



evoQUA

WATER TECHNOLOGIES



Product Catalogue

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TABLE OF CONTENTS

Customized Solutions	4
Water Pretreatment	6
Rinsing Fine Filter / Backflush Filter	6
Backflow Preventor	7
Rinse Filter / Backflow Preventor Combination	8
Water Detector	9
Multimedia Filter	10
Carbon Filter	11
Standalone Softener	12
Twin Water Softening Systems in Cabinet Version	13
Twin Water Softening Systems	14
Accessories for Softening Systems	15
Mixed Bed Ion Exchanger	16
Ion Exchanger, Stainless Steel SG 2000 – 15000	18
Conductivity Meters	19
Accessories	20
Reverse Osmosis Systems / DI	21
RO 100 Easy	22
LaboStar 10 RO DI	23
Ultra Clear RO 20, 30, 60, 100	24
Ultra Clear RO DI 20, 30	25
Ultra Clear RO Basic (Frame Version)	26
Protegra CS DI 130 AFU	27
Protegra OF 200, 500, 750, 1000 (Frame Version)	28
Protegra CS RO 200, 500, 750, 1000 (Cabinet Version)	29
Protegra 1500, 3000 (Frame Version)	30

Reverse Osmosis Systems / EDI	31
Ultra Clear RO EDI 10, 20, 30, 55	33
Protegra CS RO EDI 120, 260, 500, 750 (El-Ion 1 step)	34
Protegra CS RO EDI 120, 260, 500, 750 (El-Ion 2 step)	35
Accessories	36
Membrane Degassing	36
Small Storage Tanks for Ultra Clear / LaboStar Systems	37
Large Storage Tanks for Ultra Clear / Protegra Systems	38
Optional Accessories Storage Tanks	39
Evoqua Pressure Booster Systems	40
Grundfos Pressure Booster Systems	41
UV Disinfection / Oxydation TOC Systems	42
Filter Housing and Cartridges	43
Ultrapure Water Systems	44
LaboStar Pro	44
LaboStar Pro TWF	45
Ultra Clear Glass Panel	46
Ultra Clear Glass Panel TWF	47
Ultra Clear Glass Panel TWF EDI	48
Ultra Clear Touch Panel	49
Ultra Clear Touch Panel TWF	50
Ultra Clear Touch Panel TWF EDI	51
Qualifications	52
Contacts	53

Project	RO System with AISI 316 L - VA 1.4404 Tubing
Customer/End User	Pharmaceutical customer
Contract Signed	October 2016 (Delivered on time and on customer budget)
About the Customer	As a contract manufacturing organization, our Customer serves other companies in the pharmaceutical industry on a contract basis to provide comprehensive services from drug development through drug manufacturing. It develops and manufactures APIs (active pharmaceutical ingredients) and other chemically synthesised materials including peptides, lipids, small molecules and carbohydrates. The Customer manufacture according to cGMP (current good manufacturing practice) and are highly focused on certification which includes the US FDA (federal drug administration).
The Client's Requirements	A complete rebuild of the current production facility and laboratories was planned. The water purification system in the plant room should be upgraded with a new system which includes: softener, reverse osmosis, continuous electrical deionization (CEDI) and CO ₂ degassing. The tank, booster pump and distribution loop including hot water sanitization would remain. The reverse osmosis unit should provide 100 L/h into the existing tank, with the option of upgrading the system to 250 L/h as required. The new system should communicate with the existing system. Due to manufacturing according to cGMP and being audited by the US FDA a pharmaceutical grade validated system was required.
The Solution	Evoqua's dedicated engineering team was selected by our customer to engineer a solution which would upgrade and work together with the existing system (tank, distribution loop and hot water sanitization). Evoqua's solution is a system which includes stainless steel tubing, taking into account the pharmaceutical manufacturing facility requirements. Designed closely with the customer, Evoqua's project engineers managed the entire project from concept engineering and design to installation, start up, commissioning and final validation.
Advantages	<ul style="list-style-type: none"> - Flow Rates from 125 - 750 l/h - VA 1.4404 Tubing - High Compact System with Minimum Footprint - Fully Integrated CO₂ Degassing Unit - Glass Display on an Open Frame - Smooth and Clean Surface - Equipped with High Quality Components (e.g. Ionpure® CEDI) - High Quality and Cost Effective Design - Pharma-Qualification IQ OQ PQ DQ



CUSTOMIZED SOLUTIONS



1. Central water treatment system, consisting of pretreatment, reverse osmosis and electro-deionization and a tank distribution system. By means of several post-treatment steps, such as an ultrapure resin ion exchanger, UV treatment and sterile filtration units, type I water qualities can be obtained if appropriate materials are used.

These systems are used, for example, in industrial applications, laboratories and hospitals. Our project and engineering team will design these systems according to your requirements.

2. Central water treatment system for sensitive applications, such as surgical ophthalmology clinics and health centers, where germ counts and endotoxins are critical parameters in addition to conductivity.

Due to their compact design, our solutions are well suited even when space is restricted.

Rinsing Fine Filter / Backflush Filter



Rinsing fine filter to protect water according to DIN/DVGW (German Technical and Scientific Association for Gas and Water) from coarse particles or other undissolved materials from the drinking water network. The housing is made from high-quality synthetic material. Rinsing with untreated water occurs over the entire filter surface without interrupting water supply. After opening the ball valve the particles are flushed out automatically and completely through the built-in drain outlet.



Backflush filter and washable fine filter for water. Validated according to DIN/DVGW (German Technical and Scientific Association for Gas and Water). The fine filter is made from stainless steel. Backflushing is conducted with filtered water over the entire filter surface, without interrupting the water supply. After opening the ball valve, all particles and the backflush water are flushed out automatically and completely.

		Strainer	Flushing filter		Back-rinse filter
Fitting		¾"	R ¾"	R 1"	R ¾"
Filtration performance	µm	110	100		100
Max. operating pressure	bar	10	10		16
Pressure drop	bar	0.2	0.2		0.2
Installation type		horizontal	horizontal or vertical		vert. / hor.
Installation length	mm	123	118		178
Installation depth	mm	55	124		130
Total height	mm	90	255		280
Max. operating temperature	°C	90	30		30
Flow rate	m³/h	4.0	2.4	3.6	3.5
Weight	kg		1.9	1.9	1.9
Item code		W2T844284	W3T199871	W2T526548	W3T197916

Backflow Preventor



DIN/DVGW validated to protect potable water supply from contamination due to backflow. The brass casing has screw fittings on either side and spouts with internal threads. Backflow protectors are made of high-quality synthetic material. Included is a pressure gauge and a hopper for attachment of a 40 mm plastic pipe or R 1" threaded pipe.

Fitting		R 3/4" / 1"	R 1/2"	R 3/4"	R 1"
Housing		Leaded red brass		Brass	
Max. pressure	bar	10		16	
Installation position		horizontal			
Installation height	mm	90			
Installation length	mm	80	151	153	159
Drain diameter	mm	50		40	50
Response pressure	bar	0.5		0.5	
Max. operating temperature	°C	60		40	
Flow rate	m³/h	3.0	4.5	6.0	8.0
Item code		W3T198805	W3T198541	W3T197542	W3T197915

Rinse Filter / Backflow Preventor Combination

This disconnection from mains power corresponds to the requirements according to DVGW / DIN 1988 Part 4. The filter case is made from high-quality synthetic material, the filter cup is made from Trogamid material and the filter insert is made from synthetic mesh. Rinsing is conducted with untreated water over the entire filter surface, without interrupting the water supply. After opening the ball valve, all particles are flushed out automatically and completely through the integrated drain outlet. In addition, a pipe disconnecter has been installed to safeguard drinking water from non-drinking water, including fluid category 3 (DIN 1988-T4), for systems conforming with DIN EN 1717 (System type 1, DIN 1988-T4), including a built-in strainer and a low-maintenance fuse cartridge with positive pressure gradient according to the requirements of the German Technical and Scientific Association for Gas and Water (DVGW).

Fitting		R ¾"	R 1"
Flow rate	m³/h	2.4	3.0
Pressure drop	bar		0.2
Filtration performance	µm		100
Max. operating pressure	bar		10
Max. operating temperature	°C		30
Installation length	mm		198
Installation height	mm		255
Installation depth	mm		124
Hopper	mm	40	50
Housing			Brass
Pressure	bar		10
Max. operating temperature	°C		60
Flow rate	m³/h		3
Item code		W3T304320	W3T304531

Water Detector



In case of leakage, a sensor activates a solenoid valve to shut down the water supply. Included is a controlling device, solenoid valve and 5 m connection cable. Applications include, water and neutral or electrically conducting fluids.

Fitting		R ¾" i/a *	R ¾" i/a	R ¾" i/i	R 1" i/i
Max. flows	m³/h	5.5	1.2	7.0	16
Operating pressure of the solenoid valve	bar	10		0.5 - 10	
Max. ambient temperature	°C			50	
Housing material		Synthetic		Brass	
Internal components		Stainless steel		Stainless steel	
Electronics housing		grey		Polyamide, white	
Installation position		user-defined		user-defined	
Sensor cable length	m	1	2	2	2
Power supply	V / Hz		230 / 50		
Controlling device	L x W x H	126 x 79 x 54		80 x 105 x 41	
Solenoid valve	L x W x H	82 x 52 x 41		80 x 105 x 41	
Item code		W2T524746	W2T828181	W2T808004	W2T808003

* For pure water and with acoustic warning signal



Multimedia Filter

This filter is used for filtration of drinking-, well- and raw water. The pressure filter is made from non-corroding glass fiber-reinforced plastic (GFRP) with installations for water distribution. The central control valve for controlling backflushing and in-filtration is made from synthetic material/lead red brass. Backflushing is conducted manually. The filter consists of quartz gravel with various grain sizes to retain undissolved solid particles from the water.

Max. flow rate	m ³ /h	1.0	1.4
Backflush volume	m ³ /h	1.5	2.1
Max. operating temperature	°C	40	
Max. operating pressure	bar	8	
Fitting		R 3/4"	R 1"
Power supply	V/Hz	230 / 50	230 / 50
Waste water connection		1"	1"
Tank diameter	mm	259	315
Tank height	mm	1280	1480
Flow pressure	bar	2	2
Item code		W3T198808	W3T198847



Carbon Filter

This filter is used for filtration of drinking-, well- and raw-water. The pressure filter is made from non-corroding glass fiber-reinforced plastic (GFRP) with installations for water distribution. The central control valve for controlling backflushing and in-filtration is made from synthetic material/lead red brass. Backflushing is conducted manually. The filter consists of a carbon mix allowing maximum volume performance due to its consistency, as well as quartz gravel with various grain sizes to retain undissolved solid particles from the water.

Max. flow rate	m ³ /h	1.0	1.4
Backflush volume	m ³ /h	1.5	2.1
Max. operating temperature	°C	40	40
Max. operating pressure	bar	8	8
Fitting		R 1"	
Power supply	V/Hz	230 / 50	
Tank diameter	mm	259	315
Tank height	mm	1280	1480
Item code		W3T199872	W3T197548

Standalone Softener



This fully automated, time-controlled one-case system in cabinet version has a small footprint but nevertheless provides a large salt charge and is optimally suited upstream of reverse osmosis systems. The 5-stage central control valve has an automatic 7-days timer. The systems are meant to work during daytime and should regenerate at night. The system is ready for connection and provided with a Power supply (230 V / 50 Hz) and a blending device.

