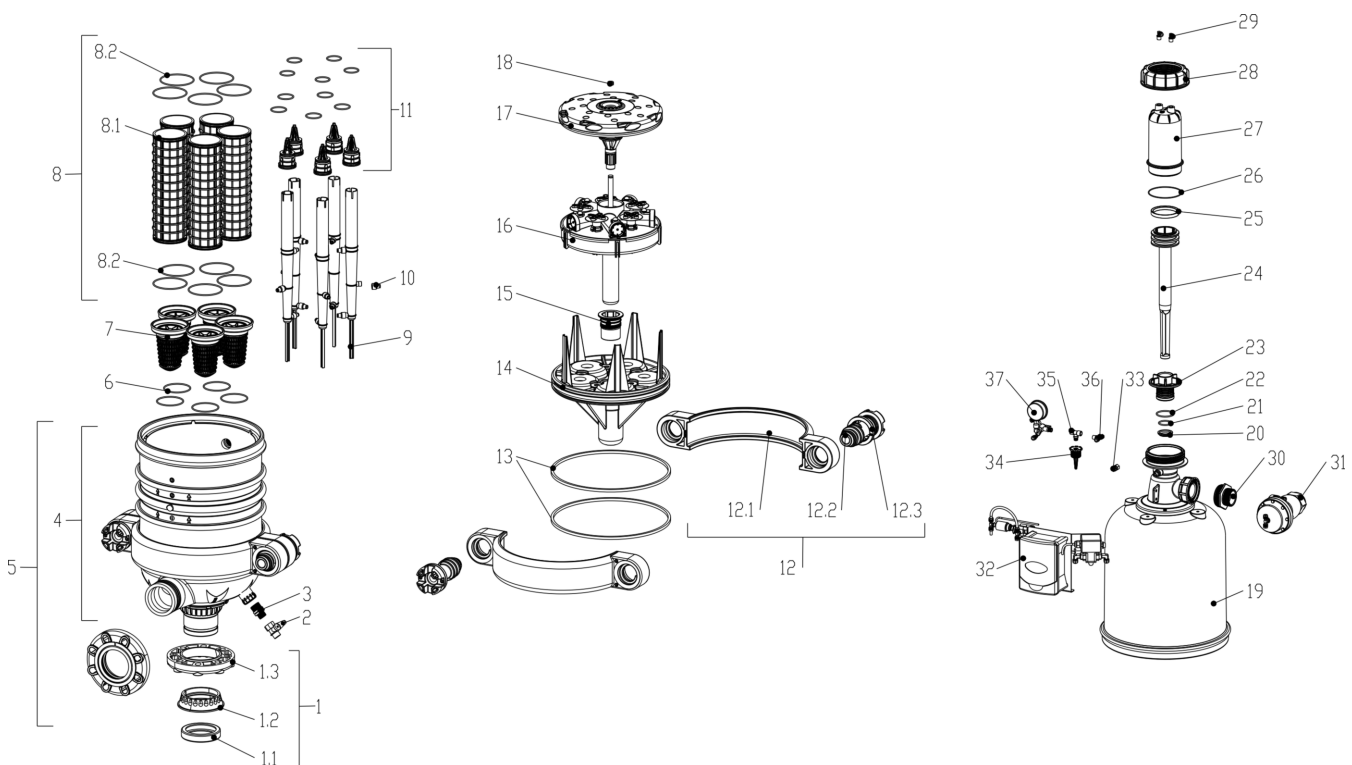
This pressure drop in the rotor chamber and the release of the back flush stream create a suction effect at the suction scanners nozzles' inlets. This effect actuates spot cleaning directly in front of the openings of each nozzle at the inner side of the fine screens. The water and particles passing through the hydraulic motor cause the suction scanners to rotate, and the piston moves in an axial direction to the opposite end of the filter.

The combination of rotational and axial movement of the suction scanners assembly ensures that the nozzles sweep the entire inner side of the fine screens in a spiral pattern. When

the stroke is completed, the exhaust valve closes and the piston is pushing the suction scanners back to their original position. This self-cleaning process takes about 25 seconds, depending on the operating pressure. It is essential that there be at least 1.5 bar pressure at the inlet of the filter for proper cleaning to take place during flushing.

