

TKA LabTower EDI



Two in one!
Pure and
Ultrapure water

The integrated system. Purification and tank in one.



■ **Ultrapure water
ASTM I 18,2 MΩ×cm,
TOC 1 – 5 ppb**

**Direct dispensing of Ultrapure water.
Even for the most demanding and
sensitive applications.**

In the Biosciences

- For molecular biology and microbiology work
- In the preparation of cell and tissue cultures
- In PCR, DNA sequencing
- Electrophoresis

In Analytical Chemistry

- Organic and inorganic trace analysis
- HPLC
- GC-MS, ICP-MS, GF-AAS
- TOC Measurements, IC

In Routine Laboratory Work

- Analytical procedures
- IC, AAS, ICP-ES

■ **High purity
water ASTM II
15 – 10 MΩ×cm.**

For daily needs of 100 to 500 litres.
Ready to be called up.

For example, for

- Rinsing lab glassware
- Supplying autoclaves, clinical analysers and ultrapure water systems
- Preparing and diluting
 - buffers
 - reagents
 - tissue culture media
- Sample preparation for analytical methods
- General biotechnology applications

Standards

The TKA LabTower EDI exceeds the standards ASTM type I and type II, CAP, ISO 3696, BS 3997, CLSI.

TKA LabTower EDI.



■ The benefits in a nutshell!

Two in one!

- Reverse osmosis + EDI + polisher and high purity water tank
- Two systems, but only one unit
- One on top of the other instead of alongside
- Perfectly tuned to each other
- Formally a unified whole

Two ways to draw water!

- Directly from the system via a dispensing tap with sterile filter (ASTM I)
- From the tank for direct supplying of autoclaves, analysers, washing machines (ASTM II)

Built-in state-of-the-art techniques!

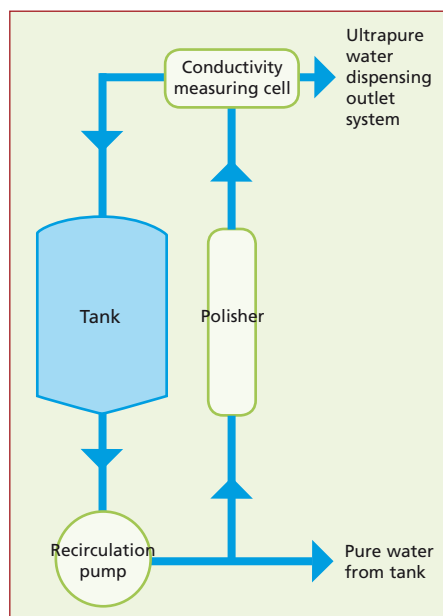
- Water pretreatment with activated carbon/prefilter and hardness stabiliser
- Pressure pump for direct supply to autoclaves, analysers, washing machines

Optional with:

- Sterile filter for water dispensed from the tank
- Sterile vent and overflow
- UV lamp for tank installation
- Ultrapure water module additionally with:
 - UV Photooxidation 185/254 nm for the destruction of organic compounds
 - Ultrafilter for removal of endotoxins

■ Certain fresh quality!

- Directly prior to being dispensed from the system, the ultrapure water is passed through a special polisher module and a sterile filter
- The high purity water quality is measured immediately prior to the dispensing point



Performance acc. to lab needs!

- High performance reverse osmosis module combined with electro-deionisation and polisher
- Three systems, for 15, 30 and 45 litres per hour

Compact, stylish, mobile!

- Takes up no bench space
- Just ¼ m² floor area suffices
- Mobile on rollers

Safe operation!

- Microprocessor control for automatic operation
- Permanent monitoring of all important parameters
- Automatic return to the operating mode after operating actions
- Potential-free contact for fault messages

Water of constant high quality!

- Automatic circulation of water in the tank through a special polisher module plus free cycle setting
- Ensures maintenance of the permanently low conductivity even for long periods of inactivity

Assured highest hygiene!

- Optional UV lamp in the tank recirculation system reduces organic constituents – optional sterile filter for tank water outlet



■ Stock high purity water safely and conveniently!