System type: C		24	40	60	100
Capacity	0 °dH / l	24000	40000	60000	100000
Max. flow rate	l/min	30	28	30	35
Min. flow rate	l/min	1	3	3	4
Regeneration					
Salt consumption	kg	1.5	2.4	3.8	6.2
Regeneration time	minutes	30	60	60	60
Regeneration water	l	55	60	90	150
Rinse water flow	l/min	3.8	3.0	4.5	7.5
Technical data					
Resin charge	l	12	10	15	25
Salt charge	kg	10	40	80	80
Operating pressure	bar	2-6		2.8	
Installation size	inch	3/4"	1"	1"	1"
Min./max. temperature	C°	65		2 - 30	
Dimensions	Height	mm	714	660	1120
	Width	mm	230	330	330
	Depth	mm	400	475	475
Weight	kg	18	31	35	45
Item code		W3T197540 W3T198804 W3T197914 W3T198843			

Twin Water Softening Systems in Cabinet Version



These fully automated, quantity-controlled, mechanical twin water softening systems in cabinet version are optimally suited upstream of reverse osmosis systems. With their current-free operation they offer continuous availability of soft water with low salt and water consumption. For regeneration soft water is used, and thanks to its synthetic components the system is non-corroding. The different models can detect even small volume flows (LF model series – low flow nozzle from 0.19 L/min), therefore, undesired hardness irruptions are prevented. The small-footprint cabinet comprises two resin tanks with a common controller head, the desalination valve with sheath as well as a sieve bottom for the salt charge. Please note: DUO 10 and DUO 20 have identical capacities because the same amount of resin will be used. These systems differ with regard to the system design and the salt charge involved. Also well suited for installation underneath a desk or table.

System type: DUO		08 LF	20	20 LF	35	35 LF
Max. flow rate	l/min	19	19	19	20	20
Min. flow rate	l/min	0.19	2	0.19	2	0.19
Operation		paraflow		alternating operation		
Regeneration						
Salt consumption	kg	0.5	0.45	0.45	0.65	0.65
Regeneration time	minutes	11	11	11	11	11
Regeneration water	l	34	19	19	53	53
Rinse water flow	l/min	5.3	2.65	2.65	5.3	5.3
Technical data						
Resin charge	l	2 x 4.5	2 x 4.5	2 x 4.5	2 x 11.3	2 x 11.3
Salt charge	kg	8	18	18	36	36
Operating pressure	bar	1.75 - 8.5		2.5 - 8.0		
Installation size	inch	3/4"	3/4"	3/4"	3/4"	3/4"
Min./max. temperature	°C	1 - 49		2 - 65		
Dimensions (mm):	Height	560	590	590	710	710
	Width	230	360	360	510	510
	Depth	465	360	360	560	560
Weight	kg	19	19	19	33	33
Item code		W3T380538	W3T198539	W3T198140	W3T198803	W3T199864

Twin Water Softening Systems



These fully automated, quantity-controlled, mechanical twin water softening systems offer, among other aspects, continuous availability of soft water with low salt and water consumption and very easy installation. Thanks to its synthetic components the system is non-corroding. The systems are monitored with a hydraulic control button. Therefore, a Power supply is not required. The systems are powered para flow and ensure maximum reduction of hardness with full use of volume capacity.

System type: VM		60	100	200	300
Max. flow rate	l/min	39	40	53	66
Min. flow rate	l/min	4	4	6	6
Operation		paraflow			
Regeneration					
Salt consumption	kg	1.8	4.5	6.8	18
Regeneration time	minutes	45	90	90	90
Regeneration water	l	132	386	538	606
Rinse water flow	l/min	8	14	19	27
Technical data					
Resin charge	l	2 x 20	2 x 42	2 x 71	2 x 113
Salt charge	kg	114	114	226	226
Installation size	inch	1" / 1 1/4"	1" / 1 1/4"	1" / 1 1/4"	1" / 1 1/4"
Min./max. temperature	°C	2 - 49			
Dimensions (mm):	Height	1200	1200	1200	1700
	Width	460	530	700	900
	Depth	760	750	1100	1100
Weight	kg	75	120	205	320
Item code		W3T197538	W3T198842	W3T198540	W3T199867

Accessories for Softening Systems



The **SG 298** residual hardness monitoring unit is intended to be installed in the soft water pipeline and consists of a sensor based on resin extension and shrinking, with a potential-free contact (e.g. RO systems), or for use of an acoustic or visual warning signal.



Testomat 2000 for monitoring of the max. allowed residual hardness after Evoqua water softening systems by periodic chemical analysis with threshold indicators (titration and colorimetric determination).

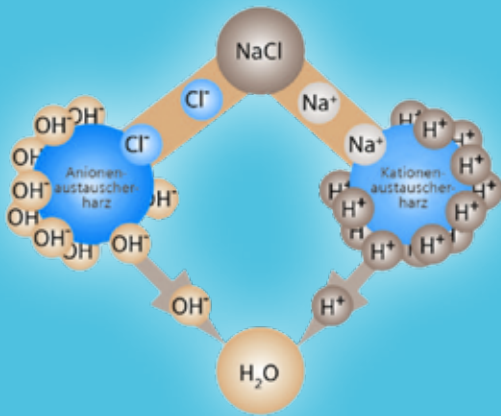
Specifications		SG298 3/4"	SG298 1"	Testomat 2000 3/8"
Max. flow rate	l/h	3600	6500	-
Max. differential pressure	bar	0.2	0.2	-
Power supply	V / Hz	230 / 50 - 60	230 / 50 - 60	230 / 50
Operating pressure		10	10	10
Automatic measuring interval	minutes	continuous	continuous	5, 10, 20, 30
Max. operating temperatures		-	-	45
Dimensions (H x W x D)		600 x 300 x 100		480 x 380 x 280
Item code		W2T524701	W2T524569	W2T524766
Spare tubes for SG-298		W2T524568	W2T524568	-
Connecting parts set for Testomat		-	-	W3T315762
Residual hardness indicator 500 mL at 0.3°dH		-	-	W2T524765

Additional Accessories

Regenerating salt Broxo, bag with 25 kg	W2T524662
Regenerating salt, 10 kg, only for 08LF (W3T380538)	W2T526793
Total hardness measuring set (°dH) GH-1; 15 ml	W2T524727

AN ENVIRONMENTALLY FRIENDLY METHOD TO EFFECTIVELY DESALT WATER

Typical applications



Ion exchange diagram.

- feeding of ultrapure water systems
- general lab applications
- lab washing machines
- feeding of autoclaves and climatic chambers
- preparation of buffers
- RO water refinement

Inorganic salts dissolve in water to generate positively charged cations and negatively charged anions.

Conventional table salt, sodium chloride (NaCl), dissociates into positively charged sodium ions and negatively charged chloride ions.



These and other undesirable ions can be removed by ion exchange.

Ion exchange describes the reversible process where desired ions are exchanged against undesired ions between solid and fluid materials.

For pure or ultrapure water applications, the solid material usually consists of styrene-divinylbenzene-copolymer ion exchange resins and the fluid material is water.

Typically, ion exchange resins are produced in the form of small millimeter-sized spheres with porous or jellylike characteristics. For the exchange of cations such as sodium, strongly acidic cation exchange resin is used.

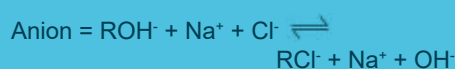
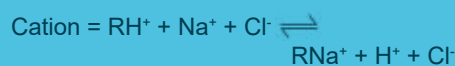
For the exchange of anions such as chloride, strongly alkaline anion exchange resin is used. The styrene-divinylbenzene-copolymer resin structure contains sulfonic groups (SO_3H) for the exchange of cations as well as amine groups for the exchange of anions.

The water flows over and through the synthetic resin bed. Since the exchange sites are distributed all over the structure of the resin, a large surface is available for efficient ion exchange.

The ion affinity of the ion exchange sites that are distributed in the synthetic resin structure depends on the molecular weight, valence or charge of the ions.

Monovalent ions with high molecular weight will be bound more strongly to the exchange sites in the resin than low molecular weight ions, whereas di- or multivalent ions will be bound more strongly than low charge ions.

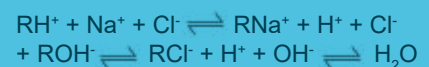
Cation exchange resins for ultrapure water applications are supplied in hydrogen form (H^+), anion exchange resins are supplied in hydroxide form (OH^-). When the sodium chloride-containing water flows over and through the cation and anion exchange resins, the sodium is exchanged for hydrogen, whereas chlorides are exchanged for hydroxide ions. The following processes take place in the individual resins:



The above listed reactions are reversible. For regeneration of the used cation exchange resin and the used anion exchange resin, concentrated acid and concentrated brine, respectively, can be used.

In order to ensure a better understanding of the practical aspects it is assumed that the cation exchange resin is used prior to the anion exchange resin in a twin bed system. This ensures that (most of) the sodium is removed before the anion exchange reaction takes place. Thereafter, the water molecule is formed from hydrogen and hydroxide ions.

The reaction is as follows:



Cation and anion exchange resins for ultrapure water applications are used most efficiently by providing both resins in a proportional ratio together in a single bed as a mixed bed resin.

Since cation exchange resins have a larger capacity per volume unit than anion exchange resins, the blending ratio is usually 40% cations and 60% anions (based on volume). Basically, this resin blend generates multiple twin bed systems within a single resin bed and therefore ensures a nearly complete ion removal.

MIXED BED ION EXCHANGE

AN ENVIRONMENTALLY FRIENDLY METHOD TO EFFECTIVELY DESALT WATER



Mixed bed resins can yield a water purity of 18.2 MΩ-cm / 0.055 μS/cm (compensated to 25°C).

Due to competing ions causing sodium slippage it is difficult to obtain qualities of even 10 MΩ-cm with twin bed systems. Ion exchange resins are available in different qualities. The resin material is chosen based on the intended application. For pure and ultrapure water systems nuclear grade or semiconductor grade resins are used.

Nuclear grade resins comply with the requirements for applications such as e.g. in nuclear power plants or general lab purposes, whereas semiconductor grade resins comply with the requirements in the microelectronics industry and for ultrapure water production. Due to their high purity and low leaching properties regarding organic carbon (TOC), semiconductor grade resins have to be used in lab water systems.

The range comprises pressure-resistant stainless steel containers types SG-2000 to SG-15000. For feed water with 10° dH, the numbers used in the type designation would always apply in liters before the resin is regenerated.

Like a tailor-made suit

...specifically made according to the requirements of your application – this is how we can provide systems for you. The ion exchangers produced in series offer superior quality.

Sophisticated technology

Our long-standing experience with ion exchangers has enabled the advancement of technical

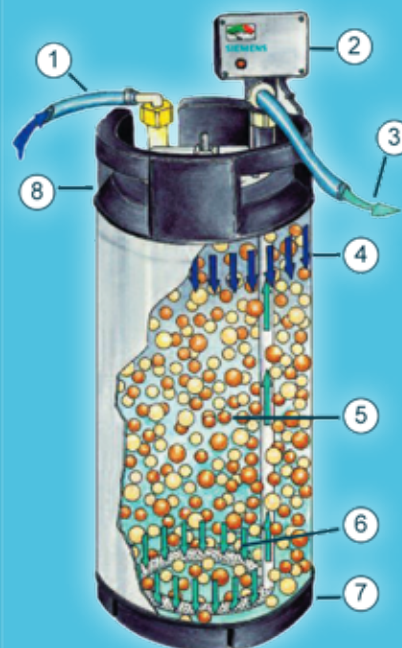
details such as the sophisticated water channel flow.

