SARTORIUS

Product Datasheet

Arium® Mini Ultrapure Water Systems

Compact Laboratory Water Systems



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Advantages

- Flexible: Different versions for different inlet water and connection options, as well as the desired water withdrawal
- Compact: Space-saving with a width of only 28 cm (+ 9 cm for versions with attached dispensing unit)
- Intuitive: Color touch display, with direct access to all important information and dispensing options
- Innovative: Depending on the type of system, our unique Bagtank technology saves time as no intensive tank cleaning with hazardous substances is required
- Reliable: Delivers consistently high water quality for reliable and reproducible results

Product Description

Compact Arium® Mini laboratory water systems have been designed for Type 1 ultrapure water requirements of 10 Liters per day and are ideal for use in preparation of buffers, media and samples, both in life sciences applications and in analytical laboratory procedures.

A large, touch-activated screen and intuitive menu navigation ensure exceptionally easy operation. Regardless of your type of feed water available, use Arium® Mini, Arium® Mini Plus or Arium® Mini Plus Extend featuring our unique Bagtank technology or connect Arium® Mini Essential or Arium® Mini Essential Extend directly to your deionized water supply line in the lab.

For even more flexibility, our Arium® Mini Extend versions (Arium® Mini Plus Extend and Mini Essential Extend) are equipped with a flexible, removable dispensing unit.

Flexible

Depending on your preferred inlet water supply, choose the version of the Arium® Mini that best suits you. In addition, our Extend versions allow flexible water dispensing via a removable dispensing unit. The manual and volume-controlled water withdrawal, as well as the withdrawal of the last withdrawn volume, can be controlled both via the display and via the dispensing unit.

Compact

With a width of only 28 cm, Arium® Mini will readily fit into any laboratory environment. This handy device will give you the flexibility you need in integrating it into nearly any location.

Intuitive

Easily operate the Arium® Mini using the touch-activated color display – even when you are wearing laboratory gloves. Easy-to understand icons will guide you through the menu for intuitive, error-free operation. Simplify your sample preparation and benefit from direct access to all important dispensing functions: manual, volume-controlled or predefined volumes (Favorites function).

Innovative

The most advanced Bagtank technology will save you from performing time-intensive cleaning and rinsing procedures. As this eliminates the need for using chemicals that can be hazardous to your health, you will help protect the environment and increase your own safety.

Reliable

To ensure that you always obtain reliable and reproducible results, the system ensures consistently high water quality. For your analytical requirements and especially critical applications, you additionally have the option of obtaining your system with an integrated UV lamp (185/254 nm) to reduce TOC to ≤ 5 ppb*.

* Depends on the type of system and your feed water

Unique Bagtank Technology

The Arium® Mini, Arium® Mini Plus and Arium® Mini Plus Extend ultrapure water systems incorporate our unique Bagtank technology, which features a 5-Liter bag originally designed for the pharmaceutical industry and integrated on the side of the system. This bag enables you to optimally store your pretreated pure water in the bag for further purification to Type 1 ultrapure water.

In the process, the closed system prevents ions and gases from entering, ensuring that the conductivity remains constantly low.

Depending on your needs, you can easily exchange the bag, which thus prevents the buildup of a permanent biofilm.

Arium® Mini – unique quality "made in Germany"

Five Product Versions

It's your choice depending on your specific requirements:

Type of system	Feed water*	Water dispensing via flexible, removable dispensing unit
Arium® Mini Plus with integrated Bagtank	Direct connection to tap water	
Arium® Mini Plus Extend with integrated Bagtank	Direct connection to tap water	✓
Arium® Mini with integrated Bagtank	Pretreated water from supply container	
Arium® Mini Essential	Directly connects to pretreated water line (RO | DI | EDI)	
Arium® Mini Essential Extend	Directly connects to pretreated water line (RO | DI | EDI)	✓

* For details, see inlet water specifications.

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Technical Specifications

General Specifications

Water purification method	Adsorption by spherical activated carbon, catalyst, reverse osmosis, ion exchange, optional UV irradiation, and by point-of-use particle-removing filtration | sterile filtration
Device without dosing unit:	
Dimensions: width × height × depth	280 × 510 × 530 mm (11 × 20.1 × 20.9″)
Empty weight	Approx. 13 kg (28.6 lbs.)
Operating weight	Approx. 23 kg (50.6 lbs.)
Device with dispensing unit:	
Dimensions: width × height × depth	370 × 640 × 610 mm (14.6 × 25.2 × 24″)
Empty weight	Approx. 14 kg (30.9 lbs.)
Operating weight	Approx. 24 kg (52.9 lbs.)

