EVOQUA
WATER TECHNOLOGIES

Product Catalogue

Version 1.2305

TABLE OF CONTENTS

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CUSTOMIZED SOLUTIONS

A system that doesn't fit? Not with EVOQUA. Our project team is specialized in tailoring the perfect system for your specific requirements. **From small to BIG...we make it fit!**

ENGINEERED REVERSE OSMOSIS CEDI COMBINATION

WITH TUBING IN AISI 316 L - VA 1.4404

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	- Flow Rates from 125 - 750 l/h
	- VA 1.4404 Tubing
	- High Compact System with Minimum Footprint
	- Fully Integrated CO^2 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

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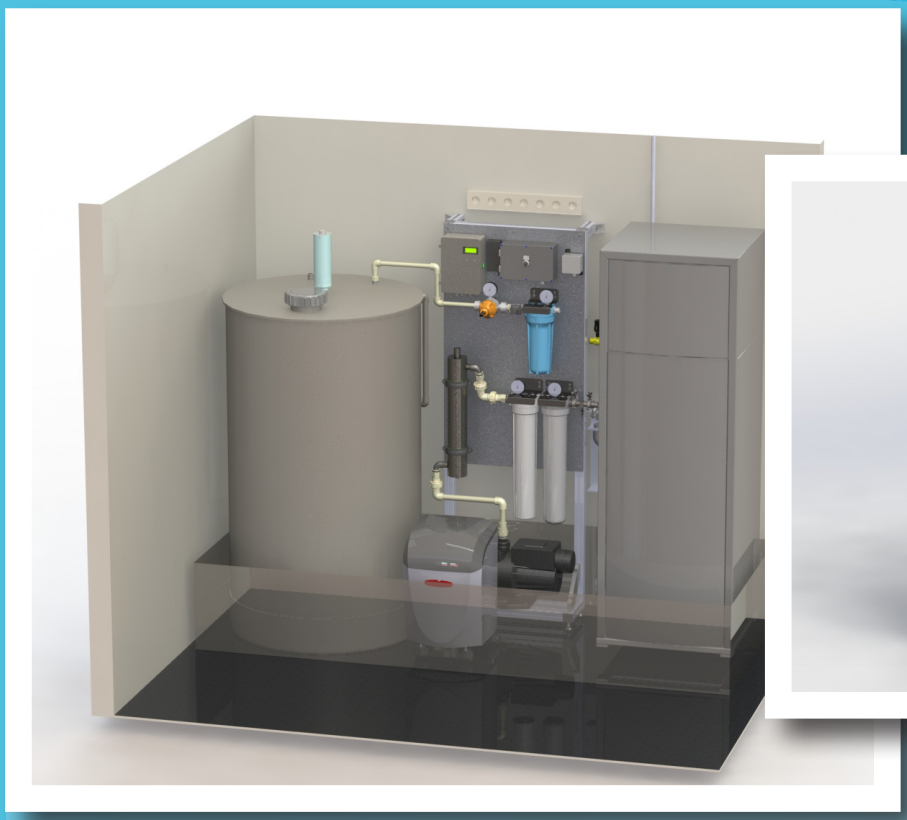
CUSTOMIZED SOLUTIONS



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. Rising 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.

Fitting		**R ¾“**	**R 1“**	**R ¾“**
Filtration performance	µm	100		100
Max. operating pressure	bar	10		16
Pressure drop	bar	0.2		0.2
Installation type		horizontal or vertical		vert. / hor.
Installation length	mm	118		178
Installation depth	mm	124		130
Total height	mm	255		280
Max. operating temperature	°C	30		30
Flow rate	m³/h	2.4	3.6	3.5
Weight	Kg	1.9	1.9	1.9
Item code		**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 an hopper for attachment of a 40 mm plastic pipe or R 1" threaded pipe.

Fitting		R ¾“ / 1“	R ½“	R ¾“	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	
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 disconnector 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	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/leaded 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	m³/h	1.0	1.4
Backflush volume	m³/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/leaded 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	m³/h	1.0	1.4
Backflush volume	m³/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	1120
	Width	mm	230	330	330	330
	Depth	mm	400	475	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
Max. flow rate	l/min	19	19	19	20
Min. flow rate	l/min	0.19	2	0.19	2
Regeneration					
Salt consumption	kg	0.5	0.45	0.45	0.65
Regeneration time	minutes	11	11	11	11
Regeneration water	l	34	19	19	53
Rinse water flow	l/min	5.3	2.65	2.65	5.3
Technical data					
Resin charge	l	2 x 4.5	2 x 4.5	2 x 4.5	2 x 11.3
Salt charge	kg	8	18	18	36
Operating pressure	bar	1.75 - 8.5		2.5 - 8.0	
Installation size	inch	3/4“	3/4“	3/4“	3/4“
Min./max. temperature	°C	1 - 49		2-65	
Dimensions (mm):	Height	560	590	590	710
	Width	230	360	360	510
	Depth	465	360	360	560
Weight	kg	19	19	19	33
Item code		W3T380538	W3T198539	W3T198140	W3T198803

Twin Water Softening System

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
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	2x20	2x42	2x71	2x113
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.

