



Thermo Scientific  
Barnstead LabTower EDI  
Water Purification Systems

**smart H<sub>2</sub>O**  
for you, and your science

**Thermo**  
SCIENTIFIC



## Thermo Scientific Barnstead LabTower EDI water purification systems

**Pure water is elemental to the success of your experiments.** But finding the right water system for your research goes deeper than water quality alone. You need a smart choice that supports both your science and your budget – on day 1, and with every cartridge and filter change. One that reflects 130 years of innovations, like effortless cartridge changeouts. With a Thermo Scientific™ Barnstead™ lab water system, the only thing you'll have in your water is confidence.

LabTower EDI	
<b>Type 1 Water</b>	
Resistivity at 25°C, MΩ•cm	18.2
Conductivity, μS/cm	0.055
TOC, ppb	1 - 5
Bacterial content, CFU/ml	<1
Particles, 0.22 μm/ml	<1
Flow Rate at dispenser, L/min	1.5
<b>Type 2 Water</b>	
Pure water production at 15°C, L/hr	15 or 30
Resistivity at 25°C, MΩ•cm	15-10
Conductivity, μS/cm	0.067 - 0.1

Suitable for even the most demanding and sensitive applications, Thermo Scientific™ Barnstead™ LabTower™ EDI water purification systems exceed international standards ASTM D11931 Type 1, ISO 3696 Grade 1, and CLSI-CLRW, delivering ultrapure 18.2 MΩ•cm water with consistent quality. High purity Type 2 water is also available from the 100 L integrated reservoir.

### Type 1 Applications



Cell and tissue culture



PCR, DNA sequencing



Electrophoresis,  
TOC Measurements, IC



HPLC, GC-MS, ICP-MS, AA

### Type 2 Applications



Rinsing lab glassware



Supplying general lab equipment



Preparing and diluting  
buffers, reagents, and media

## Two systems in one

- Unique system with pre-treatment plus polisher to produce both Type 1 and Type 2 water
- Type 2 water is stored in the integrated 100 L high purity water reservoir
- Water system sits on top of the reservoir saving critical bench space

## Two ways to draw water

- Dispense ultrapure water directly from the system via the dispenser with sterile 0.2  $\mu\text{m}$  filter. The water quality is measured immediately prior to the dispensing point
- Type 2 water is accessible from the reservoir, which is an ideal supply for lab equipment such as autoclaves



# Barnstead LabTower EDI System Features

## Smart consumables

- Validated 0.2 µM final filter with folded membrane can be autoclaved up to 5 times
- Standard UV photo-oxidation at 185/254 nm reduces organic compounds in the water to ultra-low levels as well as microorganisms and their metabolites

## Easy-to-operate

- Dispensing is easy and features variable speed controlled flow
- The display can be tilted for optimal reading

## Compact, stylish, mobile

- Free-standing unit takes up no bench space
- Easily relocated with bottom-mounted rollers
- Continuous monitoring of all critical parameters
- Recirculation pump protects purified water in tank from bacterial growth during standstill

