Water Wonderful Life

Phoenix

The new Phoenix. Safe water for thousands of people.

Meet the toughest regulatory standards with Seccua's leading-edge Ultrafiltration: Certified pathogen-removal, integrated membrane testing, data-logging and web-based remote access.

Plus full control over all required peripherals to filter water from any source, from waste- to well-water.

Ultimate Removal Performance

The nano-pores of the Seccua-Ultrafilters provide removal characterisitcs, that meet and exceed regulatory requirements for application of membrane filtration in drinking water treatment. The Phoenix has proven to fully remove virus, cyst and bacteria, tested also against US ASTM Standards. It also reliably reduces turbidity to under a level that downstream second barrier devices, like UV-systems, can function at efficiently.

Integrated Membrane Testing

The Phoenix has a fully automated, integrated, state-of-the-art membrane integrity test. It detects membrane damages smaller than the size of pathogens.Together with its ability to monitor the signal of a turbidity meter in the filtrate line of the system (not included), it performs a continuous, indirect integrity test, triggering the integrated, direct membrane-test.

Treats difficult water

As the only one of its kind, the Phoenix continuously measures the actual degree of fouling of the membrane - based on a function of flow and differential pressure. The Phoenix automatically reacts to varying feed water conditions and adjusts the frequency of its cleaning cycles accordingly. In addition to a feed-pump it also controls dosing equipment in the feed to be able to treat high-color-containing sources using an inline-flocculation-process and achieve highest possible flowrates at maximum rates of removal of color and dissolved organics.

Cleaning-In-Place capability

Once the system detects a need for cleaning, it can apply different combinations of cleaning techniques, including pre- and post-flushing, internal backwash or backwash powered by an external pump, and it is even able to automatically perform chemically-enhanced Cleaning-In-Place (CIP): Thereby the Phoenix co-ordinates a cleaning process including two different chemicals in sequence to allow e.g. high- followed by low-pH cleaning steps to get the system back to start-up conditions.

Remote monitoring- and alert-system

As soon as the system detects an operating-error, including a failed membrane-integrity test, but also other differentiated messages, e.g. unsuccessful cleaning sequences, occured water hammer, empty cleaning chemicals and other, it can send out an SMS message to up to ten cell-phones or report to an existing remote monitoring system. Once the unit is hooked up to an existing cellular network through its internal high-speed-modem (optional), latest web-based, remote-control solutions allow the user to access the unit over the internet, change operating parameters and read operating history from the datalogger.

Highest Filtrate output

The Phoenix now offers higher filtrate ouput than ever: due to optimized filter-module construction and more membrane area, depending on the water quality, the system achieves a continuous output of up to 1,280 liters per minute (0.5 MGD) and a short-term peak flow of up to 40 liters per second (632 gpm).

Seccua Contact Information:

Corporate Office: Seccua GmbH, Krummbachstr. 8, 86989 Steingaden (Germany). Phone: +49 (0)8862 91172-0
Seccua Americas: Seccua Americas LLC, 15508 W. Bell Road #101-440, Surprise, 85374 AZ (United States of America). Phone: +1 623 986 5766

Web: www.seccua.com, E-Mail: info@seccua.com

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Performance Data

	Phoenix 4	Phoenix 7	Phoenix 10	Phoenix 20
Membrane surface area	60 m² (646 ft²)	120 m² (1,292 ft²)	240 m² (2,584 ft²)	360 m² (3,875 ft²)
Filtration Performance[1]				
Peak load, short term, up to	5 l/s (79 gpm)	10 l/s (158 gpm)	20 l/s (316 gpm)	30 l/s (474 gpm)
Continuous load, up to	160 l/min (42 gpm)	320 l/min (84 gpm)	640 l/min (168 gpm)	960 l/min (252 gpm)

Removal performance

Virus (MS2 Phage)[4]	full removal (>5.7 log tested)
Bacteria (B. Subtilis, E-Coli)[2,3]	full removal (>9.7 log certified)
Parasites (Crypto)[3]	full removal (>4 log certified)
Water consumption during flushing	typically less than 2%

[1] Filtration performance depends on water quality and temperature. Please design carefully before deploying a Phoenix system and consult with Seccua Authorized System Partners for advise if required.

[2] Bacteria removal of the Ultrafiltration membrane was measured against ASTM F838-05 standards.

[3] Crypto and Bacteria removal was also tested by California Departement of Health Services, the filter modules used (inge dizzer) are listed as „Alternative Filtration Technology".