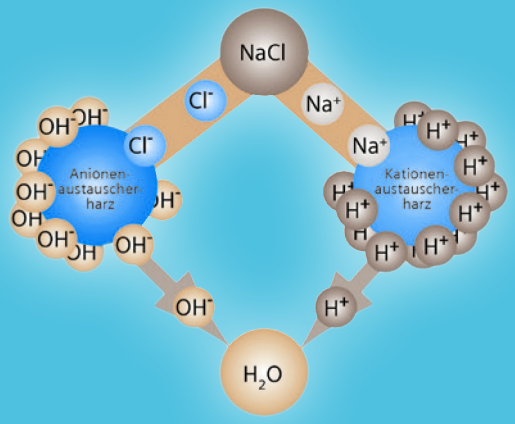
Testomat 2000 for monitoring of the max. allowed residual hardness after Evoqua water softening systems by periodic chemical analysis with threshold indicators (tritration and colorimetric determination).

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

MIXED BED ION EXCHANGE

AN ENVIRONMENTALLY FRIENDLY METHOD TO EFFECTIVELY DESALT WATER



Ion exchange diagram.

Typical applications

- 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.

$$(NaCl\ (solid) + H2O \longrightarrow Na^+ + Cl^- + H2O)$$

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:

$$\text{Cation} = RH^+ + Na^+ + Cl^- \rightleftharpoons RNa^+ + H^+ + Cl^-$$

$$\text{Anion} = ROH^- + Na^+ + Cl^- \rightleftharpoons RCl + Na^+ + OH^-$$

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:

$$RH^+ + Na^+ + Cl^- \rightleftharpoons RNa^+ + H^+ + Cl^-$$
$$+ ROH^- \rightleftharpoons RCl^- + H^+ + OH^- \rightleftharpoons H2O$$

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

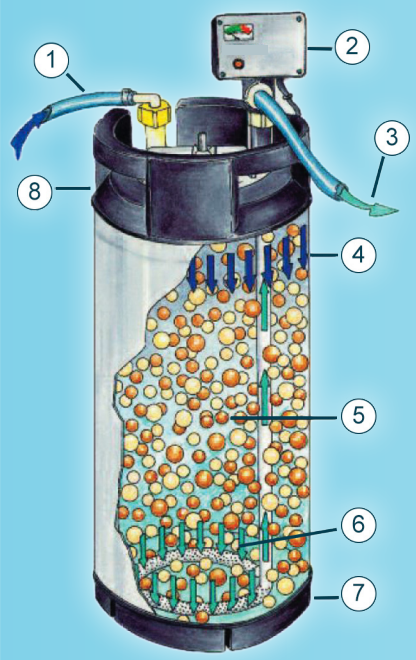
…specifically made according to the requirements of your application – this is how we can provide systems for you. The ion exchangers produced in series offer superior quality.

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

MIXED BED ION EXCHANGER

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** ¾"	**2800** ¾"	**4500** ¾"	**6200** ¾"	**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**

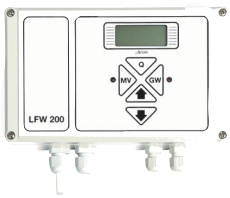
* Capacity per regeneration for total dissolved solids (TDS) 1.79 mol/m^3, corresponding to 10°d. At 1°d TDS the conductivity is approx. 30 µS/cm.