It reaches even into the very last corners of the tank. This ensures maximum water withdrawal capacity with minimal resin use and optimal resin utilization. Investment of time and expertise has enabled us to optimize resin composition and regeneration. The result is resins of superior quality - with optimal capacity, exchange rate and mechanical stability.

Environment-friendly

Due to their advantageous properties our resins can be regenerated almost indefinitely.

But we do even more when it comes to environmental measures. Our regeneration station is one of the most environment-friendly of its kind – based on a proprietary procedure that offers maximum capacity with minimum use of chemicals.



1. Feed water inlet
2. Conductivity meter
3. Pure water
4. top water distribution
5. Mixed bed ion exchanger resins
6. bottom water distribution
7. Hard rubber basis
8. Hard rubber collar with transport handles



Ion Exchanger, Stainless Steel (SG 2000 – 15000)

Mixed bed resin ion exchangers are used to generate demineralized water. These high-quality stainless steel ion exchangers (1.4404) can be operated with a working pressure of max. 10 bar. Our optimized channel flow ensures superior resin bed usage. The cartridges are available optionally with the proven stainless steel quick couplers (SK) or with threaded fitting (3/4" / 1 1/4"). Conductivity meters and tubing (or electrodes) are available separately.

SPECIFICATIONS FOR ION EXCHANGERS WITH QUICK COUPLERS (SK)

Type SG....		2000 SK	2800 SK	4500 SK	6200 SK	7000 SK	11000 SK	15000 SK
Capacity*	In liters	2000	2800	4500	6200	7000	11000	15000
Max. flow rate	l/h	450	800	1000	1000	2000	2500	3000
Resin charge	l	13	19	30	40	50	75	100
Max. pressure	bar	10	10	10	10	10	10	10
Dimensions								
Diameter	mm	230	230	230	230	360	360	360
Tank height	mm	410	570	785	1025	660	980	1111
Total height incl. meter	mm	515	675	886	1125	780	980	1230
Shipping weight	kg	18	24	34	48	52	68	92
Item code		W3T199735	W3T199172	W3T199736	W3T198029	W3T199173	W3T198027	W3T199789

SPECIFICATIONS FOR ION EXCHANGERS WITH TUBE FITTING (3/4" / 1 1/4")

TYPE SG...		2000 3/4"	2800 3/4"	4500 3/4"	6200 3/4"	7000 1 1/4"	11000 1 1/4"	15000 1 1/4"
Capacity*	In liters	2000	2800	4500	6200	7000	11000	15000
Max. flow rate	l/h	450	800	1000	1000	2000	2500	3000
Resin charge	l	13	19	30	40	50	75	100
Max. pressure	bar	10	10	10	10	10	10	10
Dimensions								
Diameter	mm	230	230	230	230	360	360	360
Tank height	mm	410	570	785	1025	660	980	1111
Total height, incl. meter	mm	530	690	900	1140	710	910	1160
Shipping weight	kg	18	24	34	48	53	69	93
Item code		W3T199409	W3T198640	W3T198639	W3T198638	W3T199061	W3T197829	W3T198437

* Capacity per regeneration for total dissolved solids (TDS) 1.79 mol/m³, corresponding to 10°d. At 1°d TDS the conductivity is approx. 30 µS/cm.

Conductivity Meters



P 2/30

Conductivity meter with analog instrument and integrated pressure-resistant metering electrode ($c = 0.2$), LED for display of operating voltage. Intended for direct attachment to the pure water outlet of the ion exchanger cartridge with quick coupler (SK) or 3/4" internal thread. The instrument can be used with our pressure-resistant stainless steel ion exchangers SG 2000 - SG 6200 (3/4"), SG 7000 - SG 15000 (only SK).



P 1/50 W-A

Conductivity meter for wall mount, measuring range 0 - 50 $\mu\text{S}/\text{m}$, built-in analog display, potential-free switching contact, infinitely adjustable.

A separate metering electrode ($c = 0.2$) is required.

The instrument can be used with our pressure-resistant stainless steel ion exchangers SG 2000 - SG 15000 with 3/4", 1 1/4" and SK.



LFW-200 digital

Conductivity meter for wall mount with 2-digit LCD display with grey-blue background illumination, green/red LED display with integrated alarm buzzer, threshold infinitely adjustable from 0.1 - 199 $\mu\text{S}/\text{cm}$, with potential-free switching contact and 4-20 mA outlet. A separate metering electrode ($c = 0.2$) is required.

The instrument can be used with our pressure-resistant stainless steel ion exchangers SG 2000 - SG 15000 with 3/4", 1 1/4" and SK.

		P 2/30 SK	P 2/30	P 1/50 W-A	LFW-200
Fitting		Quick coupler	3/4"	-	-
Cable length		1.4	1.4	1.5	1.5
Power supply	V/Hz	230 / 50 - 60	230 / 50 - 60	230 / 50 - 60	90 - 230 / 50 - 60
Measuring range	$\mu\text{S}/\text{cm}$	0.5 - 20	0.5 - 20	0 - 50	0.055 - 199.9
Protection class		IP 54	IP 54	IP 54	IP 65
Temperature range	$^{\circ}\text{C}$	0 - 50	0 - 50	0 - 50	0 - 50
Switching contact		No	No	Yes	Yes
Outlet 4-20 mA		No	No	No	Yes
Dimensions (H x W x D)	mm	138 x 106 x 62	126 x 106 x 62	120 x 120 x 60	120 x 200 x 60
Item code		W3T198266	W3T198373	W3T197840	W3T199245

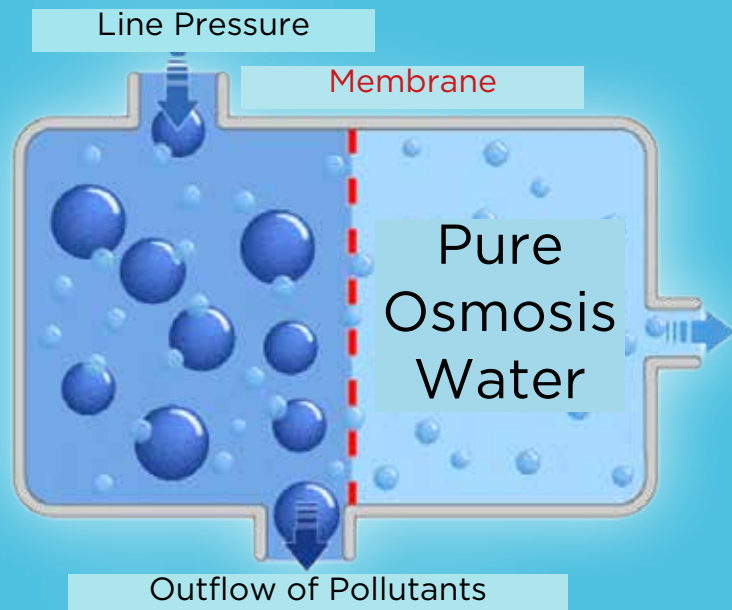
Accessories

ITEM CODE	DESCRIPTION
W2T524664	Mixed bed resin in containers with 25 liters
W2T828181	Water detector 1.2 m³/h
W2T808004	Water detector with sensor, 3/4" tube fitting, 6.8 m³/h
W2T808003	Water detector with sensor, 1" tube fitting, 16 m³/h
W3T331762	Threaded electrode (c = 0.2)
W2T525642	Threaded electrode (c = 0.2), temperature compensated (TC)
W3T198259	Quick coupler conversion kit for ion exchangers and tubing sets
W3T197586	Quick coupler conversion kit only for ion exchangers
W3T347290	VB4 pure water dispenser, POM, 4 valves
W3T197588	Solenoid valve 220 V / 50 Hz DN 10
W3T204904	Floating switch, 250 V, 10 A
TUBING SETS WITH QUICK COUPLER SK	
W3T199302	For SG 2000 - SG 15000 SK 2 x 1.5 m, quick coupler only for P2/30 with electrode
W3T199289	For SG 2000 - SG 15000 SK with electrode 2 x 1.5 m, quick coupler, electrode (c = 0.2) for P1/50 or LFW200
W3T199288	For SG 2000 - SG 15000 SK with electrode, temperature compensated 2 x 1.5 m, quick coupler, electrode (c = 0.2) only for LFW200
TUBING SETS WITH TUBE FITTINGS	
W3T198103	For SG 2000 - SG 6200 3/4" 2 x 1.5 m, 3/4" threaded fitting only for P2/30 with electrode
W3T197682	For SG 2000 - SG 6200 3/4" with electrode 2 x 1.5 m, 3/4" threaded fitting, electrode (c = 0.2) for P1/50, LFW200
W3T198041	For SG 2000 - SG 6200 3/4" with electrode, temperature compensated (TC) 2 x 1.5 m, 3/4" threaded fitting, electrode (c = 0.2) only for LFW200
W3T199844	For SG 7000 - SG 15000 1 1/4" with electrode 2 x 1.5 m, 1 1/4" threaded fitting, electrode (c = 0.2) for P1/50, LFW200
W3T198267	For SG 7000 - SG 15000 SK 1 1/4" with electrode, temperature compensated (TC) 2 x 1.5 m, 1 1/4" threaded fitting, electrode (c = 0.2) only for LFW200

THE PRINCIPLE OF REVERSE OSMOSIS

Reverse osmosis is a physical procedure to concentrate fluid-dissolved substances, in which the natural osmosis process is reversed under pressure. In order to understand the principle of reverse osmosis it is helpful to look at the natural osmosis process first: Osmosis describes the process of generating a concentration balance between two liquids through a semi-permeable membrane. This process always takes place when two aqueous solutions with different ion concentrations are separated by a semi-permeable wall. In nature, the principle of osmosis is of utmost physiologic importance when only the solvent, but not the dissolved substances, can pass the semipermeable membranes. This not only provides for osmoregulation of the cellular water content, but also maintains an internal pressure for stability. From a physical point of view, the ion solutions – that are separated from each other by membranes – always strive for concentration balance. This means that ions from the side with high solute concentration strive to get to the side with a lower solute concentration. Because the membrane provides a barrier through which the ions cannot easily migrate due to their molecular size, instead the smaller water molecules flow from the side with a lower to the side with a higher solute concentration. This flux of water molecules continues until either the ion concentrations on both sides have been equalized or pressure has been built up on the side with the higher concentration - the so-called osmotic pressure. The osmotic pressure of a highly diluted solution follows the Ideal Gas Laws. It rises in proportion to the concentration of the solution and to the temperature.

In reverse osmosis technology, the above described principle of osmosis is reversed. On the side with high ion concentrations (tap water, raw water) pressure is applied, forcing the water to flow into the other direction, i.e. to the pure water side with the lower concentration.



Functional principle of reverse osmosis

Due to their molecular size, the unwanted solutes (e.g. hardeners, nitrate, silica, pesticide and drug residues, just to name a few) are unable to pass through the ultra-fine membrane. Thus, the pure water side almost entirely consists of water. The reverse osmosis technology may be compared with an extremely fine filtration and is therefore also called nanofiltration.