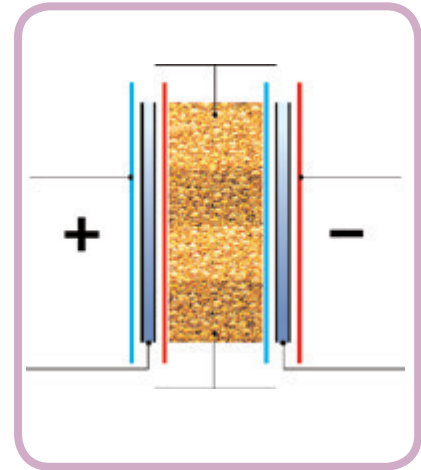
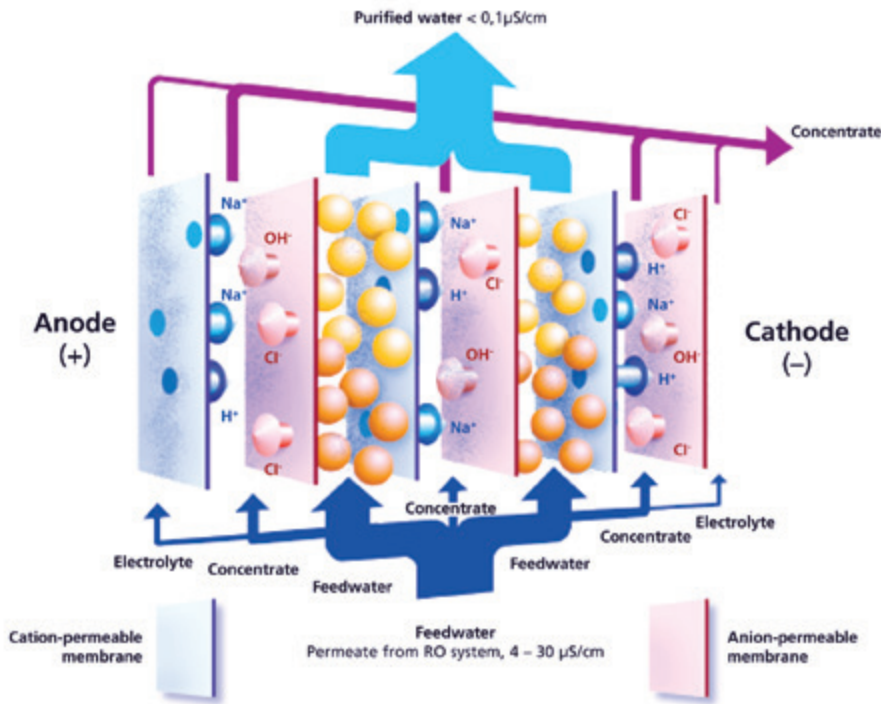
## GLP-compliant

- Real-time clock and code-protected operating system prevents unauthorized changes to system settings
- RS-232 interface with adjustable send-interval for safe data transfer of all measured data, faults, date and time to a PC computer or log printer
- Digital microprocessor control automatically monitors and stores faults from the last four weeks
- USP-compliant conductivity measurement with temperature compensation that can be switched on or off

## 100 L Integrated polyethylene reservoir safely stores Type 2 water

- Integrated reservoir provides 100 L of purified water storage
- Automatic water recirculation in the reservoir moves water across a special polisher module ensuring fresh Type 2 water on demand
- High-purity water reservoir outlet for convenient drainage
- Efficient cleaning and disinfection enhanced by conical bottom design for completely emptying reservoir
- Sterile vent filter and reservoir overflow prevents internal contamination by microorganisms from the surrounding air
- Optional CO<sub>2</sub> adsorber prevents CO<sub>2</sub> adsorption into the water, to help save cartridge life
- Highly visible reservoir volume display on LabTower system controller
- Customize volume stored in the reservoir via the controller

# EDI Technology



Electrodeionization, EDI, unites two proven technologies for producing ultrapure water: Electrodialysis and ion exchange. In contrast to conventional ion exchange in which resins must be either chemically regenerated or the cartridge discarded, EDI utilizes an electric current for continual resin regeneration.

## Technologies that keep you one step ahead

- Constant high efficiency of the ion exchange layer bed produces consistently high quality water
- No regeneration chemicals required and no disposal of cartridges, making this technology friendly for the environment
- High-purity water when you need it with no wait time

## How EDI works

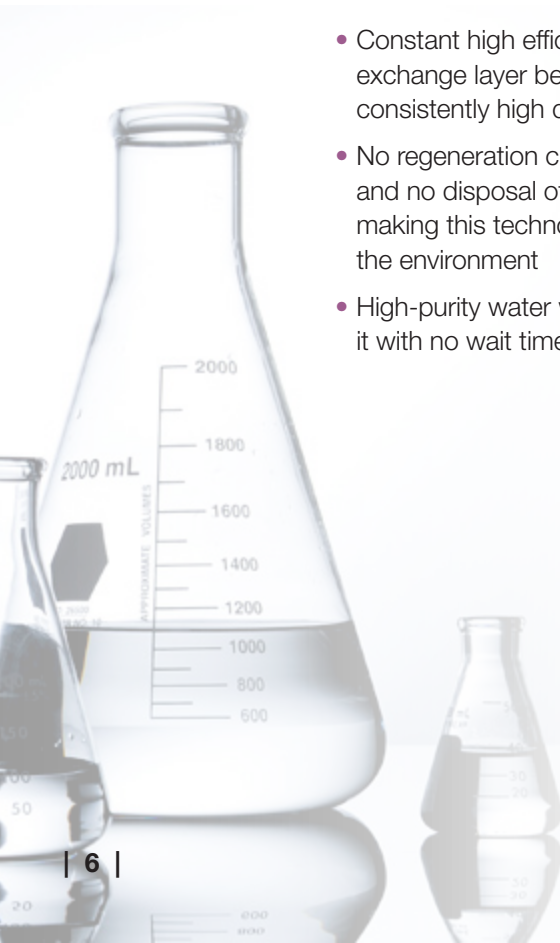
Several layers of ion selective membranes are situated between an anode and a cathode. Layered ion exchange resin beds and concentrate chambers are alternately positioned between them.

