arium® mini Ultrapure Water System

Unique bagtank technology
for the Highest Efficiency

Advantages

- Reliable: Delivers consistently high water quality for reliable and reproducible results
- Efficient: Avoids tank cleaning thanks to unique bagtank technology
- Intuitive: Can be operated even with gloves via a multi-colored touch display
- Compact: Measuring only 28 cm in width, the unit fits easily in any laboratory

Product Description

The arium® mini is exclusively made of high-grade materials. With its intuitive operator guidance, closed bag system and the practical arium® aqua stop, the unit is ideal for a daily consumption of up to 10 liters of ultrapure water. Moreover, this compact laboratory-grade water purification system stands out by virtue of its superior reliability and user-friendliness.

Reliable

To ensure that you always obtain reliable and reproducible results, the closed tank system guarantees consistently high water quality. Contamination by ambient air is thereby prevented.

Intuitive

You control the arium® mini by means of a color touch display – even wearing laboratory gloves. Easy-to-understand symbols guide you through the intuitive menu. The "Favorites" function automatically saves the volume you dispensed last. This increases your efficiency and prevents errors when repeatedly dispensing the same volumes. Likewise, the volume-controlled dispensing function from 50 ml to 5 l (in 50-ml-increments) helps you obtain accurate results.

Compact footprint

The arium® mini measures only 28 cm in width to fit easily in any laboratory. Given its handy practicality, you can integrate it flexibly into almost any location.

Efficient

The simple, semi-annual replacement of the Bag allows you to save on the time-consuming cleaning and rinsing processes otherwise necessary with conventional tanks. Because there is no more need to use chemicals that are hazardous to health for cleaning, you also protect the environment and heighten user safety.

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Unique bagtank technology

arium® mini is the only ultrapure water system with integrated bagtank technology. Its design features the 5-liter Bag, originally developed for the pharmaceutical industry, integrated on a side panel. The high-quality Bag provides optimal conditions to store your pre-treated pure water for the production of type 1 ultrapure water.

Two Models

Depending on your individual needs, you can choose between two models:

- arium® mini: Manual feed with pre-treated water
- arium® mini plus: Direct connection to the potable water supply for converting to Type 1 ultrapure water thanks to the integrated reverse osmosis technology.

For analytical as well as especially critical applications, you have the additional option to order your respective system with an integrated UV lamp (185 | 254 nm). This lets you reduce TOC down to ≤ 5 ppb*.

arium® mini – unique quality "Made in Germany"

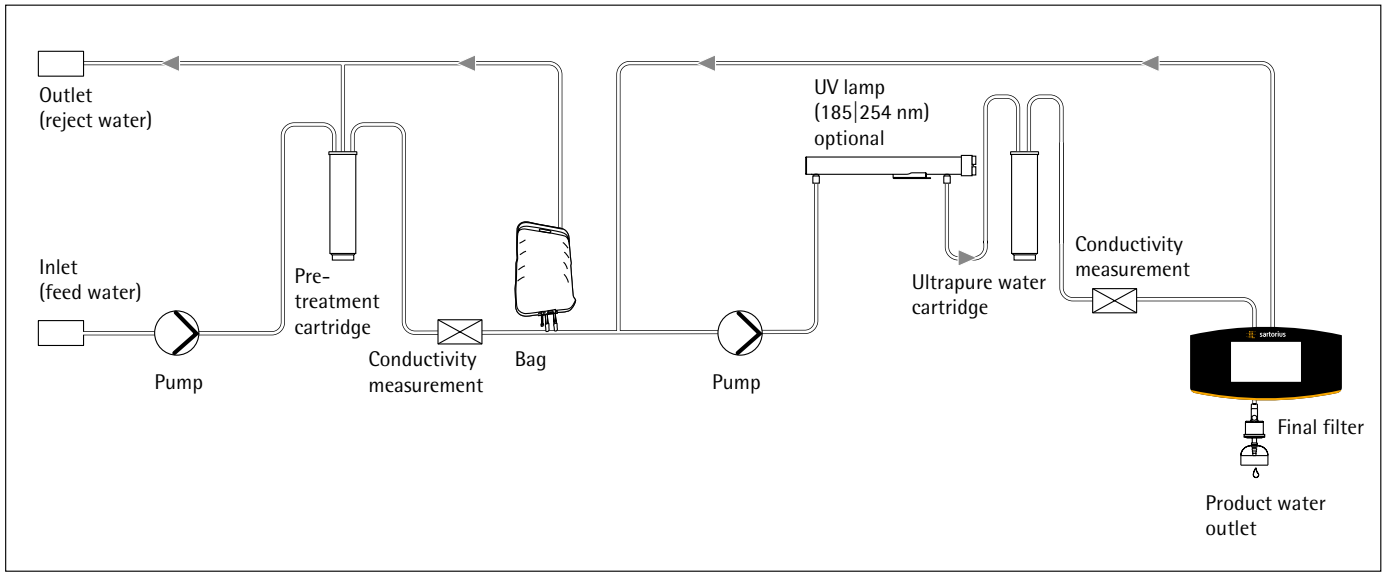
Exemplary representation with open side cover