Since during operation there is a steady flow of tap water containing solutes, the substances that are held back by the membrane have to be removed continuously in order to prevent membrane occlusion. A reverse osmosis system therefore generates pure water as well as waste water (concentrate) containing an increased concentration of undesired substances which are washed off.

Because of the inevitable generation of waste water, the level of efficiency (i.e. the filtrated water quantity per raw water quantity from tap) never equals one. However, the waste water being enriched with harmful substances is continuously removed, therefore no accumulation of retained harmful substances at the osmosis membrane can take place.

Over the past years, membrane technology has been advanced considerably. Whereas for some years cellulose acetate membranes have been commonly used, in recent years polysulfone membranes have been established in the market. The membrane represents a complex structure. The average life-time of the membranes that we utilize is approximately 3 to 5 years or more, depending on feed water, prefiltration, etc. Purification performance and yield of a reverse osmosis membrane depend on numerous factors, for example on the raw water pressure. Our lab systems usually operate with a water pressure between 0.1 and 6 bar.

The generated pure water quantity increases with pressure.

Temperature also affects the pure water yield. When the temperature rises, the mobility of the water molecules increases, therefore more water can be pressed through the membrane. However, reverse osmosis membranes usually are temperature-sensitive, so it is not advised to increase the temperature to improve performance. A temperature of 35°C should not be exceeded.

RO 100 Easy



The RO 100 Easy is a cost effective, efficient and compact reverse osmosis system producing 100 L permeate per hour from drinking water. The system can be wall or bench mounted, with direct access to all spare parts. Applications include glass washers, autoclaves and applications requiring Type III water.

SYSTEM PERFORMANCE		RO 100 EASY
Delivery flow rate	l/h	100
Max. salt retention	%	98
Bacteria retention	%	99
Particle retention	%	99
FEED WATER SPECIFICATIONS		
Feed water pressure	bar	2 - 6
Initial conductivity	µS/cm	< 2000
Silt density index	SDI	< 12*
Free Chlorine	mg/l	< 0.1
Total iron	mg/l	< 0.1
Dimensions (W x D x H)	mm	410 x 358 x 790
Shipping weight	kg	35
Power consumption	kW/h	0.2
Item code		W3T373540

* = with a pre-filter kit

Labostar® 10 RO DI



The LaboStar® 10 RO DI system has a small foot print and produces pure water with a quality of up to 10 MΩ-cm. The versatile system includes a 7 L storage tank with the option of adding a 30 l or 60 l tank. The pure water is collected in a tank and transferred by a built-in circulation pump. Typical applications are IC, Pathology, Buffer preparation, general chemistry, feed for laboratory ultra-pure water systems etc.

SYSTEM PERFORMANCE		LABOSTAR 10 RO DI
Delivery flow rate	l/h	10
Salt retention	%	96
Bacteria retention	%	99
Particle retention	%	99
Permeate conductivity	µS/cm	< 0.1
Bacteria*	cfu/ml	< 1
Particles > 0.2 µm*	per ml	< 1
Max. delivery flow rate	l/min	1.2
Delivery flow rate @ 0.5 bar	l/h	70
Delivery flow rate @ 1.0 bar	l/h	65
FEED WATER SPECIFICATION		
Pressure	bar	0.1 - 5
Conductivity	µS/cm	< 2000**
Silt density index	SDI	< 12**
Free chlorine	mg/l	< 0.5
Total iron	mg/l	< 0.1
CO ₂	mg/l	< 15
Temperature	°C	5 - 35
Shipping weight	kg	24
Power supply	V/Hz	100 - 240/50/60
Dimensions (H x W x D)	mm	535 x 290 x 400
Item code		W3T324493

* only in combination with a 0.2 µm sterile filter

** with a pre-filter kit

Ultra Clear® RO 20, 30, 60, 100



The Ultra Clear® RO series generate high-quality permeates with very low power consumption.

The utilization of “low-energy” membranes provides for an efficient and economic operation. Our high quality specifications for the material ensure a long operating life.

SYSTEM PERFORMANCE		ULTRA CLEAR	ULTRA CLEAR	ULTRA CLEAR	ULTRA CLEAR
		RO 20	RO 30	RO 60	RO 100
Delivery flow rate	l/h	20	30	60	100
Max. salt retention	%	96	96	96	96
Bacteria retention	%	99	99	99	99
Particle retention	%	99	99	99	99
FEED WATER SPECIFICATIONS					
Feed water pressure	bar	2 - 6	2 - 6	2 - 6	2 - 6
Initial conductivity	µS/cm	< 2000**	< 2000**	< 2000**	< 2000**
Silt density index	SDI	< 12**	< 12**	< 12**	< 12**
Free Chlorine	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Shipping weight	kg	32	32	33	35
Power consumption	kW/h	0.2	0.2	0.2	0.2
Power supply*	V/Hz	240/50 - 60	240/50 - 60	240/50 - 60	240/50 - 60
Device dimensions (H x W x D)	mm	530 x 340 x 420	530 x 340 x 420	530 x 340 x 420	530 x 340 x 420
Item code		W3T441745	W3T441746	W3T199978	W3T198158

* 115 V on request

** with a pre-filter

Ultra Clear® RO DI 20, 30



An Ultra Clear® RO system with a DI module supplies high-quality water that meets most requirements in the lab. The feed and product water quality is indicated in all Ultra Clear RO systems. The salt retention rate is shown in percent.

SYSTEM PERFORMANCE		ULTRA CLEAR RO DI 20	ULTRA CLEAR RO DI 30
Delivery flow rate	l/h	20	30
Permeate conductivity	µS/cm	< 0.1	< 0.1
Max. salt retention	%	98	98
Bacteria retention	%	99	99
Particle retention	%	99	99
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	2 – 6	2 – 6
Conductivity	µS/cm	< 2000**	< 2000**
CO ₂	mg/l	< 15**	< 15**
Silt density index	SDI	< 12**	< 12**
Free Chlorine	mg/l	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1
Shipping weight	kg	33	34
Power consumption	kW/h	0.2	0.2
Power supply	V/Hz	240/50 - 60*	240/50 - 60*
Device dimensions (H x W x D)	mm	530 x 340 x 420	530 x 340 x 420
Item code		W3T441747	W3T441747

* 115V on request

** with a pre-filter kit



Ultra Clear® RO Basic (Frame Version)

The Ultra Clear® RO Basic reverse osmosis system produce 150 l/h type III water into a 1000 l storage tank. The system is fitted with a distribution pump and can be connected to applications within the laboratory or industry requiring type III water.

SPECIFICATIONS		150 BASIC
Delivery flow rate	l/h	150
Salt retention	%	95 - 98
Bacteria reduction	%	99
Min./max. raw water pressure	bar	2 - 6
Water temperature	°C	5 - 35
Min./max. working pressure	bar	6 / 10
Min./max. raw water pressure	bar	2 / 6
Storage tank	l	1000
Mains Fitting	V / Hz	230 / 50
Pump		
Transfer flow	m³ / h	2.4
Transfer pressure	bar	2.0
Media temperature	°C	1 - 35
Power supply	V / Hz	230 / 50
Power consumption	W	850
Device dimensions (H x W x D)	mm	2150 x 800 x 1250
Shipping weight	kg	ca. 145
Item code		W3T199618



Protegra CS® DI 130 AFU

The Protegra CS® DI 130 AFU supplies Clinical Laboratory Reagent Water (CLRW) water using UV and filtration technologies together with recirculation and ion exchange. This compact system is ideal for directly feeding single or multiple clinical analyzers.

SPECIFICATIONS		PROTEGRA CS DI 130 AFU
Delivery flow rate	l/h	130
Conductivity	µS/cm	< 0.1
Particle retention	%	> 99
Bacteria	cfu/ml	< 1
Operating pressure	bar	8 - 14
Operating temperature	°C	5 - 30
Max. energy intake	W	1250
Power supply	V / Hz	230 / 50
Dimensions (H x W x D)	mm	1650 x 600 x 600
Power supply	V / Hz	230 / 50
Max. power input	W	1250
Shipping weight	kg	ca. 160
Item code		W3T198863

CLRW specifications for water feeding clinical analyzers are as follows:

Bacteria: < 10 cfu/ml

Resistivity: 10 MΩ-cm

Final filtration: 0.22 micron

TOC: < 500 ppb



Protegra OF 200, 500, 750, 1000 (Frame Version)

The Protegra OF reverse osmosis systems as frame version, cost effectively produce larger volumes of desalinated water. The compact systems were designed with high quality components and intelligent control. Applications include feedwater for glass washers, autoclaves, climate cabinets, ultrapure water systems and industrial applications.

SPECIFICATIONS		PROTEGRA OF RO 200	PROTEGRA OF RO 500	PROTEGRA OF RO 750	PROTEGRA OF RO 1000
Delivery flow rate	l/h	200	500	750	1000
Min. desalting rate	%	98	98	98	98
Max. yield	%	75	75	75	75
Germ count reduction	%	> 99	> 99	> 99	> 99
Max. working pressure	bar	14	14	14	14
No. of RO Modules		1	3	4	5
Power supply	V / Hz	230 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Power consumption	kW/h	0.55	1.3	1.8	2.3
Dimensions (H x W x D)	mm	1640 x 605 x 600	1640 x 605 x 600	1640 x 605 x 600	1640 x 605 x 600
Shipping weight	kg	95	140	170	190
Item code		W3T269403	W3T314581	W3T314582	W3T314583

Systems > 1000 L/h available on request



Protegra CS® RO 200, 500, 750, 1000 (Cabinet Version)

The Protegra CS® RO reverse osmosis systems as cabinet version, cost effectively produce larger volumes of desalinated water. The compact systems were designed with high quality components and intelligent control. Applications include feedwater for glass washers, autoclaves, climate cabinets, ultrapure water systems and industrial applications.

SPECIFICATIONS		PROTEGRA CS RO 200	PROTEGRA CS RO 500	PROTEGRA CS RO 750	PROTEGRA CS RO 1000
Delivery flow rate	l/h	200	500	750	1000
Inorganic rejection	%	98	98	98	98
Max. yield	%	75	75	75	75
Bacteria reduction	%	> 99	> 99	> 99	> 99
Max. working pressure	bar	14	14	14	14
No. of RO Modules		1	3	4	4
FEED WATER SPECIFICATIONS					
Feed water pressure	bar	2 - 6	2 - 6	2 - 6	2 - 6
Initial conductivity	µS/cm	< 2000	< 2000	< 2000	< 2000
Silt density index	SDI	< 12**	< 12**	< 12**	< 12**
Free chlorine	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Power supply	V / Hz	230 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Power consumption	kW/h	0.55	1.4	1.5	1.6
Dimensions (H x W x D)	mm	1650 x 600 x 550	1650 x 600 x 550	1650 x 600 x 550	1650 x 600 x 750
Shipping weight	kg	120	140	172	192
Item code		W3T199617	W3T197521	W3T199222	W3T199821

Systems > 1000 L/h available on request

** with pre-filter kit



Protegra 1500, 3000 (Frame Version)

The Protegra 1500 and 3000 reverse osmosis systems as frame version, cost effectively produce larger volumes of desalinated water. The compact systems were designed with high quality components and intelligent control. Applications include feedwater for glass washers, autoclaves, climate cabinets and ultrapure water systems.



