

adrona

Water purification systems

Crystal E series



Crystal E Ultrapure
Crystal E HPLC
Crystal E Bio
Crystal E Pure



Features

■ The highest water quality

- **Perfect water quality** guaranteed by two sensors directly at the **Grade I** dispense point and at the entrance of the storage tank.
- **Automatic recirculation** maintains good quality of water in the storage tank.
- **Graphic LCD** display with large and clear water quality indication.

■ Attractive price and low running costs

- Both pure and ultrapure water produced by the same system.
- The only system on the market that can be equipped with **8L high-capacity deionization module** for significant decrease of running costs.
- Message about deionization module replacement is based on module performance, instead of running time. You replace the module only when it is fully exhausted.



■ Convenience of use

- **Easy** replacement of cartridges. No tools are needed!
- **Convenient** ultrapure water dispense
- **Space-saving.** Built-in pure water dispense pump allows the tank to be placed under the table to save space.
- Remaining pre-filter life is always on the display.

■ Safety of operation

- **High reliability** of all components.
- Feed pressure control.
- Safety functions to prevent storage tank overflow.

Description

Crystal E water purification systems are optimized to reduce running costs. Crystal E systems produce both ultrapure and pure water.

Ultrapure water quality with resistivity 18.2 MΩ x cm exceeds requirements of ISO 3696 Grade I.



Easy replacement of cartridges. No tools are needed!

All systems can be equipped with 8L high capacity deionization module. The high capacity module has 3 times longer life than standard deionization module thus dramatically reducing running costs

Crystal E systems monitor deionization module performance. When the module life comes to the end, a message is shown that the module needs replacement. The message about module replacement is based on module performance, not on running time. In that way we make sure that the deionization module fully uses its resource, keeping the lowest running costs.

Water dispensing is as easy as pressing a button. Automatic recirculation is applied to ensure the dispensed water has the highest quality.

It is well known that pure (ISO 3696 Grade II) water production is much cheaper than ultrapure (ISO 3696 Grade I) water production. Moreover, pure water meets requirements of many analytical methods, including atomic absorption and ICP-OES. Crystal E systems allow direct dispensing of pure water right from the storage tank with a built-in pump. High flow rate (4 LPM) makes dispensing of water fast and convenient.

For ultrapure applications the system has an ultrapure (Grade I) water dispense port at the front of unit.





Large graphic LCD display assures clear and legible indication of water quality and provides all information about system status.

Pre-filter life is shown on the display, so you always know how much time is left till the replacement filter is needed.

Depending on application, Crystal E system is available in three modifications.

- **Crystal E Pure** (P/N CE-1005) system produces Grade II water (ISO 3696), suitable for preparation of reagents, atomic absorption measurements, inorganic analysis, biochemical analyzers.
- **Crystal E Ultrapure** (P/N CE-1001) is a general purpose water purification system that produces Grade II and Grade I water (ISO 3696). It is suitable for preparation of reagents, atomic absorption spectrometry (graphite furnace), ICP-OES analysis, ICP-MS, organic and inorganic analyses.
- **Crystal E HPLC** (P/N CE-1101) produces water with low organic carbon (low TOC), so it meets requirements of liquid chromatography methods. Can be also used for microbiological and molecular biology applications that are not sensitive to RNase.
- **Crystal E Bio** (P/N CE-1201) system produces water with low organic and RNase/DNase content that is intended for molecular biology applications that are sensitive to RNase.