MIXED BED ION EXCHANGER

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 µS/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 µS/cm, with potential-free switching contact and 4-20mA 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	2/30 SK	P 1/50 W-A	LFW-200
Fitting		3/4“	Quick coupler	-	-
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	µS/cm	0.5 - 20	0.5 - 20	0 - 50	0.055 - 199.9
Protection class		IP54	IP54	IP54	IP65
Temperature range	°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	126 x 106 x 62	138 x 106 x 62	120 x 120 x 60	120 x 200 x 60
Item code		**W3T198373**	**W3T198266**	**W3T197840**	**W3T199245**

MIXED BED ION EXCHANGER

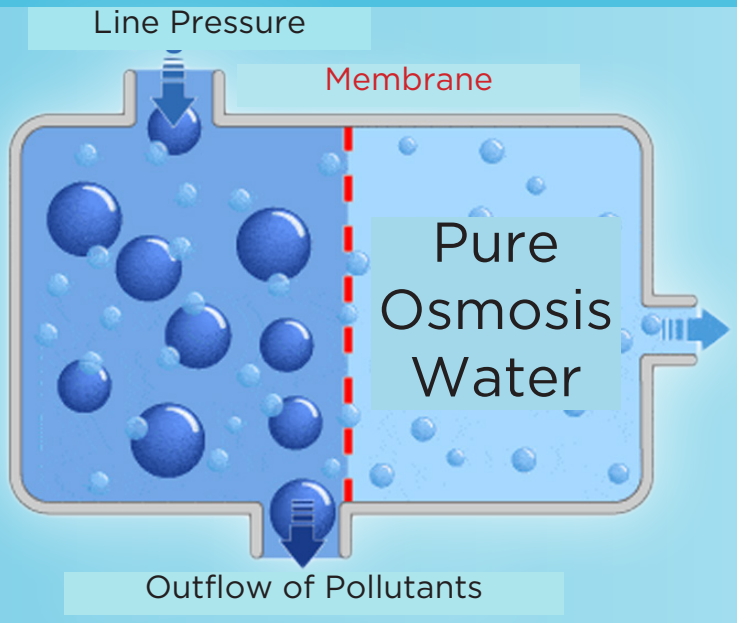
Accessories

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
W2T523835	15 L pure water tank, PE, incl. outlet tap*
W2T523836	30 L pure water tank, PE, incl. outlet tap*
W3T347290	VB4 pure water dispenser, POM,4 valves
W3T198015	Pure water dispenser with spiral tube, 3/4” threaded fitting
W3T197588	Solenoid valve 220V / 50Hz DN 10
W3T204904	Floating switch, 250V, 10A
TUBING SETS WITH QUICK COUPLER SK	
W3T199302	For SG2000 - SG15000 SK 2 x 1.5 m, quick coupler only for P2/30 with electrode
W3T199289	For SG2000 - SG15000 SK with electrode 2 x 1.5 m, quick coupler, electrode (c = 0.2) for P1/50 or LFW200
W3T199288	For SG2000 - SG15000 SK with electrode, temperature compensated 2 x 1.5m, quick coupler, electrode (c = 0.2) only for LFW200
TUBING SETS WITH TUBE FITTINGS	
W3T198103	For SG2000 - SG6200 ¾” 2 x 1.5 m, 3/4” threaded fitting only for P2/30 with electrode
W3T197682	For SG2000 - SG6200 ¾” with electrode 2 x 1.5 m, 3/4” threaded fitting, electrode (c = 0.2) for P1/50, LFW200
W3T198041	For SG2000 – SG6200 ¾” with electrode, temperature compensated (TC) 2 x 1.5 m, 3/4” threaded fitting, electrode (c = 0.2) only for LFW200
W3T199844	For SG7000 – SG15000 1 ¼” with electrode 2 x 1.5m, 1 1/4” threaded fitting, electrode (c = 0.2) for P1/50, LFW200
W3T198267	For SG7000 - SG15000 SK 1 ¼” with electrode, temperature compensated (TC) 2 x 1.5m, 1 1/4” threaded fitting, electrode (c = 0.2) only for LFW200

* additional tank sizes available on request

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: Osmose 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.

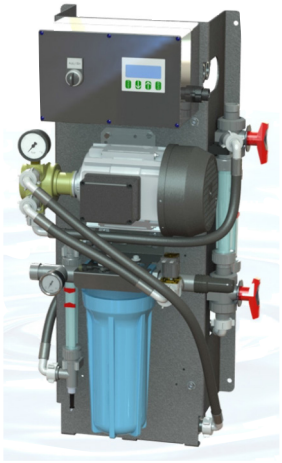


Functional principle of reverse osmosis

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

RO 100 Easy Compact

The RO 100 Easy Compact is a cost effective, efficient and compact reverse osmosis system producing 100 L permeate per hour from drinking water. The system includes an integerated 60 Ltr tank, a softener can be added if necessary. 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 COMPACT
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
Shipping weight	kg	80
Power consumption	kW/h	0.2
Dimensions (W x D x H)	mm	1058 x 588 x 794
Item code		**W3T379209**