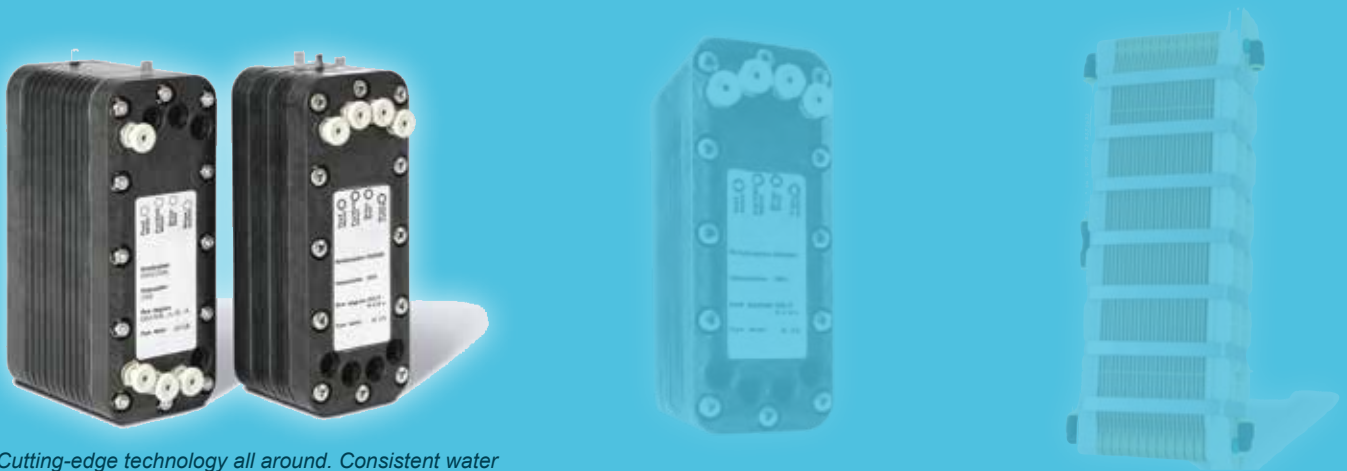
SPECIFICATIONS		PROTEGRA 1500*	PROTEGRA 3000*
Delivery flow rate	l/h	1500	3000
Min. desalting rate	%	98	98
Max. yield	%	75	75
Germ count reduction	%	> 99	> 99
Max. working pressure	bar	14	14
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	2 - 6	2 - 6
Initial conductivity	µS/cm	< 2000	< 2000
Silt density index	SDI	< 12**	< 12**
Free chlorine	mg/l	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1
Power supply	V / Hz	3 x 400 / 50	3 x 400 / 50
Power consumption	kW/h	2.4	5.5
Dimensions (H x W x D)	mm	2600 x 600 x 850	1650 x 3300 x 850
Shipping weight	kg	approx. 265	approx. 345
Item code		W3T198159	W3T198160

* larger systems available on request

** with pre-filter kit

EDI TECHNOLOGY

POWERED BY IONPURE®



*Cutting-edge technology all around. Consistent water quality, without DI module exchange.
The El-Ion® technology delivers low TOC values.*

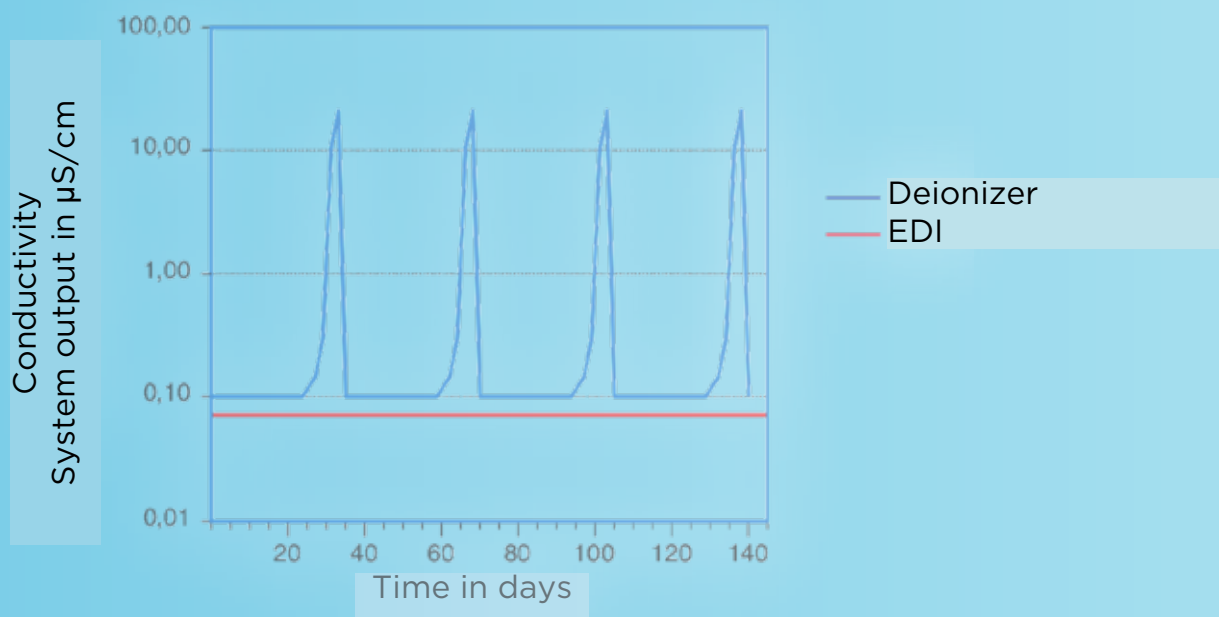
This electro-deionization procedure allows for a substantial increase of quality of the RO permeate and has been developed from and was patented to the research center Jülich (Forschungszentrum Jülich). As the licensee of this technology we have further advanced this procedure according to the highest industrial requirements. This unique technology, which has been known since 1994 under the trade name El-Ion® / Ionpure®, is able to reduce germs, endotoxin and TOC contents, and handles even excessively high CO₂ values.

Its compactness and performance level are unmatched.

For comparison:
*Ion exchangers and electro-deionization systems
El-Ion® / Ionpure® and the course of their respective water quality*

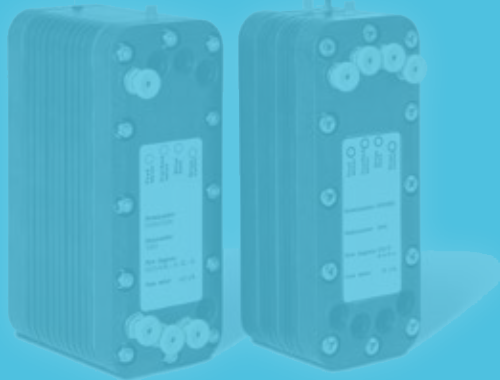
This image illustrates the power of modern technology.

With a mixed bed module, the conductivity of the product water increases during standard operation. The resin has to be replaced or regenerated when the maximally allowed conductivity has been reached. With El-Ion® / Ionpure® electro-deionization, the quality of the pure water always remains at maximum level. No regeneration, no fluctuation of quality. High-quality water always available - it is just that simple.



EDI TECHNOLOGY

POWERED BY IONPURE®



*Cutting-edge technology all around. Consistent water quality, without DI module exchange.
The El-Ion® technology delivers low TOC values.*



El-Ion®, pure water quantity 10 L/h.



Ionpure® module

El-Ion®

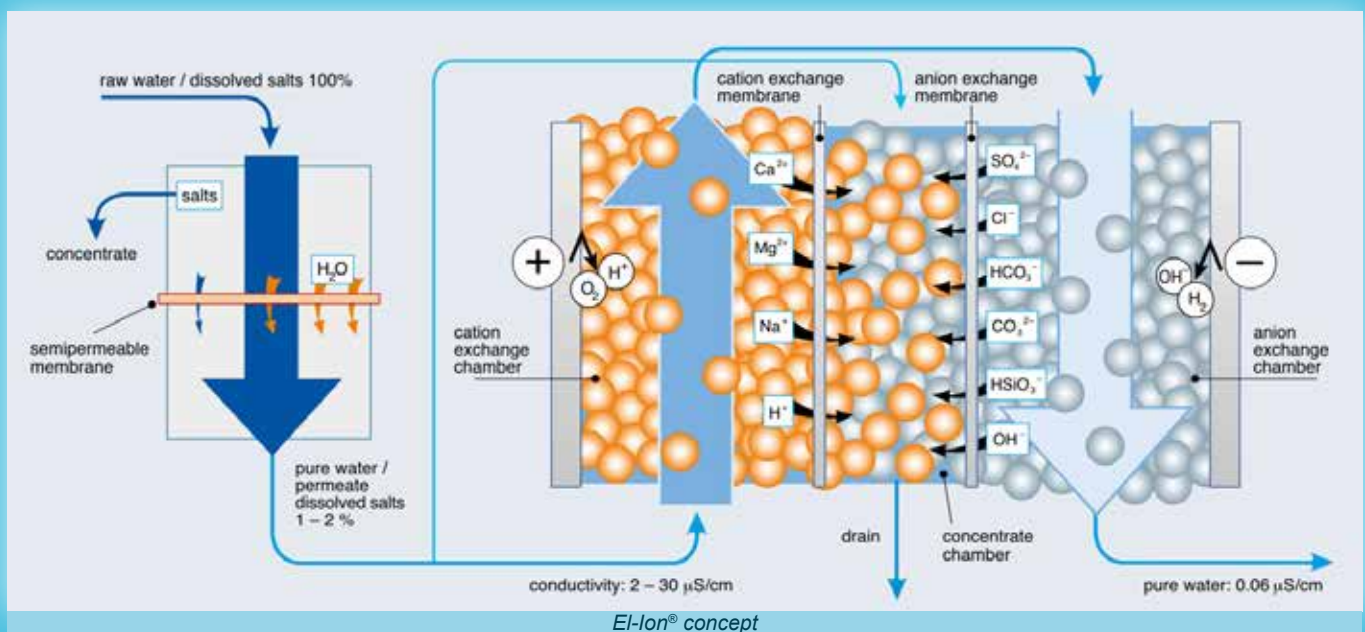
In our El-Ion® electro-deionization procedure, resin chambers with “separate beds” are used to deionize water. The Ionpure® cells utilize “mixed beds”. Microbiological examinations have proven the substantial decrease of germ counts in the product water.

This effect is based on the fact that the electrodes are in direct contact with the resin and generate an electrical field that is harmful to the bacteria.

The intermediate pH shift in the cells positively impacts the separation of SiO_2 and CO_2 .

Another advantage of electro-deionization is the continuous operation.

The resins are subjected to steady regeneration without any need of acids or brine. The high energy-efficiency of this procedure is another advantage in terms of environmental friendliness. No chemicals, low power consumption.





IONPURE
TECHNOLOGIES



Ultra Clear® RO EDI 10, 20, 30, 55

The Ultra Clear® RO EDI systems combine purification, reverse osmosis and EDI technology. Ionpure EDI technology ensures a consistent, cost effective supply of pure water. Applications include glassware washers, autoclaves, feeding ultrapure water systems and the preparation of media, dilution reagents and buffers. The name stands for high quality pure water.