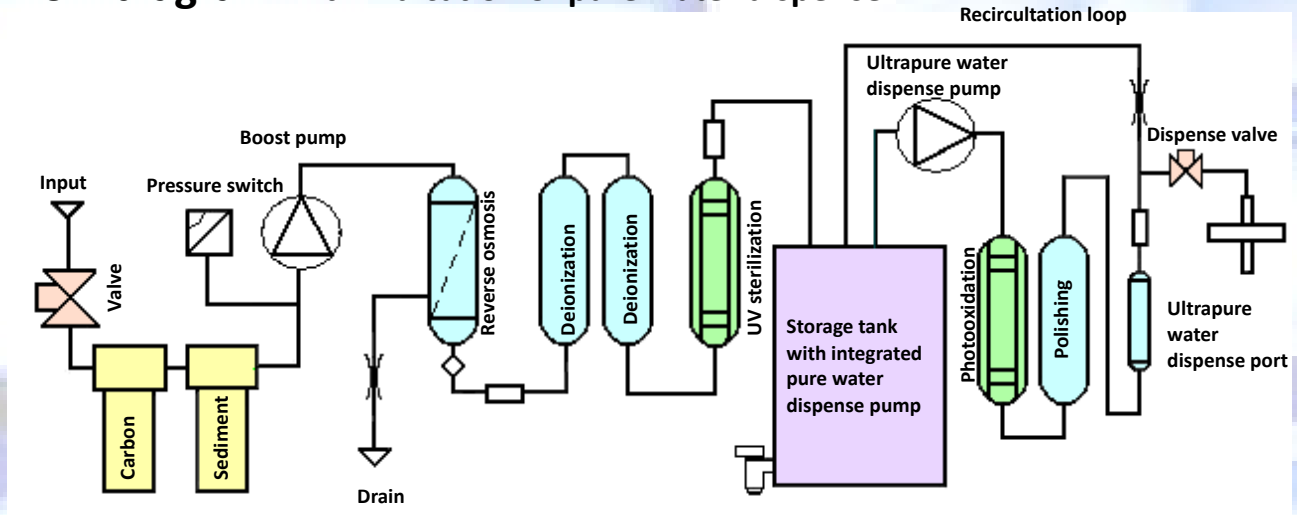
Applications

Application	Crystal E Pure	Crystal E Ultrapure	Crystal E HPLC	Crystal E Bio
Grade II water	●	●	●	●
Grade I water	-	●	●	●
Atomic absorption, ICP-OES	●	●	●	●
ICP-MS	-	●	●	●
HPLC, GC	-	-	●	●
TOC	-	-	●	●
Flow cytometry	-	-	-	●
Cell and tissue culture	-	-	-	●
Molecular biology	-	-	-	●

Specifications

Purified water specifications	Crystal E Pure	Crystal E Ultrapure	Crystal E HPLC	Crystal E Bio
Grade II water resistivity	>10 MΩ x cm	>10 MΩ x cm	>10 MΩ x cm	>10 MΩ x cm
Grade II water conductivity	<0.1 μS/cm	<0.1 μS/cm	<0.1 μS/cm	<0.1 μS/cm
Grade I water resistivity	-	18.2 MΩ x cm	18.2 MΩ x cm	18.2 MΩ x cm
Grade I water conductivity	-	0.055 μS/cm	0.055 μS/cm	0.055 μS/cm
TOC	5 – 10 ppb	5 – 10 ppb	<2 ppb	<2 ppb
RNase	-	-	-	<0.01 ng/mL
DNase	-	-	-	<4 pg/μL
Bacteria	-	< 1 cfu/mL	< 1 cfu/mL	< 1 cfu/mL
Endotoxins	-	<0.15 EU/mL	<0.15 EU/mL	< 0.001 EU/mL
Particles > 0.22 μm	-	<1 per mL	<1 per mL	<1 per mL
Nominal flow, pure water (to storage tank)	10 L/h	10 L/h	10 L/h	10 L/h
Dispense flow, ultrapure water	-	1 L/min	1 L/min	0.5 L/min
Dispense flow, pure water	4 L/min	4 L/min	4 L/min	4 L/min
Deionization module life (standard module)	1 m ³	1 m ³	1 m ³	1 m ³
Deionization module life (high capacity module)	3 m ³	3 m ³	3 m ³	3 m ³
Recovery	>30 %	>30 %	>30 %	>30 %
Width	400 mm	400 mm	400 mm	400 mm
Depth	450 mm	450 mm	450 mm	450 mm
Height	550 mm	550 mm	550 mm	550 mm
Storage tank	Option	25 L	25 L	25 L
Feed water specifications				
Feed water pressure	0.5 – 5 bar	0.5 – 5 bar	0.5 – 5 bar	0.5 – 5 bar
Feed water conductivity	< 900 μS/cm	< 900 μS/cm	< 900 μS/cm	< 900 μS/cm

Flow diagram with indication of pure water dispense



Accessories

Part number	Accessory	Crystal E Pure	Crystal E Ultrapure	Crystal E HPLC	Crystal E Bio
10009	Pre-filter for chlorine and organics reduction	+	+	+	+
	Boost pump	+	+	+	+
	Reverse osmosis module	+	+	+	+
10310	Deionization module, standard	+	+	+	+
10101	High capacity deionization module, (replaces standard module)	option	option	option	Option
10029	Polishing module	-	+	+	+
10105	Photooxidation module	option	option	+	+
10012	Point-of-use microfilter	-	+	+	-
10109	Point-of-use ultrafilter for RNase elimination	-	option	option	+
10102	UV sterilization module	option	option	option	+

Consumables

Part number	Description	Replacement interval	Comments
10009	Replacement pre-filter, Crystal E	When filter life counter goes to zero or when the filter is clogged.	
10310	Replacement deionization module	When ION error message is shown, or when water conductivity is >0.5 µS/cm	
10113	Replacement high-capacity deionization module	When ION message is shown, or when water conductivity is >0.5 µS/cm	For system that are equipped with 10101 deionization module, high capacity
10029	Replacement polishing module, double	Depends on water consumption	
10011	Replacement sterilization UV bulb	Every year	For the systems equipped with 10102 UV sterilization module
10018	Replacement photooxidation UV bulb	Every 2-3 years	For the systems equipped with 10105 photooxidation module
10012	Replacement 0.22 µm dispense filter	Every 6 months	

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