* = with a pre-filter kit

REVERSE OSMOSIS SYSTEMS / DI

Labostar® 10 RO + RO DI

The LaboStar® 10 RO and 10 RO DI systems are star performers with a small foot print, economically producing pure water with a quality of up to 10 MΩ-cm. The versatile systems include 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	LABOSTAR 10 RO DI
Delivery flow rate	l/h	10	10
Salt retention	%	98	98
Bacteria retention	%	99	99
Particle retention	%	99	99
Permeate conductivity	µS/cm	based on feed water	< 0.1
Bacteria*	cfu/ml	< 1	< 1
Particles > 0.2 µm*	per ml	< 1	< 1
Max. delivery flow rate	l/min	1.2	1.2
Delivery flow rate @ 0.5 bar	l/h	70	70
Delivery flow rate @ 1.0 bar	l/h	65	65
FEED WATER SPECIFICATION			
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
CO_2	mg/l	15	15
Temperature	°C	5-35	5-35
Shipping weight	kg	23	24
Power supply	V/Hz	100-240/50/60	100-240/50/60
Dimensions (H x W x D)	mm	535 x 290 x 400	535 x 290 x 400
Item code		**W3T324492**	**W3T324493**

* only in combination with a 0.2 µm sterile filter

** with a pre-filter kit

Ultra Clear® Compact RO 15

The Ultra Clear® Compact systems produce Type II or Type III pure water using reverse osmosis and deionization. This compact system with a small foot print can be wall or bench mounted allowing direct access for the exchange of cartridges. Additionally a 30 L integrated tank further reduces the foot print.

SYSTEM PERFORMANCE		ULTRA CLEAR COMPACT RO	ULTRA CLEAR COMPACT RO DI
Delivery flow rate	l/h	15	15
Salt retention	%	> 96	> 96
Permeate quality	µS/cm	based on feed water	< 0.1
FEED WATER SPECIFICATIONS			
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
CO_2 for RO DI	mg/l	-	<15
Temperature	°C	5-35	5-35
Power supply	V/Hz	100 or 240/50-60	100 or 240/50-60
Shipping weight	kg	20	21
Dimensions (H x W x D)	mm	590x405x395	590x405x395
Item code		**W3T197556**	**W3T198852**

* = with the help of 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 RO 20	ULTRA CLEAR RO 30	ULTRA CLEAR RO 60	ULTRA CLEAR RO 100
Delivery flow rate	l/h	20	30	60	100
Max. salt retention	%	98	98	98	98
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	530x340x420	530x340x420	530x340x420	530x340x420
Item code		**W3T324330**	**W3T324511**	**W3T199978**	**W3T198158**

* = 115V on request
** = with a pre-filter kit

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	530x340x420	530x340x420
Item code		**W3T324499**	**W3T324500**

* = 115V on request

** = with a pre-filter kit

REVERSE OSMOSIS SYSTEMS / DI

Ultra Clear® RO Basic 150, 350, 450 (Frame Version)

The Ultra Clear® RO Basic reverse osmosis systems, produce 150, 350 or 450 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	350 BASIC	450 BASIC
Delivery flow rate	l/h	150	350	450
Salt retention	%	95 - 98	95 - 98	95 - 98
Bacteria reduction	%	99	99	99
Min./max. raw water pressure	bar	2 – 6	2 – 6	2 – 6
Water temperature	°C	5 - 35	5 - 35	5 - 35
Min./max. working pressure	bar	6 / 10	6 / 10	6 / 10
Min./max. raw water pressure	bar	2 / 6	2 / 6	2 / 6
Storage tank	l	1000	1000	1000
Mains Fitting	V / Hz	230 / 50	230 / 50	230 / 50
Pump				
Transfer flow	m³ / h	2.4	2.4	2.4
Transfer pressure	bar	2.0	2.0	2.0
Media temperature	°C	1 - 35	1 - 35	1 - 35
Power supply	V / Hz	230 / 50	230 / 50	230 / 50
Power consumption	W	850	850	850
Device dimensions (H x W x D)	mm		2150 x 800 x 1250	
Shipping weight	kg	ca. 145	ca. 155	ca. 165
Item code		**W3T199618**	**W3T244194**	**W3T244195**

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: 10MΩ-cm
Final filtration: 0.22micron
TOC: <500ppb

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 and ultrapure water systems.

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 and ultrapure water systems.