PRODUCT WATER SPECIFICATION		ULTRA CLEAR RO EDI 10	ULTRA CLEAR RO EDI 20	ULTRA CLEAR RO EDI 30	ULTRA CLEAR RO EDI 55
Delivery flow rate	l/h	10	20	30	55
Conductivity	µS/cm	< 0.06	< 0.06	< 0.06	< 0.06
Max. conductivity	µS/cm	< 0.1	< 0.1	< 0.1	< 0.1
Resistivity	MΩ-cm	> 5 (typically 10 - 15)	> 5 (typically 10 - 15)	> 5 (typically 10 - 15)	> 5 (typically 10 - 15)
TOC	ppb	< 30	< 30	< 30	< 30
Silicate	%	> 99.9	> 99.9	> 99.9	> 99.9
FEED WATER SPECIFICATION					
Pressure	bar	0.1 - 5.0	0.1 - 5.0	0.1 - 5.0	0.1 - 5.0
Conductivity	µS/cm	< 2000**	< 2000**	< 2000**	< 2000**
Silt density index	SDI	< 12**	< 12**	< 12**	< 12**
Free chlorine	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Silicate *	mg/l	< 10	< 10	< 10	< 10
CO ₂ *	mg/l	< 15**	< 15**	< 15**	< 15**
Water temperature	°C	5 - 30	5 - 30	5 - 30	5 - 30
Room temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35
ENERGY REQUIREMENTS					
Power consumption	W	200	200	200	200
Power supply	V/Hz	100-240 V / 50-60 Hz	100-240 V / 50-60 Hz	100-240 V / 50-60 Hz	100-240 V / 50-60 Hz
DIMENSIONS					
Height	mm	530	530	530	530
Width	mm	340	340	340	340
Depth	mm	420	420	420	420
Item code		W3T324496	W3T441749	W3T441750	W3T198868

Ultra Clear RO EDI 10, 20 and 30 with IonPure EDI modules / RO EDI 55 with EI-Ion EDI cell

* Please contact us if you have water with high CO₂ and SiO₂ contents.

** with the help of a pre-filter



Protegra CS® RO EDI 120, 260, 500, 750 (El-Ion 1-Step)

The Protegra CS® RO EDI systems combine reverse osmosis with single stage electrodeionization to produce Type II pure water with a quality of up to 10 MΩ-cm. The inclusion of Evoqua El-Ion technology ensures a stable product water quality.

SPECIFICATIONS		PROTEGRA CS RO/ EDI 120	PROTEGRA CS RO/ EDI 260	PROTEGRA CS RO/ EDI 500	PROTEGRA CS RO/ EDI 750
Delivery flow rate	l/h	120	260	500	750
Pure water quality	µS/cm	< 0.5	< 0.5	< 0.5	< 0.5
Typ. pure water quality	µS/cm	< 0.1	< 0.1	< 0.1	< 0.1
Max. yield	%	75	75	75	75
Max. working pressure	bar	14	14	14	14
Power consumption	kW/h	0.6	0.75	1.5	2.0
Power supply	V / Hz	230 / 50	230 / 50	400 / 50	400 / 50
Dimensions H x W x D	mm	1650 x 600 x 600		1650 x 600 x 750	
Shipping weight	kg	151	165	237	291
Item code		W3T200007	W3T199823	W3T200009	W3T198152

FEED WATER SPECIFICATIONS					
Pressure	bar	1 - 5	1 - 5	1-5	1-5
Conductivity	µS/cm	< 2000	< 2000	< 2000	< 2000
Silt density index	SDI	< 12**	< 12**	< 12**	< 12**
Free chlorine	mg/l	0.5	0.5	0.5	0.5
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Silicate*	mg/l	< 15	< 15	< 15	< 15
CO ₂ *	mg/l	< 15	< 15	< 15	< 15
Temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35
Water hardness	°dH	0	0	0	0

* in summary not larger than 20 mg/l

** with a pre-filter kit



Protegra CS® RO EDI 120, 260, 500, 750 (El-Ion 2-Step)

The Protegra CS® RO EDI systems combine reverse osmosis with two stage electrodeionization to produce pure water with a quality of up to 14 MΩ-cm. The inclusion of Evoqua El-Ion technology ensures a stable product water quality.

SPECIFICATIONS		PROTEGRA CS	PROTEGRA CS	PROTEGRA CS	PROTEGRA CS
		RO/ EDI 120	RO/ EDI 260	RO/ EDI 500	RO/ EDI 750
Delivery flow rate	l/h	120	260	500	750
Pure water quality	µS/cm	< 0.1	< 0.1	< 0.1	< 0.1
Typ. pure water quality	µS/cm	< 0.07	< 0.07	< 0.07	< 0.07
Max. yield	%	75	75	75	75
Max. working pressure	bar	14	14	14	14
Power consumption	kW/h	0.6	0.75	1.5	2.0
Power supply	V / Hz	230 / 50	230 / 50	400 / 50	400 / 50
Dimensions H x W x D	mm	1650 x 600 x 600		1650 x 600 x 750	
Shipping weight	kg	155	170	290	370
Item code		W3T199822	W3T199619	W3T200008	W3T197525

FEED WATER SPECIFICATIONS					
Pressure	bar	1 - 5	1 - 5	1 - 5	1 - 5
Conductivity	µS/cm	< 2000**	< 2000**	< 2000**	< 2000**
Silt density index SDI		< 12**	< 12**	< 12**	< 12**
Free chlorine	mg/l	0.5**	0.5**	0.5**	0.5**
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Silicate*	mg/l	< 10	< 10	< 10	< 10
CO ₂ *	mg/l	< 15**	< 15**	< 15**	< 15**
Temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35
Water hardness	°dH	0	0	0	0

Upgrades can be done for the post CDI, for UV and the sterile filter

* in summary not larger than 20 mg/l

** with a pre-filter kit

Membrane Degassing



Excess concentrations of dissolved gasses in water can lead to water treatment systems malfunctioning, leading to an increase of operating costs. Water-dissolved CO₂ cannot be retained by the membrane in a reverse osmosis system and therefore damages downstream components (EDI systems / mixed bed ion exchangers). Thus, the service life of ion exchangers is decreased and operating costs are increased. In EDI systems, excess CO₂ results in an impairment of the continuous regeneration process. CO₂ degassing systems are a low-maintenance and chemical-free solution. An additional particulate filter is recommended to protect the system (approx. 5 µm).

SPECIFICATIONS		CO ₂ DEGASSING 150	CO ₂ DEGASSING 5000
Delivery flow rate	l/h	0.1 - 150	120 - 5000
Feed water pressure	bar	0.5 - 3.5	0.5 - 5.2
CO ₂ degassing performance, based on volume flow and gas concentration	%	30 - 98	50 - 98
Membrane surface	m ²	1.4	53
Power supply	V/Hz	100 - 240 / 50 - 60	3 x 400 / 50
Power consumption	W	30	300
Dimensions (H x W x D)	mm	380 x 360 x 170	1540 x 450 x 423
Item code		W3T314413	W3T262426

Small Storage Tanks for Ultra Clear® and LaboStar® Series



Storage tanks with conical bottom for pure water are constructed from polyethylene to minimise the release of organics. Vent filters prevent the ingress of airborne impurities. Further accessories see below. Level control with pressure sensor (4 - 20 mA).

SPECIFICATIONS		30 LITERS	60 LITERS	80 LITERS
Material		Polyethylene (PE)	Polyethylene (PE)	Polyethylene (PE)
Capacity	l	30	60	85
Tank inlet		5/16"	5/16"	5/16"
Product water outlet		3/4"	3/4"	3/4"
Pump rate	l/min	-	1.5	12 / 8
Pressure	bar	-	2	3 / 4
Weight	kg	approx. 7	9.5 (11 with pump)	approx. 20
Tank lid	Ø mm	110	110	110
Dimensions (H x W x D)	mm	560 x 310 x 310	560 x 560 x 310	820 x 345 x 520
Item code		W3T324512	W3T324513	-
Tank with pump 1.2	l/min	-	-	W3T324514
Tank with pump 1.5	l/min	-	W3T355215	-
Tank with pump 8	l/min	-	-	W3T324515
ACCESSORIES				
Vent filter kit		W3T199596	W3T199596	W3T199881
CO ₂ / Vent filter kit		W3T197552	W3T197552	W3T199837
UV kit		W3T324529	W3T324529	W3T339692
Vent filter / UV kit		W3T339723	W3T339724	-
CO ₂ / UV kit		W3T339714	W3T339715	-
Wall bracket		W3T199991	W3T197563	-
CONSUMABLES				
CO ₂ / Vent replacement		W3T199197	W3T199197	W3T199197
Vent filter, replacement		W2T526554	W2T526554	W2T526554
UV replacement bulb		W2T558519	W2T558519	W2T558519

Large Storage Tanks 100 - 3000 l



Our storage tanks are constructed from polyethylene for pure water storage. The tanks are opaque to prevent algal growth. The water level is electronically monitored (via pressure sensor 4 - 20 mA).

CAPACITY* (LITERS)	DOM APERTURE (MM)	SAFETY OVERFLOW	DIMENSIONS MM (L X W X H)	ITEM CODE
100	160	DN 25	450 x 810	W3T199977
200	160	DN 25	550 x 1040	W3T199996
300	160	DN 25	650 x 1080	W3T197508
500	160	DN 25	770 x 1230	W3T198133
750	225	DN 25	720 x 720 x 1700	W3T198836
1000	225	DN 25	780 x 780 x 1940	W3T198753
1650	400	DN 32	2085 x 720 x 1400	W3T199591
2000	400	DN 32	2180 x 760 x 1700	W3T199890
3000	400	DN 32	2390 x 850 x 1980	W3T199834

* further tanks available on request

Optional Accessories Storage Tanks

ITEM	DESCRIPTION	DIMENSION	ITEM CODE
Water lock D32	Overflow with built-in water lock, PVC, filling connection 1" external thread with dummy cap, e.g. to add diluted H ₂ SO ₄ solution	DN 32	W3T197583
Water lock D40		DN 40	W3T197752
Vent filter VT2 (for max. 1500 L/h)	Vent filter VF2 for 100 to 1500 L tanks with a withdrawal rate of up to 1.5 m ³ /h	-	W3T198123
CO ₂ trap CT2, including vent filter (installation kit, for max. 1500 L/h)	Filter case 10" with adsorption filter cartridge, filled with hydrated lime to bind CO ₂ from the external atmosphere, for venting of storage tanks at a pump rate of max. approx. 3 m ³ /h. Bacteria are removed to reduce microbiological contamination of the storage tank water.		W3T197784
CO ₂ trap, including vent filter (installation kit, external, 3000 L/h)		DN 25	W3T197784
Level sensor installation kit, 200 mbar 3.5 m for >= 80 L tanks	Level sensor for controlling the RO system; 4 - 20 mA	R 1/4"	W3T199393
Level sensor installation kit, 200 mbar 3.5 m for <= 100 L tanks		G 1" IG	W3T348642
Level sensor adapter cable	for all OF systems		W3T430939
UV immersion lamp, 15 Watts, for max. 1 m ³	Immersion lamp in a special quartz protection tube, incl. ballast in a polycarbonate housing; 254 nm wave length		W3T198141
UV immersion lamp, 18 Watts, for max. 2 m ³			W3T199833
UV immersion lamp, 38 Watts, for max. 3 m ³			W3T197502

Evoqua Pressure Booster Systems



Evoqua pressure booster systems are ready-to-be-installed water supply systems consisting of a self-priming membrane pump with an overflow valve, a pressure reducer to set the working pressure with a manometer, and a simple On/Off automatic switch.