* depends on feed water quality

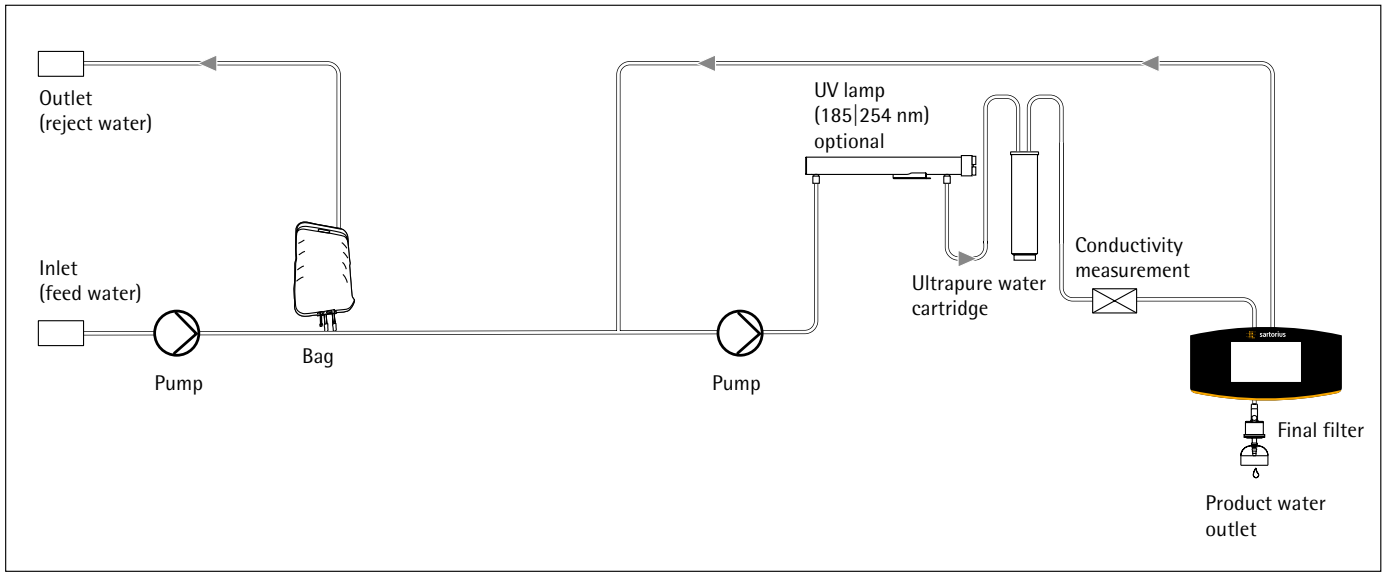
Technical Specifications

General Specifications

Water purification method	Adsorption by means of spherical activated carbon, catalyst, reverse osmosis, ion exchange, optional UV irradiation, and end-position particle | sterile filtration
Dimensions: width × height × depth	280 × 509.4 × 530.7 mm
Empty weight	Approx. 13 kg
Operating weight	Approx. 23 kg
Power supply	100 – 240 VAC; 50 and 60 Hz, 2 A (max.)
Operating temperature	2 °C – 35 °C at max. 80% relative humidity
Storage temperature	5 °C – 45 °C at max. 80% relative humidity



arium® mini plus flow diagram



arium® mini flow diagram

arium® mini plus Product Water Specifications

Water type	ASTM Type 1 ultrapure water	Type 3 pure water
Production output[1]	–	Up to 8 l/h
Water dispensing flow rate[2]	Up to 1.0 l/min	Depressurized via ball valve
Volume-controlled dispensing[2]	50 ml steps, between 0.05 and 5 l	–
Volume accuracy[3]	± 3 % between 0.25 and 5 l	–
Typical conductivity	0.055 µS/cm compensated to 25 °C[6]	< 20 µS/cm[7]
Typical resistivity	18.2 MΩ × cm compensated to 25 °C[6]	< 0.05 MΩ × cm[7]
TOC content[4] (system with UV lamp)	≤ 5 ppb	–
Microorganism content[5]	< 1 CFU/1,000 ml	< 1 CFU/1,000 ml
Particle content > 0.2 µm[5]	< 1/ml	< 1/ml
Typical ion retention	–	Up to 98%
Retention of dissolved organic substances (MW > 300 Dalton)	–	> 99 %
Particle and microorganism retention	–	> 99 %

arium® mini plus Feed Water Specifications
Exclusively potable tap water pursuant to the drinking water standards of the USA, the European Union, or Japan.