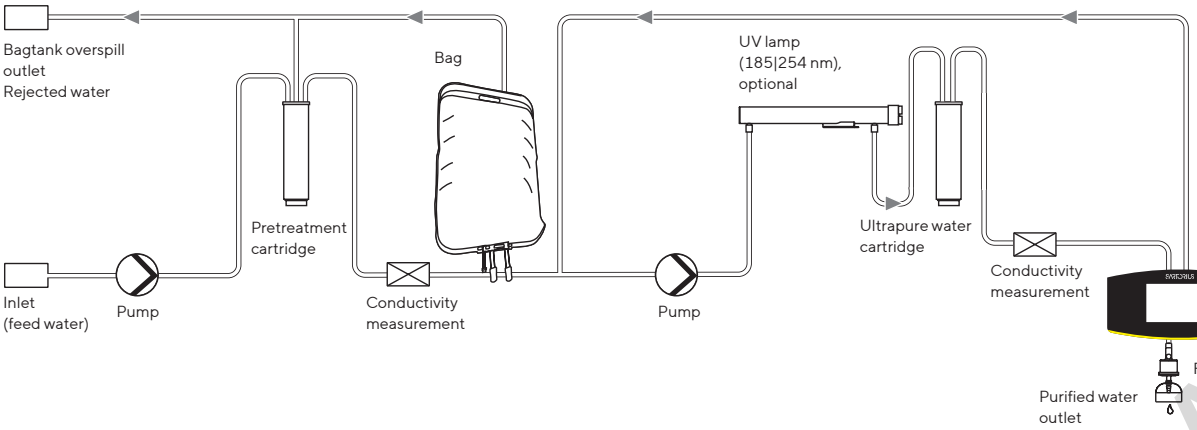
Power supply	100 – 240 VAC; 50 and 60 Hz, 2 A (max.)
Operating temperature	2 °C – 35 °C at max. 80% relative humidity
Storage temperature	5 °C – 45 °C at max. 80% relative humidity



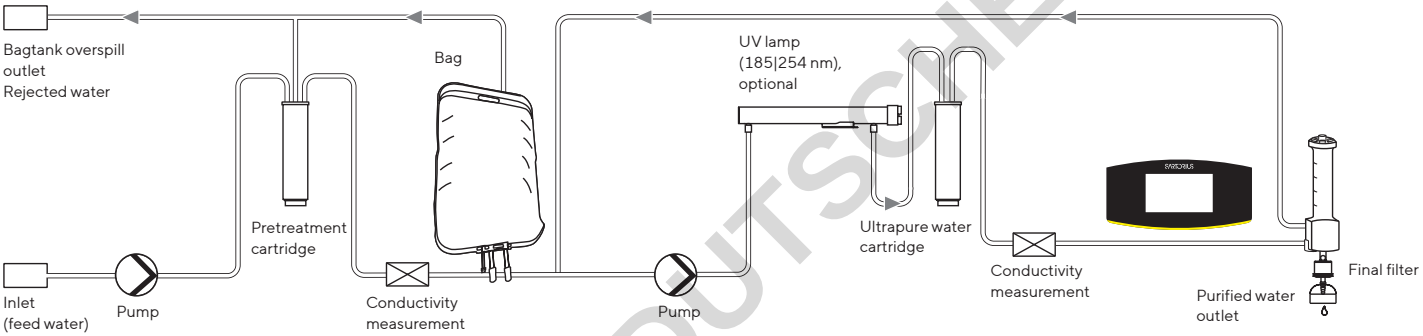


Example showing Arium® Mini Plus with opened side cover and Arium® Mini Plus Extend with opened front cover

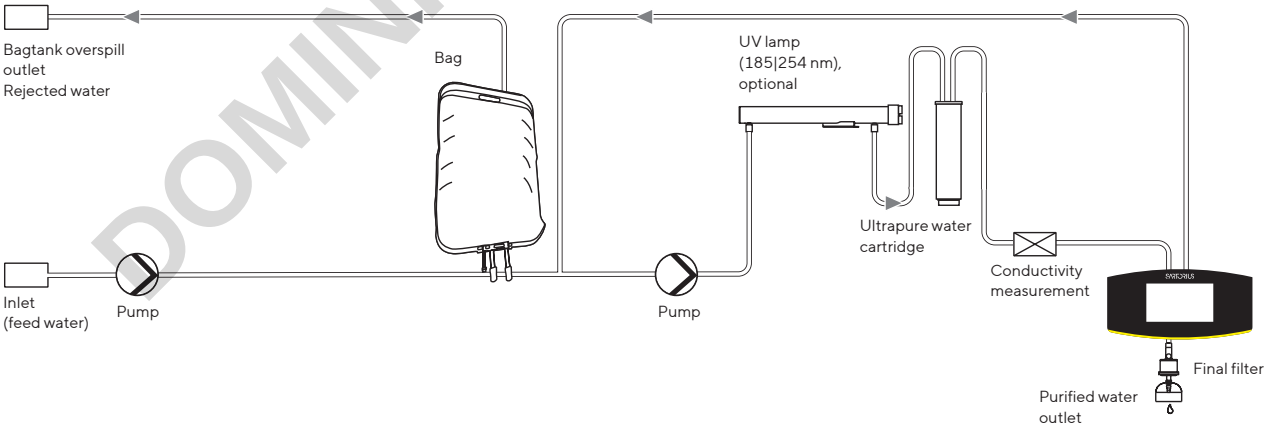
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Flow diagram for Arium® Mini Plus