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
Power supply	V / Hz	230 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Power consumption	kW/h	0.65	1.2	1.5	1.6
Dimensions (H x W x D)	mm	1650x600x550	1650x600x550	1650x600x550	1650x600x750
Shipping weight	kg	120	140	172	192
Item code		**W3T199617**	**W3T197521**	**W3T199222**	**W3T199821**

Systems > 1000 L/h available on request

REVERSE OSMOSIS SYSTEMS / DI

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
Power supply	V / Hz	3x 400 / 50	3x 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	ca. 265	ca. 345
Item code		**W3T198159**	**W3T198160**

*larger systems available on request

EDI TECHNOLOGY

POWERED BY IONPURE®

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

EI-Ion®, pure water quantity 10 L/h.

Ionpure® *module*

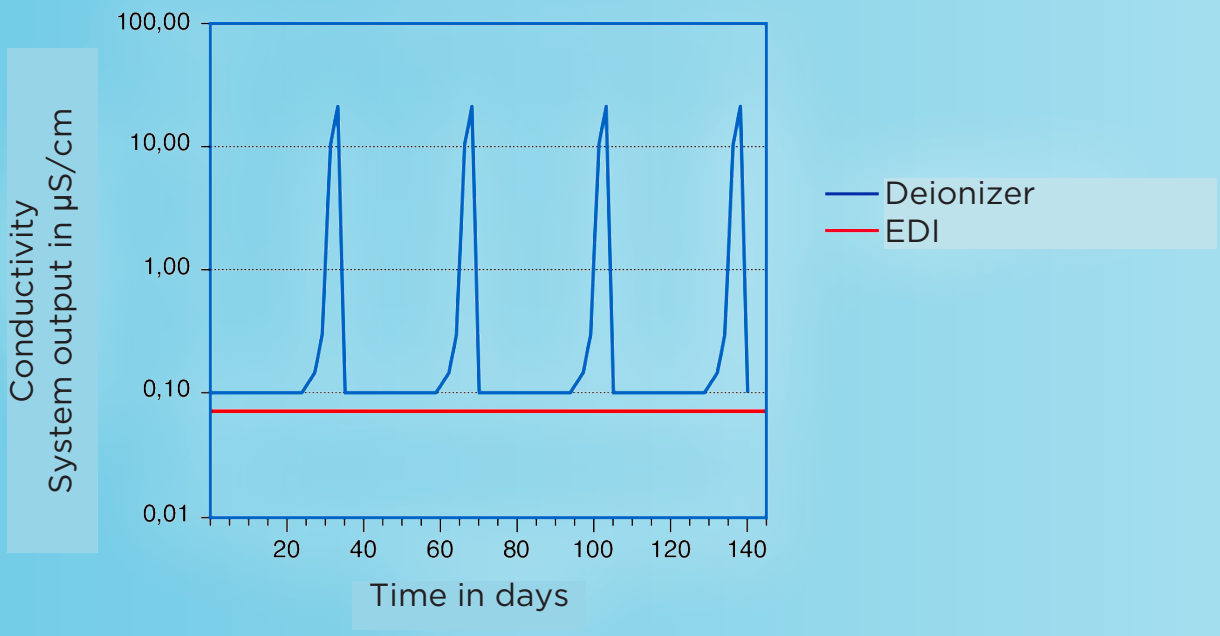
This electro-deionization procedure allows for a substantial increase of quality of the RO permeate and has been developed from and was patented to the research center Jülich (Forschungszentrum Jülich). As the licensee of this technology we have further advanced this procedure according to the highest industrial requirements.
This unique technology, which has been known since 1994 under the trade name EI-Ion® / Ionpure®, is able to reduce germs, endotoxin and TOC contents, and handles even excessively high CO_2 values.

Its compactness and performance level are unmatched.

For comparison:
Ion exchangers and electro-deionization systems
EI-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 EI-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.



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EI-Ion®, pure water quantity 10 L/h.