Input pressure	0.5 – 6 bar, recommended > 2 bar
Temperature	2 – 30°C
Specific conductivity	< 1500 µS/cm compensated to 25 °C
TOC	< 2,000 ppb
Max. total hardness (max. $CaCO_3$)	360 ppm
Free chlorine	< 4 ppm
Iron (total Fe content)	< 0.1 ppm
Fouling Index (SDI)	< 10
Turbidity	<1 NTU
pH value	4 – 10

Ordering Information

arium ® mini plus for the production of ASTM Type 1 ultrapure water and Type 3 pure water
Scope of supply:
1 arium® mini plus, optional with UV lamp

Order no. without UV lamp	Order no. incl. UV lamp	Description
H2O-MA-T	H2O-MA-UV-T	arium ® mini plus,bench top device, flow capacity Type 3 pure water 8 l/h

[1] Depending on the feed water pressure, temperature, and condition of the RO modules
[2] Depending on the hydrostatic pressure, and connected accessories and/or final filter
[3] Under constant operating conditions
[4] Determined with municipal water (Goettingen), TOC approx. 1000 ppb
[5] When using an arium® sterile filter (Sartopore® 2 150)
[6] Measured value output adjustable to 25 °C compensated or uncompensated
[7] Depending on feed water

arium® mini Product Water Specifications

Water type	ASTM Type 1 ultrapure water
Production output	–
Water dispensing flow rate[1]	Up to 1.0 l/min
Volume-controlled dispensing[1]	50 ml steps, depending on the total amount removed between 0.05 and 5 l
Volume accuracy[2]	± 2 % between 0.05 and 5 l
Typical conductivity	0.055 µS/cm compensated to 25 °C[5]
Typical resistivity	18.2 MΩ × cm compensated to 25 °C[5]
TOC content[4] (system with UV lamp)	≤ 5 ppb
Microorganism content[3]	< 1 CFU/1,000 ml
Particle content > 0.2 µm[4]	< 1/ml

arium® mini Feed Water Specifications
Treated water via reverse osmosis, distillation or deionization.

Input pressure	Depressurized
Temperature	2 – 30 °C
Specific conductivity	< 100 µS/cm compensated to 25 °C
TOC	< 50 ppb
Turbidity	< 1 NTU
pH value	4 – 10

Ordering Information

arium® mini, for the production of ASTM Type 1 ultrapure water
Scope of supply:
1 arium® mini, optional with UV lamp

Order no. without UV lamp	Order no. incl. UV lamp	Description
H2O-MM-T	H2O-MM-UV-T	arium® mini bench top device, for manual feeding with pretreated feed water

[1] Depending on the hydrostatic pressure, and connected accessories and | or final filter
[2] Under constant operating conditions
[3] When using an arium® sterile filter (Sartopore® 2 150)
[4] Measured value output adjustable to 25 °C compensated or uncompensated

arium® Sterile Filter

Sterile and particle-free water dispensing

- Excellent service lifetime and flow rates
- Integrity tested
- Validated according to HIMA and ASTM F-838-05
- Meets WFI quality standards pursuant to USP incl. USP plastic class VI test
- Production in accordance with DIN ISO 9001
- Easy to install
- Certified quality

Description

The arium® sterile filter (Sartopore® 2 150) is a sterile, ready-to-use membrane filter capsule suitable for the most stringent requirements.
Sartopore® 2 150 membrane filter capsules contain a hydrophilic, heterogeneous polyethersulfone double membrane. These provide excellent holding times and flow rates.
The capsule is attached in the end position by means of a quick connector and reliably removes all particles > 0.2 µm and microorganisms in the last purification step. A hydrophobic PTFE membrane at the farthest point "upstream" allows for easy and clean ventilation of the capsule.

All pleated Sartopore® 2 150 membrane filter units are validated as sterile filters for biopharmaceutical application according to the HIMA and ASTM F-838-05 guidelines (documentation available). During the manufacturing process, every capsule is integrity-tested to meet the highest quality standards and safety regulations.