100 Litre tank module!

- Up to 100 l water on call

Sterile vent filter/tank overflow

- Two safety filters prevent internal contamination by microorganisms from the surrounding air
- Option: CO₂ absorber that prevents increased TOC value by drawn-in CO₂

Volume display/Float chain

- Fully automatic level regulation for percentage volume display of the tank content
- Float chain with adjustable volume content

Recirculation pump

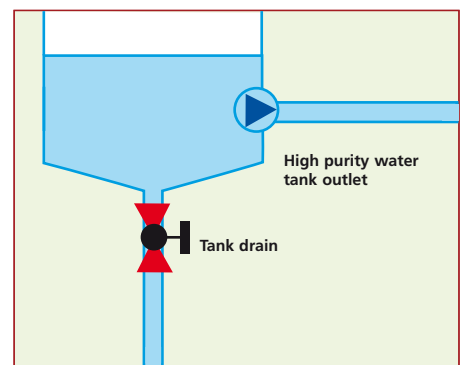
- Serves to protect the high purity water from bacterial growth during standstill and safeguards the low conductivity value

Polyethylene tank

- High purity water resistant, opaque and food-safe

Conical bottom drainage

- Allows complete drainage and so efficient cleaning and disinfection



Designed for Qualification!

TKA LabTower EDI has been designed to fulfill GLP requirements. Recording and traceability of data are ensured via an RS 232 interface and a TKA printer. A cell constant of 0.01 cm⁻¹ guarantees highly qualified and precise measurement of the conductivity, which is compensated to an accuracy of ± 0.1 °C (acc. to USP <645>) even with only minimal temperature change.

Comfortable operation!

Clear information!

The large 4-line display is code protected and offers a choice of three languages, English, German or French. It is illuminated, easy to read and provides information on:

- the temperature in °C
- the temperature-compensated conductivity of water coming from the osmosis/high purity polisher module
- the operating mode status, such as production, stand-by, disinfection
- the tank content in %
- the RS 232 interface
- the fault memory function

Easy to work with!

Just six control keys allow for rapid operational readiness

- Start/stop of high purity water production
- Start/stop of other operating sequences and service procedures
- Limiting values settings, conductivity RO water and high purity water
- Recirculation interval
- On/off of the optional UV lamp

Sterile ultrapure water ASTM I on call!

- Conductivity measurement directly prior the dispensing point.
- Protected from re-contamination by a sterile filter.



Tank level control indicator!

Continual monitoring of the tank volume in %.



A good view!

Just set the tiltable display/keypad unit to the best viewing/operating position for you.



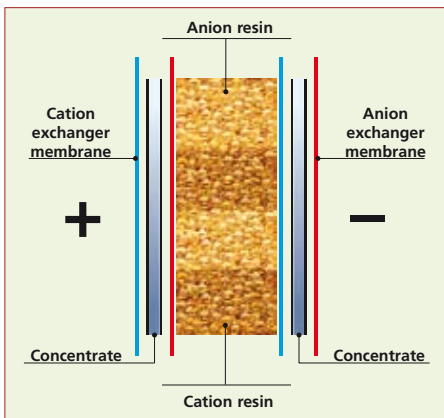
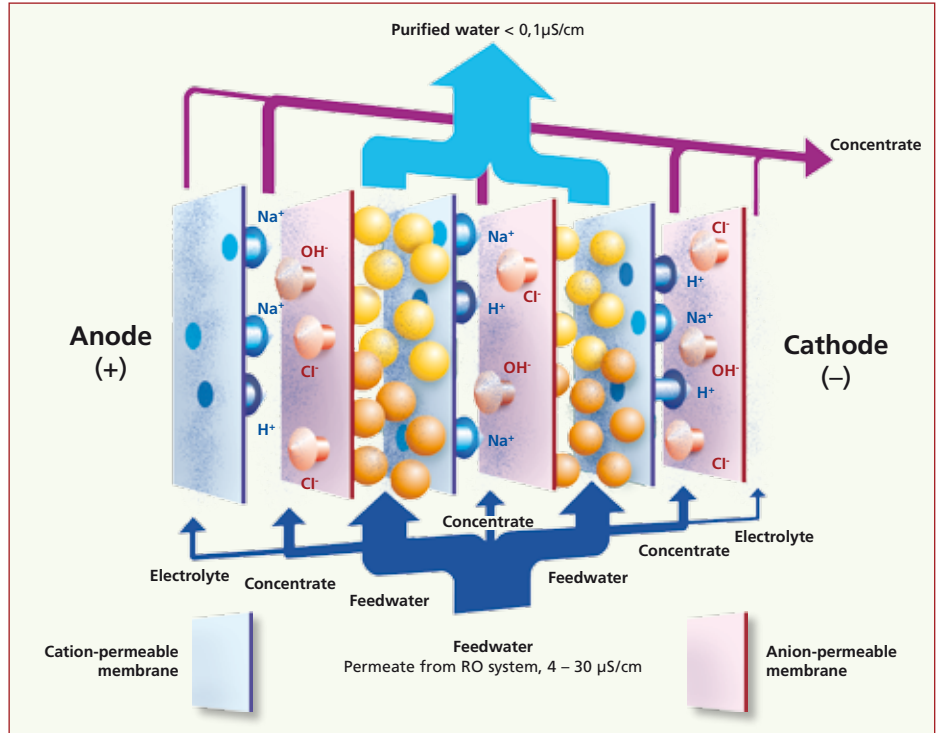
TKA LabTower EDI. Water purification with High-Tech.