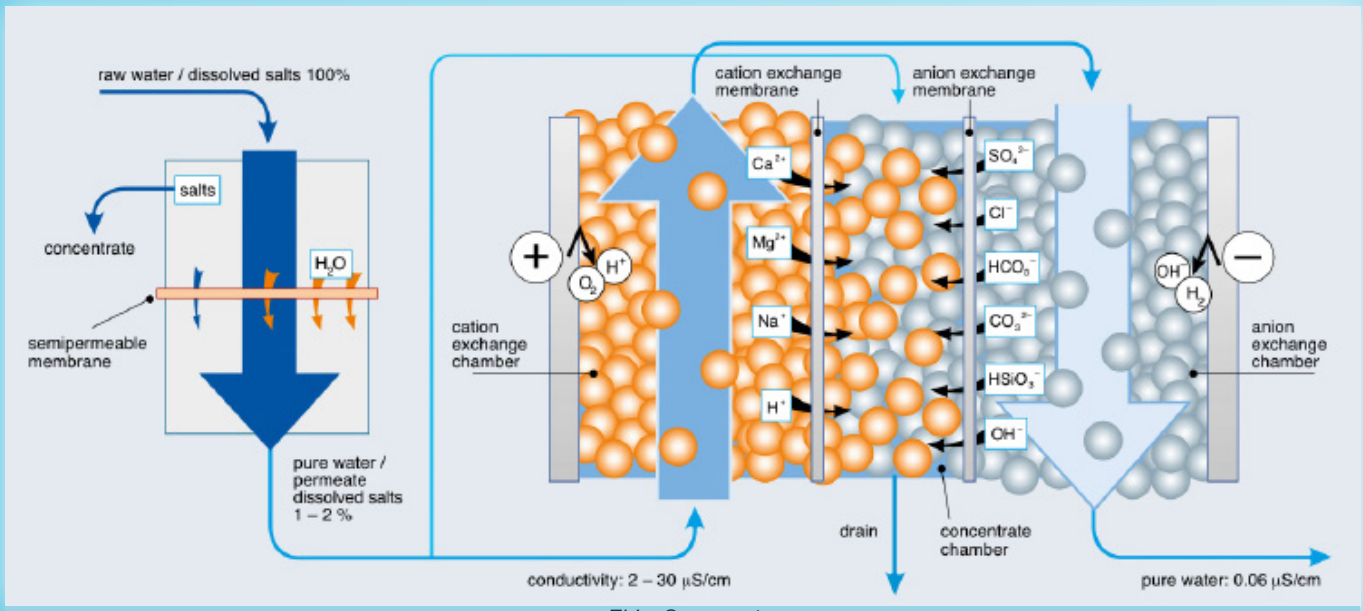
Ionpure® *module*

EI-Ion®

In our EI-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.



EI-Ion® concept

REVERSE OSMOSIS SYSTEMS / EDI

IONPURE TECHNOLOGIES

Ultra Clear® RO EDI 10, 20, 30, 55

The Ultra Clear® RO EDI systems combine purification with 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
Bacteria	CFU/mL	<10	<10	<10	<10
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
Degree of hardness	°dH	<20	<20	<20	<20
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	5-35	5-35	5-35	5-35
Room temperature	°C	5-35	5-35	5-35	5-35
ENERGY REQUIREMENTS					
Power consumption	W	200	200	200	200
Power supply	V/Hz	100-240V / 50-60Hz	100-240V / 50-60Hz	100-240V / 50-60Hz	100-240V / 50-60Hz
DIMENSIONS					
Height	mm	530	530	530	530
Width	mm	340	340	340	340
Depth	mm	420	420	420	420
Shipping weight	kg	ca. 31	ca. 32	ca. 35	ca. 46
Item code		**W3T324496**	**W3T324497**	**W3T324498**	**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 CO_2 and SiO_2 contents.
**= with the help of a pre-filter

Protegra CS® RO EDI 120, 260, 500, 750 (EI-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 EI-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

* with a pre-filter kit

REVERSE OSMOSIS SYSTEMS / EDI

Protegra CS® RO EDI 120, 260, 500, 750 (EI-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 EI-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	<0.1	<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	<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

Upgrades can be done for the post CDI, for UV and the sterile filter
*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 CO_2 cannot be retained by the membrane in a reverse osmosis system and therefore contaminates 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 CO_2 results in an impairment of the continuous regeneration process. CO_2 degassing systems are a low-maintenance and chemical-free solution.

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	m²	1.4	53
Power supply	V/Hz	100 - 240 / 50-60	3x 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**

ACCESSORIES

Small Storage Tanks

Storage tanks for pure water are constructed from polyethylene to minimise the release of organics. Vent filters prevent the ingress of airbourne impurities.

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**

ACCESSORIES

Large Storage Tanks

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.