[4] Virus removal of the Ultrafiltration membrane was measured against EPA standards.

Operating Conditions

Max. operating pressure	5 bar (75 psi)
Max. operating temperature	40 °C (104 °F)

Operating Modes

Filtration	Feed pressurized by gravity or pump (I/O or 4-20 mA), feed flocculation can be controlled
Cleaning method	Flushing and backwashing by interval-, time of day- or fouling.
	Automatic chemically enhanced cleaning possible
Maximum Δp inlet to filtrate	3.0 bar (45 psi)

Integrated Integrity Testing

Test method	Pressure Hold Test, Patent pending US 12/293,071 PCT/EP 2007/052477
Resolution	Adjustable (approx 0,5 - 3 µm) Standard settings: 1,6 µm
Frequency	Triggered by turbidity threshold[5] or daily

[5] requires external turbidity-meter, not supplied.

Programming and remote access

The unit is programmed comfortably through a Windows (XP/7) software and can be accessed locally through CAN-Bus or USB connection or remotely over the internet (GSM Modem optional).

Data Logging

Data Logging	Event-driven or by time-interval
Logged Data-Sets	Date, Time, feed- filtrate-pressure, turbidity, flow, Tank-buffer-level, alerts and failures
Data Memory	1024 data-sets (standard), upgradable to 40,000 data-sets

Power supply

Voltage[4]	110 V AC or 230 V AC (pls. specify)
Power consumption	
during filtration	approx. 5 W
during cleaning	max. 35 W (typically[6] hourly for 20 s.)

[6] The cleaning frequency depends on the contamination of the raw water and may vary. The power requirement of the pumps is not included in the consumption data.

Control system interfaces

Output interfaces

Feed-Pump	Power On/Off or 4-20 mA
Feed-Dosing-Pump	Power On/Off or 4-20 mA (flow)
Backwash Pumps	Power On/Off
Alert Monitoring Cold Contact, CAN Bus or	SMS (modem optional)
Flow measured by Virex Pro	4-20 mA
Operating mode status	CAN Bus

Input interfaces

Turbidity meter 4-20 mA	
Alert monitoring peripherals	12 V Potential
Feed-/Storage tank signal	4-20 mA

Control interfaces

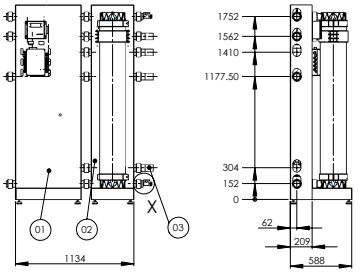
Integrated CAN-BUS signal can be tanslated to Ethernet-IP Bus (e.g. Allen Bradley PLC), Serial- or Profi-BUS (e.g. Siemens S7 PLC) through an available Gateway-Module.

Controllable functions	Allow Cleaning or Integrity Testing
Monitored Functions	Flow, Operating Mode, Pumps' & Peripherals' Modes, Alarms

Weights and Dimensions

	Phoenix 4	Phoenix 7	Phoenix 10	Phoenix 20
Width, cm (in.)	113 (44.5)	164 (65)	264 (104)	390 (154)
Depth	59 (23)			
Height	190 (75)			
Weight, wetted, kg (lbs)	130 (287)	210 (463)	370 (816)	530 (1,169)

Phoenix 4:



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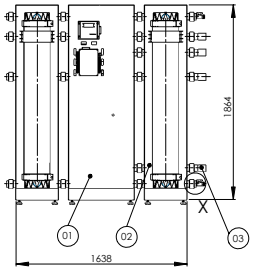

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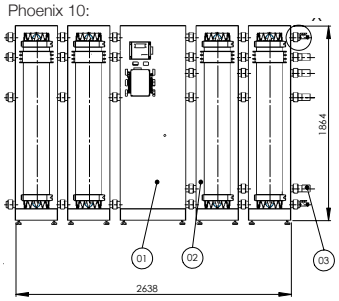

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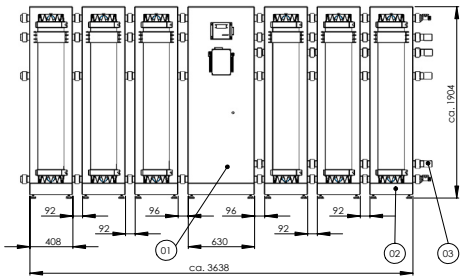

(604) 630-1114
www.watertiger.net

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