Combination of electro dialysis and ion exchange processes

Electrodeionisation, EDI in brief, unites two proven technologies for producing ultrapure water: Electrodialysis and ion exchange (IEX). The great technical thing about this: In contrast to conventional ion exchange, in which resins must be chemically regenerated, EDI utilizes an electric current for continual resin regeneration.

Technologies that keep you one jump ahead!

- Constant high efficiency of the ion exchanger layer bed > gives you outstanding ultrapure water quality
- No regeneration chemicals > important for the environment!
- No exchange of spent resins > saves you costs
- High purity water when you need it > no wasted time



How EDI works

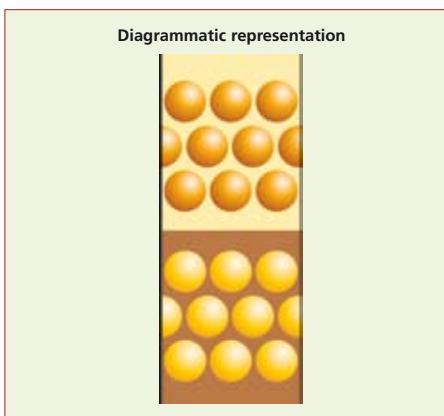
Several layers of ion selective membranes are situated between an anode and a cathode. Layered ion exchanger resin beds and concentrate chambers are alternately positioned between them.

On applying an electric voltage, water (H_2O) is split into H^+ and OH^- in the cell. The H^+ and Na^+ cations can migrate through the cation permeable membranes, anions through the anion permeable membranes.

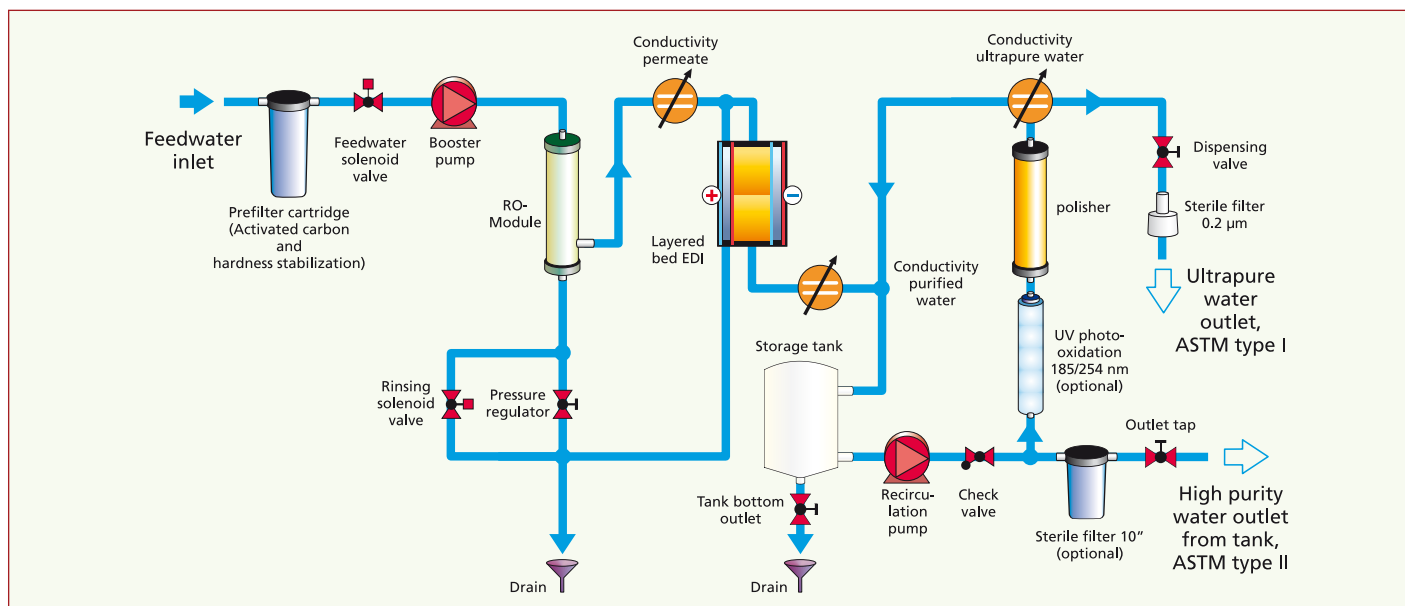
negative pole (cathode). The water ions H^+ and OH^- that migrate through an ion exchange chamber displace salt ions retained by the ion exchanger resins and so continually regenerate the resins.