On applying an electric voltage, water ( $\text{H}_2\text{O}$ ) is split into  $\text{H}^+$  and  $\text{OH}^-$  in the cell.

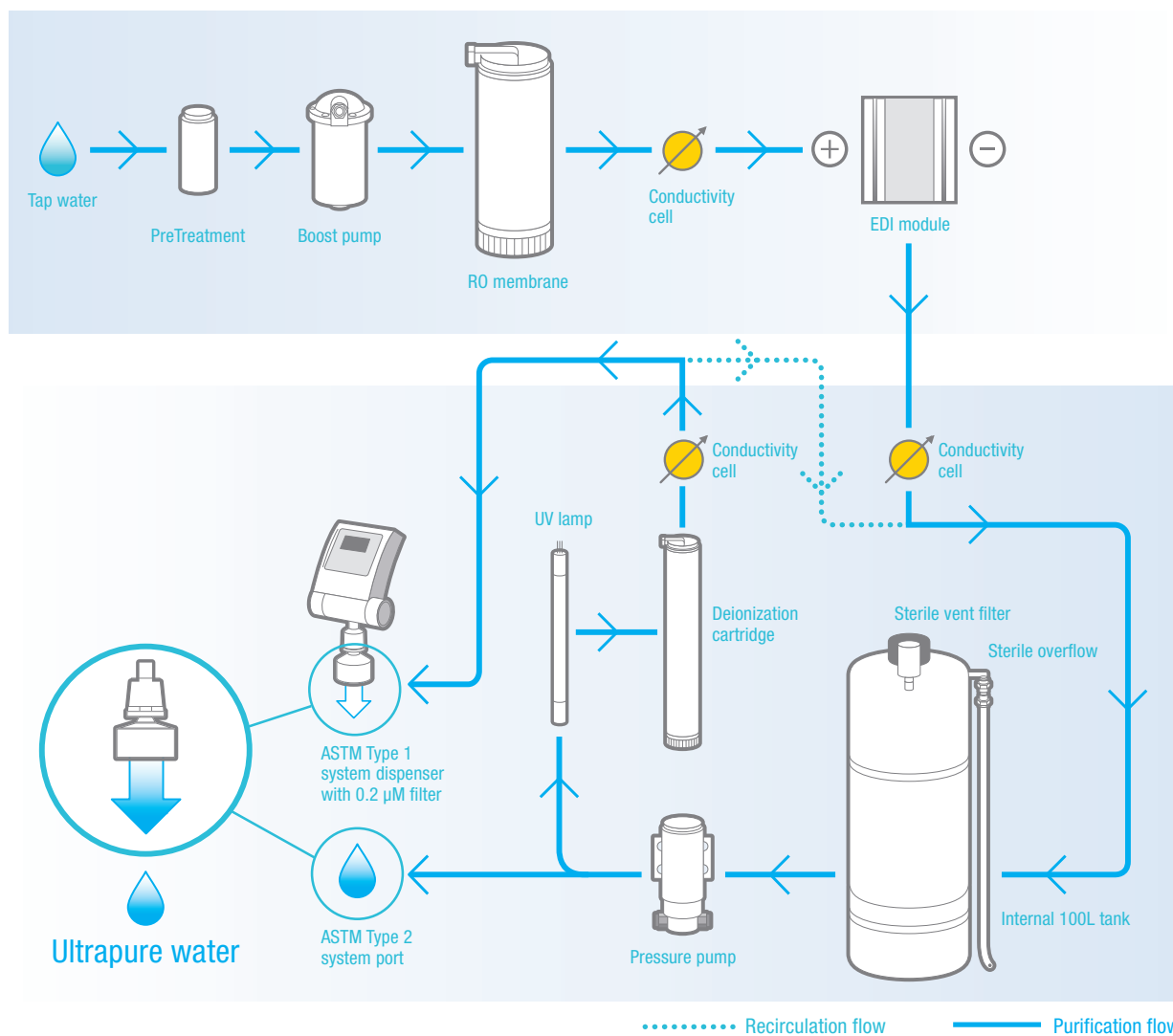
The  $\text{H}^+$  and  $\text{Na}^+$  cations can migrate through the cation permeable membranes, anions through the anion permeable membranes.