SPECIFICATIONS		150 L/H	500 L/H
Flow rate	l/h	up to 150 flow controlled	up to 500 pressure controlled
Transfer pressure	bar	0.5 - 3.0	1.5 - 3.5
Media temperature	°C	1 - 35	1 - 35
Booster pressure	bar	0 - 2.0	0 - 2.0
Voltage	V / Hz	100 - 240 / 50 - 60	100 - 240 / 50 - 60
Power consumption	W	90	184
Dimensions (H x W x D)	mm	370 x 368 x 154	310 x 460 x 141
Fittings		3/4"	3/4"
Mounting options		Wall and floor	Wall
Item code		W3T314557	W3T362922

Grundfos Pressure Booster Systems



Evoqua partners with Grundfos, one of the world's leading pump manufacturers, to deliver a large variety of pumps. Further pumps available on request.



SPECIFICATIONS		SCALA	MONO I	MONO II	HAT I	HAT II	HAT III
Flow rate	m ³ /h	3	2.0	3.7	2 x 1.6	2 x 3.4	2 x 6.6
Max. transfer pressure	bar	2.7	4.4	6.0	6.0	6.4	6.6
Max. media temperature	°C	45	20	20	60	60	60
Voltage	V/Hz	200-240 / 50	200-240 / 50	200-240 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Power input	A	2.8	6.7 - 5.6	9.1 - 7.6	6.7 - 5.6	6.7 - 5.6	4.15 - 3.4
Power consumption	KW	1.1	1.5	1.1	1.1	1.1	1.2
Dimensions (H x W x D)	mm	404x193x302	495x240x395	495x240x395	546x1200x257	546x1200x257	546x1200x257
External fitting / DS		1"-3/4"	1 1/4"-3/4"	1 1/4"-3/4"	1 1/4"-1"	1 1/4"-1"	1 1/4"-1"
Item code		W3T390454	W2T812008	W2T812009	W2T812010	W2T812011	W2T812012

UV Disinfection / Oxydation TOC Systems



The lamp is used for disinfection of clear, colorless, iron- and manganese-free water. The UV lamp in its pressure-resistant quartz tube sits in an electropolished stainless steel housing (1.4301) and is suitable for horizontal and vertical installation in pipelines.

The unusually high disinfection rate is supported by volume deflection.

The controller with its integrated operating hours meter is built into a separate plastic housing and is connected with the UV lamp via a connecting cable.

Control unit for UV disinfection systems available (option).

UV DISINFECTION		UV 09	UV 14	UV 33
Power	W	16	25	36
Illumination	J/m ²		250 / 400 / 1200	
Flow rate	m ³ /h	1.0 / 0.9 / 0.35	1.8 / 1.4 / 0.55	4.5 / 3.3 / 1.3
Wavelength	nm		254	
Max. operating pressure	bar		10	
Max. water temperature	°C		40	
Power supply	V/Hz		230 / 50 - 60	
Item code		W3T199855	W3T199588	W3T199987
Replacement lamp		W2T525543	W2T525476	W3T199832

UV DISINFECTION WITH TOC REDUCTION		UV TOC 06	UV TOC 11	UV TOC 15	UV TOC 19	UV TOC 38	UV TOC 63
Power		25	36	36	60	170	170
Nominal flow	m ³ /h	0.6	1.1	1.5	1.9	3.8	6.3
Illumination	J/m ²			1200			
Wavelength	nm			254 / 185			
Max. operating pressure	bar			10			
Max. water temperature	°C			35			
Connection		3/4"	1"	1 1/4"	1 1/4"	2"	2"
Power supply	V/Hz			230 / 50 - 60			
Item code		W3T199989	W3T199590	W3T199746	W3T199612	W3T197569	W3T199217

ACCESSORIES

Control unit for UV disinfection systems **W2T861630**

Filter Housing and Cartridges

FILTER HOUSING WITH WALL MOUNT AND FILTER CUP WRENCH



SIZE	DESCRIPTION	ITEM CODE
5"	Filter housing FG 5, polypropylene blue	W3T198845
10"	Filter housing FG 10, polypropylene blue	W3T198183
10"	Filter housing FG 10n, polypropylene clear	W3T197545
10" BB	Filter housing FG10 Big Blue	W3T197546
20"	Filter housing FG 20, polypropylene blue	W3T198543
20"	Filter housing FG 20n, polypropylene clear	W3T197917
20" BB	Filter housing FG 20 Big Blue	W3T198809

FILTER CARTRIDGES

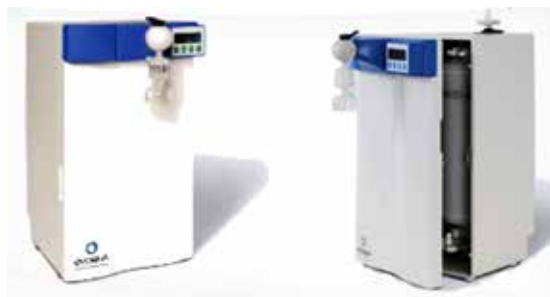


SIZE	DESCRIPTION	ITEM CODE
5"	Fine filter cartridge, 1 µm	W2T526552
5"	Fine filter cartridge, 5 µm	W2T526534
5"	Fine filter cartridge, 20 µm	W3T199755
5"	Active carbon / fine filter cartridge GAC	W2T526541
10"	Sterile filter cartridge, 0.2 µm	W2T526539
10"	Fine filter cartridge, 1 µm	W2T524613
10"	Fine filter cartridge, 5 µm	W2T526537
10"	Fine filter cartridge, 5 µm, Big Blue	W2T526551
10"	Fine filter cartridge, 20 µm	W2T526540
10"	Active carbon / fine filter cartridge ACB	W2T526933
10" BB	Active carbon cartridge Big Blue	W2T526535
20"	Sterile filter cartridge, 0.2 µm	W2T526544
20"	Fine filter cartridge, 1 µm	W2T526550
20"	Fine filter cartridge, 5 µm	W2T526545
20" BB	Fine filter cartridge, 5 µm, Big Blue	W2T526549
20"	Active carbon / fine filter cartridge 1 µm GAC	W2T526536
20" BB	Active carbon	W2T526313

CARTRIDGE FILTER SET WITH WALL MOUNT AND FILTER CUP WRENCH



SIZE	DESCRIPTION	ITEM
10"	FG 10" x 2.1 µm / 0.2 µm / 2 manometers	W3T203779
20"	FG 20" x 2.1 µm / 0.2 µm / 2 manometers	W3T197547
10"	FG 10" x 2, ACB / 5 µm	W3T198846
20"	FG 20" x 2, ACB / 5 µm	W3T197918
10" BB	AK / 5 µm 10" Big Blue	W3T198185
20" BB	AK / 5 µm 20" Big Blue	W3T197748



Labostar® Pro

The extremely space-saving ultrapure water system for cost-efficient generation of analytical-grade water can be used as a benchtop device. The water quality with a conductivity of 0.055 µS/cm corresponding to 18.2 MΩ-cm and a TOC content of < 10 ppb in the DI version and 1 - 5 ppb in the UV version exceeds all standards, such as: ASTM type I, CLSI type I and ISO 3696 type I.

ULTRAPURE WATER SPECIFICATIONS		LABOSTAR PRO	LABOSTAR PRO	LABOSTAR PRO	LABOSTAR PRO
		DI 2	DI 4	UV 2	UV 4
Delivery flow rate	l/min	1.5*	1.5*	1.5*	1.5*
Conductivity	µS/cm	0.055	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2	18.2
TOC	ppb	5 - 10	5 - 10	1 - 5	1 - 5
Bacteria	cfu/ml	< 1**	< 1**	< 1**	< 1**
Endotoxins	EU/ml	< 0.001**	< 0.001**	< 0.001**	< 0.001**
Particles > 0.2 µm	per ml	< 1	< 1	< 1	< 1
FEED WATER SPECIFICATIONS					
Feed water pressure	bar	0.1 - 6	-	0.1 - 6	-
Initial conductivity	µS/cm	< 20	< 20	< 20	< 20
Silt density index	SDI	< 12***	< 12***	< 12***	< 12***
TOC	ppb	< 50	< 50	< 50	< 50
Free Chlorine	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
Total iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1
CO ₂	mg/l	< 15***	< 15***	< 15***	< 15***
Water temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35
Room temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35
ENERGY REQUIREMENTS					
Power consumption	W	270	270	270	270
Power supply	V/Hz	100 - 240 V / 50 - 60 Hz	100 - 240 V / 50 - 60 Hz	100 - 240 V / 50 - 60 Hz	100 - 240 V / 50 - 60 Hz
Dimensions (H x W x D)	mm	535 x 400 x 410	535 x 400 x 520	535 x 400 x 410	535 x 400 x 520
Item code		W3T324339	W3T409684	W3T324340	W3T324491

*depending on booster pressure, min. 1.0 LPM > 0.1 bar input pressure

** incl. charged sterile filter (the water was free of any detectable RNase or DNase)

*** with a pre-filter kit

Labostar® Pro TWF



The LaboStar® PRO TWF systems produce ultrapure water directly from tap water. This versatile system has a small footprint and an integrated 7 L tank. Type III deionised water can also be withdrawn directly from the tank.

RO WATER SPECIFICATIONS		LABOSTAR PRO	LABOSTAR PRO
		TWF	TWF UV
Delivery flow rate	l/h	10	10
Ion retention rate	%	max. 96	max. 96
Bacteria retention rate	%	> 99	> 99
Particle retention rate	%	> 99	> 99
Ultrapure water specifications			
Delivery flow rate	l/min	1.2	1.2
Conductivity	µS/cm	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2
TOC	ppb	5 - 10	1 - 5
Bacteria	cfu/ml	< 1	< 1
Endotoxins	EU/ml	< 0.001*	< 0.001*
Particles > 0.2µm	per ml	< 1	< 1
Feed water specifications			
Feed water pressure	bar	3 - 5	3 - 5
Conductivity	µS/cm	< 2000	< 2000
Silt density index	SDI	< 12**	< 12**
TOC	ppb	< 1000	< 1000
Free Chlorine	mg/l	< 0.5	< 0.5
CO ₂	mg/l	< 15	< 15
Water temperature	°C	5 - 30	5 - 30
Room temperature	°C	5 - 35	5 - 35
Energy requirements			
Power consumption	W	270	270
Power supply	V/Hz	100 - 240 V / 50 - 60 Hz	100 - 240 V / 50 - 60 Hz
Dimensions (H x W x D)	mm	535 x 400 x 520	535 x 400 x 520
Shipping weight	kg	24	25
Item code		W3T324337	W3T324338

* Incl. charged sterile filter (the water was free of any detectable RNase or DNase)

** with a pre-filter kit

Ultra Clear® Glass Panel



The Ultra Clear® GP (glass panel) systems deliver 18.2 MΩ-cm ultrapure water. A modern glass panel allows the user to effortlessly navigate the system functions. A combination of water purification technologies allows the user to meet a broad range of laboratory requirements.

