Phoenix

Technical product data sheet

The Phoenix removes bacteria (99.99999%), viruses (99.99%) and turbidity. It masters the toughest requirements of operators and legislators and controls all external peripherals required for reprocessing with the integrated „Control Pro" control unit. With its fully automatic and high-resolution integrity test, operating data logging, and web-based remote access (optional), the Phoenix enables an efficient treatment process both for the public drinking water supply of municipalities and local authorities from source water.

Excellent removal performance

Seccua ultrafiltration is based on membrane technology from the medical field of dialysis and exceeds the requirements of operators and authorities. The Phoenix features treatment technology that has been proven to reduce viruses, bacteria and parasites in independent tests conducted by the U.S. Environmental Protection Agency (EPA), as well as confirming their direct verification through the fully automated, high-resolution integrity test. This is achieved through a mecha- nical filtration process - without the use of chemicals.

Integrated membrane test according to DVGW W213-5 and US EPA

In order to be able to regularly check the high retention performance during operation, the Phoenix is equipped with an integrated membrane test that detects even the smallest membrane damage and thus permanently ensures the safe retention of 99.99 % of all bacteria and parasites. The fully automatic and high-resolution integrity test not only complies with DVGW worksheet W213-5, but has also been designed and developed in accordance with the world's most stringent technical regulations, the US EPA Membrane Filtration Guidance Manual.
Extremely high-resolution measuring and control devices are integrated into the plant's electronics to perform the test. The specially developed programmable logic controller has capabilities comparable to a standard PLC. The permanent retention of pathogens, as well as the system's ability to detect the smallest defects in the membrane, has been monitored in months of testing and has been proven and confirmed in tests by the world's most stringent health authorities, the United States Environmental Protection Agency (EPA) and the Californian Health Department.

Fully automatic, water-saving cleaning

The Phoenix is the only ultrafiltration system in its class that measures the current degree of filter fouling, based on the flow and the pressure drop across the filters. This enables the Phoenix to react automatically to fluctuations in water quality and to adjust its rinsing cycles accordingly, i.e. it rinses less frequently when the turbidity in the feed is low, thus saving valuable drinking water.
If required, the Phoenix can perform fully automatic cleaning. This can be supported by various cleaning agents (Cleaning-In-Place).

Remote control and alarm transmission

Equipped with an optionally available GSM modem, the system can send SMS messages to up to ten mobile phones in the event of an operating error (e.g. a failed membrane test, unsuccessful cleaning, pressure surges). With the supplied PC software (operating system: Windows), the operator of the plant can call up all operating data and protocols on site via USB or conveniently via the Internet in connection with the GSM modem and thus control the plant remotely from his desk. Several devices can be connected in parallel via the integrated CAN bus interface. In addition, the device can also be integrated into existing building management systems or a higher-level control system via the internal CAN bus.

Modular, expandable design

Thanks to the modular design of the Phoenix, which can also be expanded at a later date, the requirements of the local conditions can be further adapted even at a later date. The individual components of the Phoenix can be inserted through any standard door, and the unit can be connected either from the left or the right, thus enabling installation in smaller elevated tanks and equipment rooms.
The Phoenix must be installed and commissioned by a trained service partner.

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Phoenix model series	4	7	10	20	40
Filter area	646 ft² (60 m²)	1,292 ft² (120 m²)	2,583 ft² (240 m²)	3,875 ft² (360 m²)	5,167 ft² (480 m²)
Peak flow	79 gpm (5 l/s)	159 gpm (10 l/s)	317 gpm (20 l/s)	476 gpm (30 l/s)	634 gpm (40 l/s)
Continuous flow[1]	42 gpm (160 l/min)	85 gpm (320 l/min)	169 gpm (640 l/min)	254 gpm (960 l/min)	338 gpm (1280 l/min)
Height	6.23 ft (190 cm)	6.23 ft (190 cm)	6.23 ft (190 cm)	6.23 ft (190 cm)	6.23 ft (190 cm)
Width	3.70 ft (113 cm)	5.38 ft (164 cm)	8.66 ft (264 cm)	11.94 ft (364 cm)	15.22 ft (464 cm)
Depth	1.94 ft (59 cm)	1.94 ft (59 cm)	1.94 ft (59 cm)	1.94 ft (59 cm)	1.94 ft (59 cm)
Weight (dry)	287 lb (130 kg)	463 lb (210 kg)	816 lb (370 kg)	1,169 lb (530 kg)	1,742 lb (790 kg)

[1] Seccua always recommends a minimum 100 µm fine filter to protect the membrane. Depending on the local water quality, an automatically flushable 1-5 µm pre-filter may be recommended. Free advice on +1 (503) 766 5551. For source water treatment, due to the higher load, the continuous load corresponds to 80 l/min, 160 l/min, 320 l/min, 480 l/min, 640 l/min, depending on the size of the Phoenix.

Connections and assembly	
Inlet, filtrate, rinse water, backwash	2" pipe coupling[2]
Installation	standing, no wall mounting necessary

[2] The pipe coupling is compatible with 2" Victaulic couplings. Couplings for connection to the pipe system are supplied. Transition piece from 2" pipe coupling to DN50 is supplied as an adhesive socket (PVC-U). Free advice on +1 (503) 766 5551.