The ions migrate in the direction of the applied voltage, i.e. anions to the positive pole (anode), cations to the negative pole (cathode). The water ions that migrate through an ion exchange chamber displace salt ions retained by the ion exchange 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 by water. As all concentration chambers are flushed, excess  $\text{H}^+$  and  $\text{OH}^-$  ions can again combine to form  $\text{H}_2\text{O}$ .



The following diagram illustrates the flow of water through the components of a Barnstead LabTower EDI water system.



### LabTower EDI

<b>Product Dimensions</b> H x W x D, mm (in.)	1500 x 450 x 580 (59 x 18 x 23)
<b>Product Weight</b> kg (lbs.) w/o water	66 (146)
<b>Shipping Dimensions</b> H x W x D, mm (in.)	1210 x 1200 x 800 (48 X 47 X 32)
<b>Shipping Weight</b> kg (lbs.)	77 (170)

### Feed Water Requirements\*

<b>Source</b>	Potable tap water softened or hardness stabilized.
<b>Conductivity, µS/cm</b>	< 1000
<b>Silt Density Index (SDI)</b>	< 3
<b>pH Range</b>	4 - 11
<b>Temperature, °C</b>	2 - 35
<b>Pressure, psi (bar)</b>	29 - 87 (2 - 6)

\* Please see user manual for complete list of feed water requirements.

## ordering information

LabTower EDI System Options	LabTower EDI 15	LabTower EDI 30
All systems include an ultrapure polisher cartridge, UV lamp, RO membrane, RO pretreatment filters (5 µm filter and hardness stabilizer), EDI module, sterile 0.2 µm filter, 10" 1 µm filter (tank outlet) and pressure regulator.	50132395	50132396

Required Accessories		
<b>Sterile overflow for reservoir</b> Prevents reservoir contamination of bacteria and other micro-organisms.		50132714
<b>CO<sub>2</sub> adsorber + sterile filter, 0.2 µm</b> Combination sterile filter with CO <sub>2</sub> adsorber is designed to prevent CO <sub>2</sub> from entering the tank, to help save cartridge life.		06.5002
<b>Mix Multi Mini water softener</b> Required for hard feed water and/or if silt density index (SDI) is greater than 3. Also required for purchase with a softener is the softener salt, hardness detection kit, and the 5 µm filter with carbon.	120V, 50/60Hz	50129892
	240V, 50 Hz	50130297
<b>Softener salt</b> Required for use with the water softener.	Europe	50129893
	North America/Latin America Asia Pacific	06.2000
<b>5 µm filter with carbon cartridge</b> Required when Mixed Multi Mini is purchased.		06.5201
<b>Hardness detection kit – required with purchase of softener</b> Alerts user when water is no longer softened.	Europe	06.1000
	North America/Latin America Asia Pacific	50134335

Optional Accessories		
<b>Hand dispenser kit</b> Hand dispenser with 3 meter cord that connects to tank (to dispense Type 2 water). Ships with a 0.2 µm final filter.		50138221
<b>Sterile 0.2 µm filter for reservoir outlet</b>		06.5555
<b>Disinfection cartridge</b> Reusable cartridge needed to clean the water purification system.		09.2201
<b>Qualification documents (IQOQ)</b>		IOQDOCE50133916
<b>Printer</b> Utilizes RS-232 interface for safe documentation of all measured values and faults with date and time in compliance with GLP-Guidelines.	120V, 50/60Hz	AY1137X1
	230V, 50Hz	09.2207

Replacement Consumables		
<b>Ultrapure polisher cartridge</b>		09.2005
<b>CO<sub>2</sub> adsorber + sterile filter, 0.2 µm, for tank</b>		06.5002
<b>Hardness stabilizer, 5" with 5 µm filter</b>		06.5204
<b>Sterile 0.2 µm filter for system</b>		09.1003
<b>UV lamp for the system</b>		09.2002
<b>Cleaning solution</b>	Europe/Asia Pacific	09.2202
	North and South America	CMX25
<b>Reverse osmosis membrane</b>	22.0046 (requires 2)	22.0087 (requires 2)



[thermoscientific.com/purewater](http://thermoscientific.com/purewater)

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