ULTRAPURE WATER SPECIFICATIONS		ULTRA CLEAR GP	ULTRA CLEAR GP UV TM	ULTRA CLEAR GP UV UF TM
Delivery flow rate max.	l/min	2	2	2
Conductivity	μS/cm	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2
TOC	ppb	5 - 10	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	-	free
Bacteria	cfu/ml	< 1	< 1	< 1
Endotoxins	EU/ml	-	-	< 0.001
Particles > 0.1 μm	per ml	< 1	< 1	< 1
FEED WATER SPECIFICATIONS				
Feed water pressure	bar	0.1 - 5	0.1 - 5	0.1 - 5
Initial conductivity	μS/cm	< 20	< 20	< 20
CO ₂	mg/l	< 15	< 15	< 15
TOC	ppb	< 50	< 50	< 50
Temperature	°C	5 - 35	5 - 35	5 - 35
Shipping weight	kg	24	26	26
Power supply	V/Hz	100 - 240 /50 - 60	100 - 240 /50 - 60	100 - 240 /50 - 60
Dimensions (H x W x D)	mm	530 x 340 x 320	530 x 340 x 320	530 x 340 x 320
Item code		W3T364777	W3T358096	W3T343875

Ultra Clear® Glass Panel TWF



The Ultra Clear® GP (glass panel) TWF (tap water fed) systems deliver 18.2 MΩ-cm ultrapure water directly from tap water. A modern glass panel allows the user to effortlessly navigate the system functions. A combination of water purification technologies allows the user to meet a broad range of laboratory requirements.

PURE WATER SPECIFICATIONS		ULTRA CLEAR GP TWF	ULTRA CLEAR GP TWF UV TM	ULTRA CLEAR GP TWF UV UF TM
Conductivity	μS/cm	2	2	2
TOC	ppb	30	30	30
Bacteria	cfu/ml	30	30	30
ULTRAPURE WATER SPECIFICATIONS				
Delivery flow rate	l/min	1.8	1.8	1.8
Conductivity	μS/cm	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2
TOC	ppb	5 - 10	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	-	free
Bacteria	cfu/ml	< 1	< 1	< 1
Endotoxins	EU/ml	-	-	< 0.001
Particles > 0.1μm	per ml	< 1	< 1	< 1
FEED WATER SPECIFICATIONS				
Feed water pressure	bar	0.1 - 5	0.1 - 5	0.1 - 5
Initial conductivity	μS/cm	< 2000	< 2000	< 2000
Silt density index	SDI	< 12*	< 12*	< 12*
Free Chlorine	mg/l	< 0.5	< 0.5	< 0.5
CO ₂	mg/l	< 15	< 15	< 15
Temperature	°C	5 - 35	5 - 35	5 - 35
Shipping weight 30 / 60 / 80 L	kg	41 / 44	43 / 46 / 48	44 / 47
Power supply	V/Hz	100-240/50-60	100-240/50-60	100-240/50-60
Dimensions 30 L: H x W x D	mm	530 x 560 x 320	530 x 560 x 320	530 x 560 x 320
Dimensions 60 L: H x W x D	mm	530 x 900 x 320	530 x 900 x 320	530 x 900 x 320
Dimensions 80 L: H x W x D	mm	-	1355 x 340 x 420	-
Item code with 30 L		W3T364779	W3T362530	W3T343878
Item code with 60 L		W3T364851	W3T364853	W3T343879
Item code with 80 L		-	W3T362541	-

Ultra Clear® Glass Panel TWF EDI



This special edition is provided with a black input field made from hardened glass and capacitive sensors with LED illumination. The Ultra Clear® GP TWF EDI system is provided with a full set of all required components to generate pure and ultrapure water directly from drinking water.

PURE WATER SPECIFICATIONS		ULTRA CLEAR GP	ULTRA CLEAR GP
		TWF	TWF UV
Conductivity	µS/cm	0.2	0.2
TOC	ppb	< 30	< 30
Bacteria	cfu/ml	< 30	< 30
ULTRAPURE WATER SPECIFICATIONS			
Delivery flow rate	l/min	1.8	1.8
Conductivity	µS/cm	0.055	0.055
Resistance	MΩ-cm	18.2	18.2
TOC	ppb	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	free
Bacteria	cfu/ml	< 1	< 1
Endotoxins	EU/ml	-	< 0.001
Particles > 0.1 µm	per ml	< 1	< 1
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	0.1 - 5	0.1 - 5
Conductivity	µS/cm	< 2000	< 2000
Silt density index	SDI	< 12*	< 12*
Free Chlorine	mg/l	< 0.5	< 0.5
Silica	mg/l	< 15	< 15
TOC	ppb	< 50	< 50
Temperature	°C	5 - 35	5 - 35
Shipping weight 30 / 60 L	Kg	43 / 46	43 / 47
Power supply	V/Hz	100-240/50-60	100-240/50-60
Dimensions 30 L: H x W x D	mm	530 x 560 x 320	530 x 560 x 320
Dimensions 60 L: H x W x D	mm	530 x 900 x 320	530 x 900 x 320
Item code with 30 L		W3T364854	W3T343880
Item code with 60 L		W3T364855	W3T340903

* with the help of a pre-filter kit

Ultra Clear® Touch Panel



The Ultra Clear® TP system delivers ultrapure 18.2MΩ-cm water with consistent quality. A TOC monitoring is installed in the system and is shown on the display. This ultrapure water system delivers ultrapure water for even the most demanding laboratory applications.

The flexible dispenser offers maximum freedom when dispensing water up to 200 cm from the unit. The touch panel allows easy menu navigation and a graphical system overview.

ULTRAPURE WATER SPECIFICATIONS		ULTRA CLEAR TP UV TM	ULTRA CLEAR TP UV UF TM
Delivery flow rate	l/min	2	2
Conductivity	μS/cm	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2
TOC	ppb	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	free
Bacteria	CFU/ml	< 1	< 1
Endotoxins	EU/ml	-	< 0.001
Particles > 0.2 μm	per ml	< 1	< 1
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	0.1 - 5	0.1 - 5
Conductivity	μS/cm	< 20	< 20
CO ₂	mg/l	15*	15*
TOC	ppb	< 50	< 50
Temperature	°C	5 - 35	5 - 35
Power supply	V/Hz	100-240 / 50-60	100-240 / 50-60
Dimensions (H x W x D)	mm	530 x 340 x 320	530 x 340 x 320
Shipping weight	kg	44	44
Item code		W3T360165	W3T360166

* with the help of a pre-filter kit

Ultra Clear® Touch Panel TWF



Ultra Clear® TP tap water feed (TWF) systems deliver ultrapure 18.2 MΩ-cm water with consistent quality directly from tap water. This ultrapure water system delivers pure and ultrapure water for even the most demanding laboratory applications. The flexible dispenser offers maximum freedom when dispensing water up to 200 cm from the unit. The touch panel allows easy menu navigation and a graphical system overview.

PURE WATER SPECIFICATIONS	VALUE	ULTRA CLEAR TP TWF UV TM	ULTRA CLEAR TP 10 TWF UV UF TM
Delivery flow rate	l/h	10	10
Conductivity	μS/cm	2	2
Bacteria	cfu/ml	< 30	< 30
ULTRAPURE WATER SPECIFICATIONS			
Delivery flow rate	l/min	1.8	1.8
Conductivity	μS/cm	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2
TOC	ppb	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	free
Bacteria	cfu/ml	< 1	< 1
Endotoxins	EU/ml	< 0.001	< 0.001
Particles > 0.2 μm	per ml	< 1	< 1
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	0.1 - 5	0.1 - 5
Conductivity	μS/cm	< 2000*	< 2000*
CO ₂	mg/l	15*	15*
Silt density index SDI		< 12*	< 12*
Free Chlorine	mg/l	< 0.5*	< 0.5*
Total iron	mg/l	< 0.1	< 0.1
Temperature	°C	5 - 35	5 - 35
Shipping weight	kg	43/46	44/47
Power supply	V/Hz	100 - 240 / 50 - 60	
Dimensions (H x W x D) with 30/60 L	mm	530 x 560 x 320 / 530 x 900 x 320	
Item no. with 30 L tank		W3T360169	W3T360171
Item no. with 60 L tank		W3T360174	W3T360176

* with the help of a pre-filter kit

Ultra Clear® Touch Panel TWF EDI



Ultra Clear® TP tap water feed (TWF) EDI systems, include electrical deionization. The systems include two options for dispensing water; one on the front of the unit and a flexible dispenser for use at the work station. The systems deliver ultrapure water of the highest quality, suitable for all critical laboratory applications.

PURE WATER SPECIFICATIONS		ULTRA CLEAR TP TWF EDI UV TM	ULTRA CLEAR TP TWF EDI UV UF TM
Delivery flow rate	l/h	20	20
Conductivity	µS/cm	0.2	0.2
Bacteria	cfu/ml	< 30	< 30
ULTRAPURE WATER SPECIFICATIONS			
Delivery flow rate	l/min	1.8	1.8
Conductivity	µS/cm	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2
TOC	ppb	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	free
Bacteria	cfu/ml	< 1	< 1
Endotoxin	EU/ml	-	< 0.001
Particles > 0.2 µm	per ml	< 1	< 1
FEED WATER SPECIFICATIONS			
Feed water pressure	bar	0.1 - 5	0.1 - 5
Conductivity	µS/cm	< 2000*	< 2000*
Silt density index SDI		< 12*	< 12*
Free Chlorine	mg/l	< 0.5*	< 0.5*
Total iron	mg/l	< 0.1	< 0.1
TOC	ppb	< 50	< 50
Temperature	°C	5 - 35	5 - 35
Shipping weight 30 / 60 L	kg	43/46	44/47
Power supply	V/Hz	100 - 240 / 50 - 60	
Dimensions (H x W x D) with 30 L tank	mm	530 x 560 x 320	
Dimensions (H x W x D) with 60 L tank	mm	530 x 900 x 320	
Item no. with 30 L tank		W3T360177	W3T360178
Item no. with 60 L tank		W3T360179	W3T360180

* with the help of a pre-filter kit

Qualifications

System Manufacturing and Qualification from a single Source.

DESCRIPTION	ITEM NUMBER
FOR ALL LABOSTAR® AND ULTRA CLEAR® ULTRA PURE WATER SYSTEMS	
DQ IQ OQ PQ	W3T227468
IQ OQ	W3T227469
FOR ALL LABOSTAR® AND ULTRA CLEAR® TWF ULTRA PURE WATER SYSTEMS	
DQ IQ OQ PQ	W3T227470
IQ OQ	W3T227501
FOR ALL LABOSTAR® AND ULTRA CLEAR® PURE WATER SYSTEMS	
DQ IQ OQ PQ	W3T227502
IQ OQ	W3T227503
FOR ALL PROTEGRA CS® RO PERFORMANCE < 1500 L/H	
DQ IQ OQ PQ	W3T227504
IQ OQ	W3T227505
FOR ALL PROTEGRA CS® RO PERFORMANCE > 1500 L/H	
DQ IQ OQ PQ	W3T227506
IQ OQ	W3T227507
FOR CUSTOMER SPECIFIED SYSTEMS	
IQ OQ	W3T227509 / ON REQUEST

DQ = Design Qualification IQ = Installation Qualification
OQ = Operational Qualification PQ = Performance Qualification

All prices are excl. working time for qualifications on-site.
For all other costs, please contact us.

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Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
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Псков (8112)59-10-37
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