Technical Specifications | Ordering Information

Materials	
Membranes	Asym. Polyethersulfone
Bell assembly	Polycarbonate
Other plastics	Polypropylene
Pore size	0.45 µm + 0.2 µm
Filtration area	0.015 m^2
Inlet and outlet	¼" plug-in connector
Sterilization (max. 3 cycles)	Autoclavable at 134°C, 1 bar, 30 min.
Max. diffusion	1 ml/min @ 2.5 bar
Min. bubble point	3.2 bar

Order Number	Description
5441307H4--CE--B	arium® sterile filter (Sartopore® 2 150 Capsule), 0.2 µm pore size: (5 pcs)

Intended Use

On remote dispenser and display dispense units for device type:
arium® mini and arium® mini plus
arium® comfort I and comfort II
arium® pro, pro DI, pro UF, pro UV and pro VF
arium® 611
arium® remote dispensers

arium® UV Lamp (185 | 254 nm)

Ultrapure water, free of TOC

- Horizontal installation, optimized temperature gradient
- Effective breakdown of organic compounds
- Prevents the growth of microorganisms
- Easy replacement

Description

The horizontally arranged UV lamp delivers especially reliable results. Unlike vertical units, the temperature gradient is less pronounced and does not affect the activity of UV radiation.

The two different wavelengths reliably remove organic substances (TOC), effectively preventing microbiological growth. At 185 nm organic compounds are oxidized, and at 254 nm microorganisms are killed.

Technical Specifications | Ordering Information

Material	Fused silica
TOC value for product water*	≤ 5 ppb

Order Number	Description
H2O-CEL1	arium® UV lamp (185 | 254 nm), (1 pc)

Intended Use

arium® mini and arium® mini plus

* Depending on feed water and used system type

arium® mini plus Pre-treatment Cartridge

Reliable protection for the treatment of feed water

- Fast and effective adsorption of impurities through high-grade activated carbon
- Highly efficient catalyst for removing oxidation agents such as chlorine
- Highly efficient reverse osmosis membranes, optimized water consumption
- Low-energy membranes for ecological and economical operation

Description

Efficient purification via a combination of activated carbon, a catalyst and a downstream reverse osmosis membrane.

The spherical, catalytic-effective, activated carbon and an additional catalyst reliably remove oxidation agents such as free chlorine and ozone, heavy metal ions and particulate contaminants from the feed water.

In addition, due to the downstream reverse osmosis membrane, up to 98% of all salts, as well as bacteria and particles are removed.

Technical Specifications | Ordering Information

Materials	
Housing	High-quality polypropylene
Filtration media	Spherical, catalytic activated carbon
Dimensions [W × H × D]	18 × 26 × 11 cm
Operating weight	3.5 kg
Feed water requirements	See “Technical Specifications” page 3

Order Number	Description
H2O-CPR	arium® mini plus Pre-treatment Cartridge (1 pc)

Intended Use

arium® mini plus

arium® Bag

The most innovative tank system

- Easy and fast replacement of the arium® Bag
- High user safety due to the avoidance of cleaning chemicals

Description

The pure water is stored in the device. This system protects the prepared pure water against secondary contamination.

The Sartorius bagtank technology enables consistent water quality over a prolonged period, thereby ensuring permanent, reproducible results.

Unlike conventional water reservoirs, the arium® Bag offers a high level of user safety and time savings, as there is no need for a complicated cleaning procedure with chemicals.

Technical Specifications | Ordering Information

Materials	
Bag	S71, 6-Layer high gas barrier film
Tubing	TuFlux®

Bag dimensions [H × W]	
Bag 5 liters	40 × 33 cm

Order Number	Description
H2O-CBS-5-S	arium® 5 liter Bag (1 pc)

Intended Use

arium® mini and arium® mini plus

arium® Scientific Pack

Deionization cartridge featuring top-down-flow technology

- High performance capacity thanks to efficient ion exchange resins
- Fast and effective adsorption of impurities through high-grade activated carbon
- Optimized crossflow behavior, prevents separation of the resin mixed-bed
- Patented connection method, easy replacement of consumables

Description

The cartridge sets are optimized for the removal of both organic and inorganic constituents. The set was designed specifically to match the unit and delivers ultrapure water that exceeds the ASTM Type 1 quality standard.
This consistent level of high-quality water ensures optimal reproducibility of your results.

Optimized filling materials, such as highly effective activated carbon coupled with highly efficient ion exchange resins, deliver long lasting performance and low-maintenance operation.

The top-down flow technology produces ideal purification kinetics and prevents any mixing of cleaning media.
The cartridge was designed with the flow rate in the cross section and contact time with the medium in mind.

Technical Specifications | Ordering Information

Materials	
Housing	High-purity polypropylene
Filtration media	Spherical, catalytic activated carbon Ultrapure mixed bed ion exchange resin in semiconductor quality
Further data on product water quality	See “Technical Specifications” page 3

Order Number	Description
H2O-S-PACK	arium® Scientific Kit (1 pc)

Intended Use

arium® mini and arium® mini plus