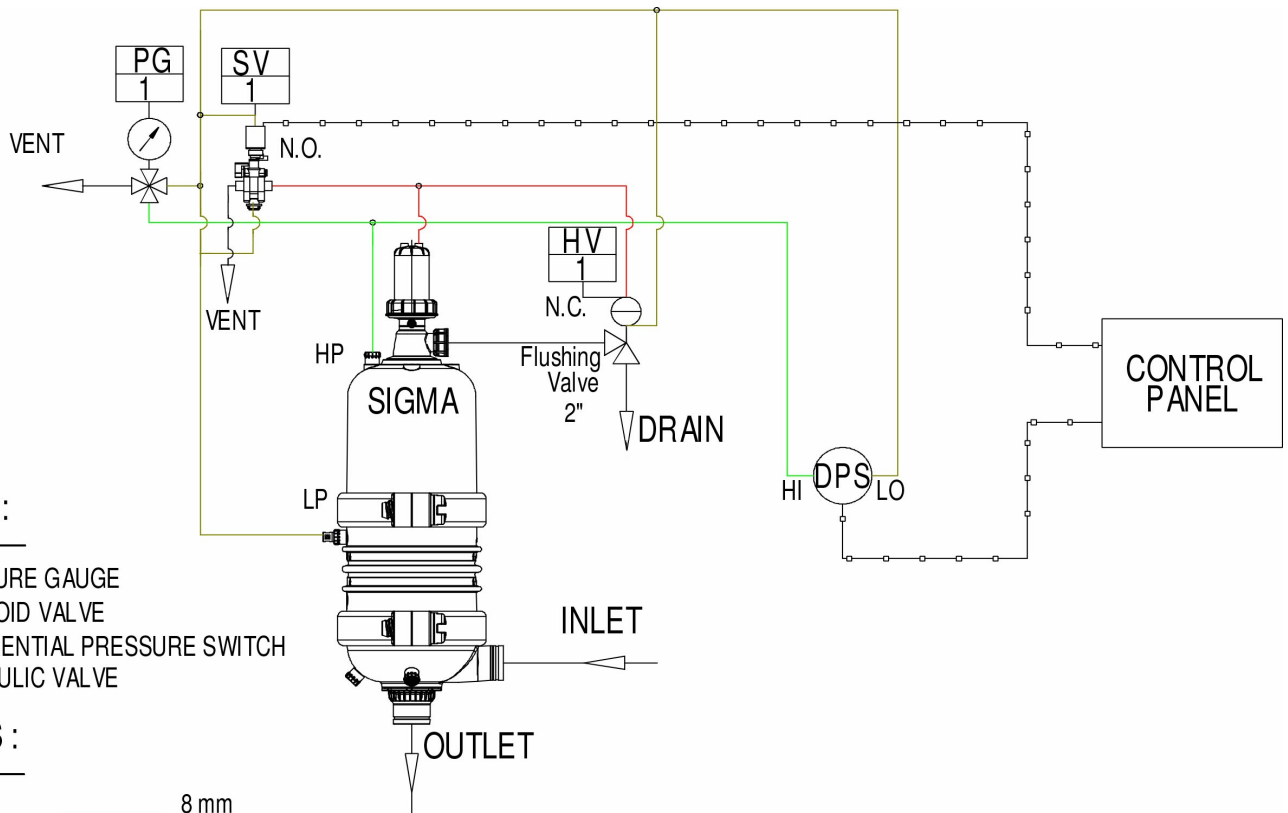
The control system:

The hydraulically controlled Sigma filters operation and cleaning cycle is controlled and monitored by a hydraulic rinse controller that during the self-cleaning cycle controls and operates the exhaust valve by means of a hydraulic command. When the cleaning of the screens is done, the rinse controller automatically resets and causes the exhaust valve to close. At the end of the self-cleaning cycle, the rinse controller continues to monitor the system until another self-cleaning cycle is needed.



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LEGEND :

- PG - PRESSURE GAUGE
- SV - SOLENOID VALVE
- DPS - DIFFERENTIAL PRESSURE SWITCH
- HV - HYDRAULIC VALVE

SYMBOLS :

COMMAND		8 mm
HP		8 mm
LP		8 mm
VENT		8 mm
ELECTRIC		



Subject to modifications. No liability accepted for errors or misprints.

Installation:

Install the filter in a vertical position. The inlet is the flange on the side, and the outlet is at the bottom; this is also indicated on the flanges of the connections. A pressure relief valve must be installed ahead of the filter if the pressure is not sufficiently under control.

Attach the filter with sufficient stability, if necessary using extra clamps, and affix the inlet and outlet pipes with clamps.

Allow sufficient space around the filter for easy maintenance. Filter maintenance will be simplified by placing valves on the inlet and outlet.

If a pressure drop or backflow of water is undesirable, install a check valve after the filter. Equip the flush valve with a drainage pipe, which ensures minimal back pressure. A pressure gauge upstream and downstream will provide quick visual control of the working pressure and differential pressure.

Maintenance:

Each filter comes with this manual which includes installation, operating and maintenance instructions.

Do not open the filter cover and do not tighten it while the filter is being used or is under pressure. For maintenance close the water source and use the ball valve to let drain the filter.

Weekly checks:

Check that the filter is working correctly with a general inspection of the filter operation, as described in the section: self-cleaning process. Perform a visual check of the filter housing and check the valves and connections for leakage. Activate a self-cleaning cycle; check that the flushing valve opens and then check that it closes again. During the process, check the pressure difference between the intake and

outflow from the filter, the flushing capacity and the flushing time of around 25 seconds.

If the filter does not flush properly:

Perform two flushing cycles, if possible with a closed downstream valve, and check whether this has resolved the problem.

Perform the instructions in the maintenance section describing opening the filter.

Inspect whether the screens are being cleaned evenly, and extend the flushing time if necessary. Then check the coarse filter (7), which should generally be clean. If your water contains coarse particles, you will need to insert a coarse filter ahead of the Sigma. Check the components for damage and possible movement.

Maintenance prior to a long-term filter standstill:

Perform the following operations if the filter is to be unused for longer than a month.

Perform a flushing cycle (if possible with a closed downstream valve).

Remove the pressure from the filter and let it drain.

Maintenance prior to recommencing use:

Connect the filter to the water supply.

Carry out a general inspection of the filter's operation, as described above.

Filter grades available

Microns	300	200	130	100	80
Millimetres	0,3	0,2	0,13	0,1	0,08