Operating conditions	
Max. operating pressure	72 psi (5 bar)
Max. operating temperature	104 °F (40 °C)
Max. permissible diff erential pressure across the fi lter	36 psi (2,5 bar)

Retention	
Viruses	up to 99,99 %
Bacteria / parasites and other microorganisms	99,99999 %
Turbidity and particles	below visibility limit (<0,15 NTU)

| The following interfaces are available: |
|---|
| Feed pump, feed dosing, backwash pump, cleaning chemicals, volume flow signal, error signal, BUS connection, turbidity measurement, tank level, error monitoring, mobile radio (optional), CAN BUS (optional) |

Integrated membrane test	
Test method	Patented pressure retention test, according to requirements of US EPA Membrane Filtration Guidance Manual and DVGW Worksheet W 213-5
Resolution	adjustable (approx. 0.5- 3 µm), standard setting
Frequency	Triggered by turbidity fluctuation3 and at daily set time

[3] Triggered by turbidity fluctuation in the filtrate. Existing Phoenix systems can also be retrofitted. Requires an additional turbidity measurement (not part of the scope of delivery).

height 6.23 ft

depth 1.94 ft

width 3.70 ft

Production data acquisition	
Data acquisition	event-controlled or after adjustable time interval (up to every minute)
Stored data	Date, time, inlet pressure, filtrate pressure, turbidity, flow rate, water temperature, tank level, alarm messages and errors, result of membrane test
Data memory	approx. 4 months, with data collection every 15 minutes

Power supply	
Power connection	230 V or 110 V, 1-phase 400 V or 200 V, 3-phase 16 A per phase
Power	Approx. 5 W during filtration, max. 100 W during integrity

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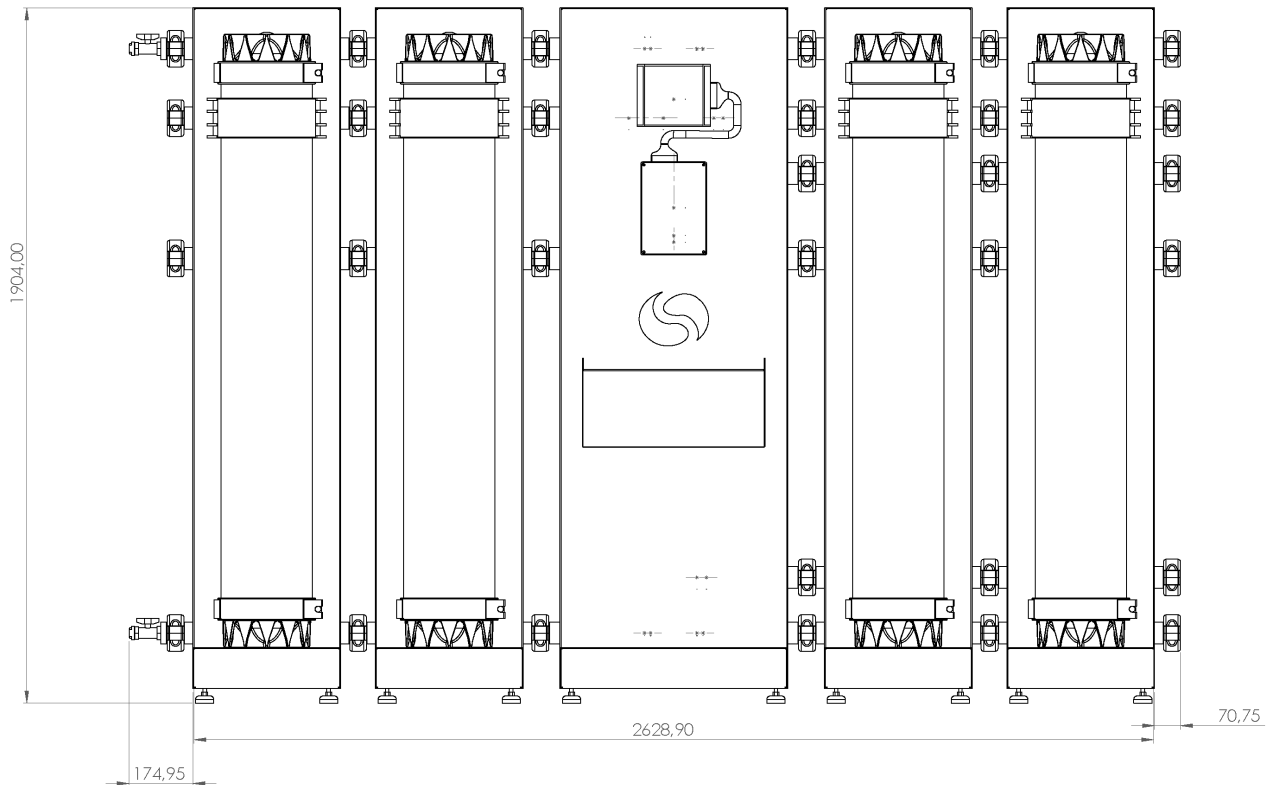
Filtration and cleaning	
Filtration	100 % of the feed is fi ltered, no continuous fl ushing water consumption.
Cleaning	Cleaning is fully automatic within a set fl ushing cycle.
Replacment	Depending on the local water quality, the filter should be changed regularly, but no later than after 10 years (if the flow decreases prematurely, an earlier filter change may be necessary).

Approvals and standards	
Material	All materials used that come into contact with water comply with the material regulations for this area of application. material regulations for this area of application (NSF 61, FDA oder KTW).
Electronics	The unit is splash-proof (IP67) and can be installed in wet rooms. It complies with the required national standards and directives.

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