CAPACITY* (LITERS)	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

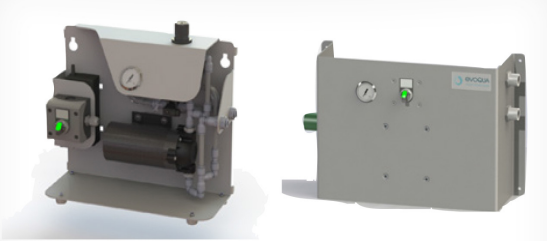
ACCESSORIES

Optional Accessories

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_2SO_4 solution	DN32	**W3T197583**
Water lock D40		DN40	**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 m³/h	-	**W3T198123**
CO_2 trap, including vent filter (installation kit, external, 3000 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 m³/h. Bacteria are removed to reduce microbiological contamination of the storage tank water.	DN25	**W3T197784**
CO_2 trap CT2, including vent filter (installation kit, for max. 1500 L/h)			**W3T198126**
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 <=80 L tanks		R 1/4“	**W3T348642**
UV immersion lamp, 15 Watts, for max. 1 m³	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 m³			**W3T199833**
UV immersion lamp, 38 Watts, for max. 3 m³			**W3T197502**

ACCESSORIES

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	up to 500
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 are large variety of pumps.

SPECIFICATIONS		SCALA	MONO I	MONO II	HAT I	HAT II	HAT III
Flow rate	m³/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**

ACCESSORIES

UV Flow Lamp

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.

UV DISINFECTION		UV 09	UV 14	UV 33
Power	W	16	25	36
Illumination	J/m²		250 / 400 / 1200	
Flow rate	m³/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	m³/h	0.6	1.1	1.5	1.9	3.8	6.3
Illumination	J/m²			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	
Monitoring unit for UV disinfection systems	**W3T199281**

ACCESSORIES

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 FG20 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, 0.2µm	**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, 0.2µm	**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 GAC Big Blue	**W2T526536**

CARTRIDGE FILTER SET WITH WALL MOUNT AND FILTER CUP WRENCH

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

ULTRAPURE WATER SYSTEMS

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 DI 2	LABOSTAR PRO UV 2	LABOSTAR PRO UV 4
Delivery flow rate	l/min	1.5*	1.5*	1.5*
Conductivity	µS/cm	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2
TOC	ppb	5-10	1-5	1-5
Bacteria	cfu/ml	<1**	<1**	<1**
Endotoxins	EU/ml	<0.001**	<0.001**	<0.001**
Particles > 0.2µm	per ml	< 1	< 1	< 1
FEED WATER SPECIFICATIONS				
Feed water pressure	bar	0.1-6	0.1-6	-
Initial conductivity	µS/cm	<20	<20	<20
Silt density index	SDI	<12***	<12***	<12***
TOC	ppb	<50	<50	<50
Free Chlorine	mg/l	<0.1	<0.1	<0.1
Total iron	mg/l	<0.1	<0.1	<0.1
CO_2	mg/l	<15	<15	<15
Water temperature	°C	5-35	5-35	5-35
Room temperature	°C	5-35	5-35	5-35
ENERGY REQUIREMENTS				
Power consumption	W	270	270	270
Power supply	V/Hz	100-240V / 50-60Hz	100-240V / 50-60Hz	100-240V / 50-60Hz
Dimensions (H x W x D)	mm	535x400x410	535x400x410	535x400x520
Shipping weight	kg	21	23	24
Item code		**W3T324339**	**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

ULTRAPURE WATER SYSTEMS

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 directlly from the tank.

RO WATER SPECIFICATIONS		LABOSTAR PRO TWF	LABOSTAR PRO TWF UV
Delivery flow rate	l/h	10	10
Ion retention rate	%	Max. 98	Max. 98
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
Resisitivity	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	5-35	5-35
Room temperature	°C	5-35	5-35
Energy requirements			
Power consumption	W	270	270
Power supply	V/Hz	100-240V / 50-60Hz	100-240V / 50-60Hz
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

ULTRAPURE WATER SYSTEMS

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 broard range of laboratory requirements.

ULTRAPURE WATER SPECIFICATIONS		ULTRA CLEAR GP	ULTRA CLEAR GP UV	ULTRA CLEAR GP UV TM	ULTRA CLEAR GP UV UF	ULTRA CLEAR GP UV UF TM
Delivery flow rate	l/min	2	2	2	2	2
Conductivity	µS/cm	0.055	0.055	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2	18.2	18.2
TOC	ppb	5 - 10	< 1 - 3	< 1 - 3	< 1 - 3	< 1 - 3
DNase, RNase, DNA		-	-	-	free	free
Bacteria	cfu/ml	< 1	< 1	< 1	< 1	< 1
Endotoxins	EU/ml	-	-	-	< 0.001	< 0.001
Particles > 0.1µm	per ml	< 1	< 1	< 1	< 1	< 1
FEED WATER SPECIFICATIONS						
Feed water pressure	bar	0.1 - 5	0.1 - 5	0.1 - 5	0.1 - 5	0.1 - 5
Initial conductivity	µS/cm	< 20	< 20	< 20	< 20	< 20
CO_2	mg/l	<15	<15	<15	<15	<15
TOC	ppb	< 50	< 50	< 50	< 50	< 50
Temperature	°C	5 - 35	5 - 35	5 - 35	5 - 35	5 - 35
Shipping weight	kg	24	25	26	26	26
Power supply	V/Hz			100 - 240 /50 - 60		
Dimensions (H x W x D)	mm			530 x 340 x 320		
Item code		**W3T364777**	**W3T364778**	**W3T358096**	**W3T343872**	**W3T343875**