The salt ions migrate through the appropriate ion selective membranes into the concentrate chambers and are flushed out of them by water. As all concentration chambers are flushed through one after the other, excess H^+ and OH^- ions can again combine to form H_2O .

The ions migrate in the direction of the applied voltage, i.e. anions to the positive pole (anode), cations to the



Flow chart TKA LabTower EDI



System components LabTower EDI

LabTower type	EDI 15	EDI 30	EDI 45
ASTM I conductivity in µS/cm	0.055	0.055	0.055
Resistivity (MΩxcm at 25° C)	18.2	18.2	18.2
Flow rate up to l/min.	2	2	2
TOC-Value (ppb)	5 – 10	5 – 10	5 – 10
TOC-Value (ppb) with optional UV photooxidation 185/254 nm	1 – 5	1 – 5	1 – 5
Bacterial level (CFU/ml) with sterile filter:	< 1	< 1	< 1
Particles (> 0.2 µm/ml) with sterile filter:	< 1	< 1	< 1
Optional with ultrafilter:			
Endotoxines* (EU/ml):	0.001	0.001	0.001
RNase* (ng/ml):	0.01	0.01	0.01
DNase* (pg/µl):	4	4	4
ASTM II conductivity in µS/cm**	0.067 – 0.1	0.067 – 0.1	0.067 – 0.1
Typical resistivity (MΩxcm at 25° C)**	15 – 10	15 – 10	15 – 10
Pure water production at 15° C, l/h	15	30	45
Operating pressure, bar, min/max:	2/6	2/6	2/6
Supply voltage:	230/50	230/50	230/50
Power consumption, kW:	0.25	0.25	0.25
Connector size:	d8/ R 3/4"	d8/ R 3/4"	d8/ R 3/4"
Ambient temperature:	+ 2° C – + 35° C	+ 2° C – + 35° C	+ 2° C – + 35° C
Dimensions, W x D x H, mm:	450 x 580 x 1500	450 x 580 x 1500	450 x 580 x 1500
Weight, kg:	58	58	58
Cat. no.:	07.4415	07.4430	07.4445

* Depending from the concentration of contaminants in the feedwater

** with < 30 ppm CO₂ in the feedwater

Accessories

06.5001	Sterile overflow for tank
06.5002	CO ₂ Absorber + sterile filter, 0.2 µm, for tank
06.5003	Sterile vent filter, 0.2 µm, for tank
06.5006	UV lamp for tank
06.5203	Activated carbon cartridge with prefilter, 5 µm
06.5453	Hardness stabiliser
26.0013	UV photooxidation 185/254 nm
09.1021	Ultrafiltration capsule
06.5555	Sterile filter, 10", 0.2 µm, for tank pure water outlet
09.1003	Sterile filter, 0.2 µm, for direct dispensing
09.2202	Disinfection kit, pack of 12
09.2005	Polisher module

TKA Feedwater requirements for LabTower EDI systems:

Source:	Potable water, max. 1500 µS/cm
Prefiltration:	5 µm + activated carbon softener
Free chlorine concentration:	< 0.1 mg/litre
Manganese content:	< 0.05 mg/litre
Iron content:	< 0.05 mg/litre
Colloidal index:	< 3
pH-Range:	4 – 11

All LabTower EDI systems consist of:

- Prefilter 5 µm/activated carbon cartridge
- Reverse osmosis with EDI
- Polisher module
- High purity water tank, 100 l
- Pressure-/recirculation pump
- Sterile filter for ultrapure water dispensing



TKA Water Purification Systems

The purifying systems for laboratory water introduced in this brochure are only a part of the total TKA water purification systems line.

Among others, TKA offers highest quality reverse osmosis systems with state of the art spiral membranes, both alone and in combination with TKA electrodeionisation. For the smallest to the largest need of high purity water, for the daily supply of water to autoclaves up to the production of Aqua Purificata.

We are gladly ready to supply further information, to advise you on the most fitting pretreatment or to recommend the optimal combination of systems for the performance required. Always with economy in mind and under consideration of the water quality you need. As little as possible, as much as necessary!

It is our aim to offer you water purification systems that prepare water of various specified qualities as reliably, practically and cost-favourably as possible. Our standard systems are correspondingly designed. Should none of these exactly fit your requirements, however, simply contact us! We see each and every problem as one that needs to be solved and will find a suitable and economic solution even when the conditions are difficult.

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