ULTRAPURE WATER SYSTEMS

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 broard range of laboratory requirements.

PURE WATER SPECIFICATIONS		ULTRA CLEAR GP TWF	ULTRA CLEAR GP TWF UV	ULTRA CLEAR GP TWF UV TM	ULTRA CLEAR GP TWF UV UF	ULTRA CLEAR GP TWF UV UF TM
Conductivity	µS/cm	2	2	2	2	2
TOC	ppb	30	30	30	30	30
Bacteria	cfu/ml	30	30	30	30	30
ULTRAPURE WATER SPECIFICATIONS						
Delivery flow rate	l/min	1.8	1.8	1.8	1.8	1.8
Conductivity	µS/cm	0.055	0.055	0.055	0.055	0.055
Resistivity	MΩ-cm	18.2	18.2	18.2	18.2	18.2
TOC	ppb	5 – 10	<1-3	<1-3	<1-3	<1-3
DNase, RNase, DNA		-	-	-	free	free
Bacteria	cfu/ml	< 1	< 1	< 1	< 1	< 1
Endotoxins	EU/ml	-	-	-	< 0.001	< 0.001
Particles > 0.1µm	per ml	< 1	< 1	< 1	< 1	< 1
FEED WATER SPECIFICATIONS						
Feed water pressure	bar	0.1 – 5	0.1 – 5	0.1 – 5	0.1 – 5	0.1 – 5
Initial conductivity	µS/cm	< 2000	< 2000	< 2000	< 2000	< 2000
Silt density index	SDI	< 12*	< 12*	< 12*	< 12*	< 12*
Free Chlorine	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
CO_2	mg/l	< 15	< 15	< 15	< 15	< 15
Temperature	°C	5 – 35	5 – 35	5 – 35	5 – 35	5 – 35
Shipping weight 30 / 60 / 80 L	kg	41 / 44	42 / 45	43 / 46 / 48	44 / 47	44 / 47
Power supply	V/Hz	100-240/50-60	100-240/50-60	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		
Dimensions 60 L: H x W x D	mm			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**	**W3T364780**	**W3T362530**	**W3T343876**	**W3T343878**
Item code with 60 L		**W3T364851**	**W3T364852**	**W3T364853**	**W3T343877**	**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 TWF	ULTRA CLEAR GP 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 > 0.1µm	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

ULTRAPURE WATER SYSTEMS

Ultra Clear® Touch Panel

The Ultra Clear® TP system delivers ultrapure 18.2MΩ-cm water with consistent quality. 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**

ULTRAPURE WATER SYSTEMS

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 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	ULTRA CLEAR TP 10 TWF UV UF TM
Conductivity	µS/cm	2	2	2
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	<1-3	<1-3	<1-3
DNase, RNase, DNA		-	free	free
Bacteria	cfu/ml	< 1	< 1	< 1
Endotoxins	EU/ml	< 0.001	< 0.001	< 0.001
Particles > 0.2µm	per ml	< 1	< 1	< 1
FEED WATER SPECIFICATIONS				
Feed water pressure	bar	0,1 – 5	0,1 – 5	0,1 – 5
Conductivity	µS/cm	< 2000	< 2000	< 2000
CO_2	mg/l	15	15	15
Silt density index SDI		< 12*	< 12*	< 12*
Free Chlorine	mg/l	< 0.5	< 0.5	< 0.5
Total iron	mg/l	< 0.1	< 0.1	< 0.1
Temperature	°C	5 – 35	5 – 35	5 – 35
Shipping weight	kg	43/46	44/47	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**	**W3T360170**	**W3T360171**
Item no. with 60 L tank		**W3T360174**	**W3T360175**	**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

WATER PURIFICATION SYSTEM QUALIFICATIONS

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	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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