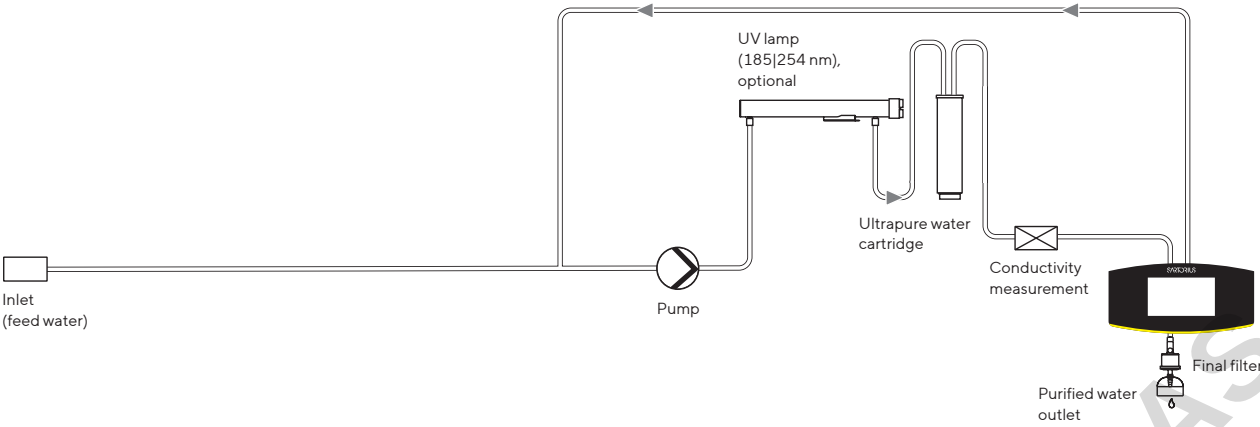


Flow diagram for Arium® Mini Plus Extend

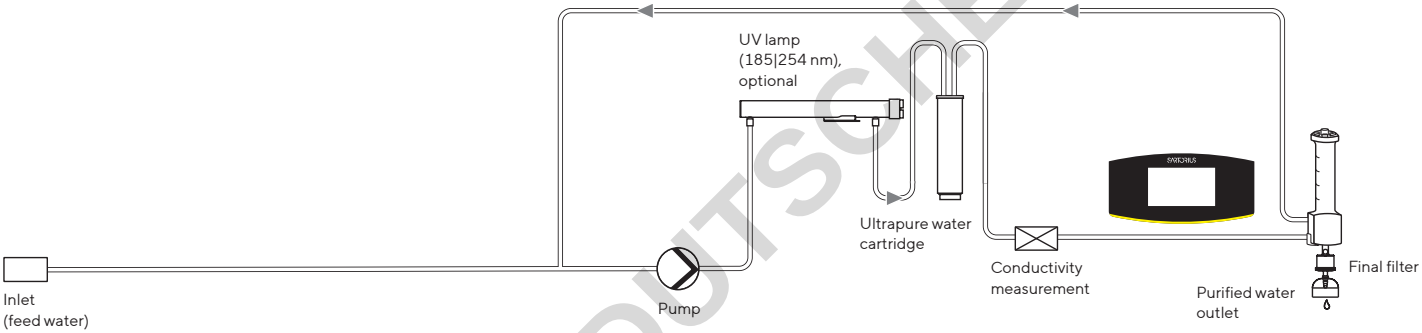


Flow diagram for Arium® Mini

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Flow diagram for Arium® Mini Essential



Flow diagram for Arium® Mini Essential Extend

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Specifications of Water Purified by Arium® Mini Plus or Arium® Mini Plus Extend

Type of water	ASTM Type 1 ultrapure water	Type 3 pure water
Production output[1]	–	Up to 8 L/hr.
Water dispensing flow rate[2]	Up to 1.0 L/min	Pressure-free via ball valve
Volume-controlled dispensing[2]	50 mL steps, between 0.05 and 5L	–
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	–
Bacteria[5]	< 0.001 CFU/mL	–
Particle content[5]	No particles > 0.2 µm	–
Pyrogens (endotoxins)[8]	< 0.001 EU/mL	–
RNase[8]	< 1 pg/mL	–
DNase[8]	< 5 pg/mL	–
Typical ion retention	–	Up to 98%
Retention of dissolved organic substances (MW > 300 Dalton)	–	> 99%
Particle and microorganism retention	–	> 99%

Feed Water Specifications for Arium® Mini Plus or Arium® Mini Plus Extend

Exclusively tap water of potable quality according to the drinking water standards of the USA, the European Union or Japan.

Input pressure	0 – 6 bar (approx. 7.3 – 87 psi); recommended > 2 bar (> 29 psi)
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 range	4 – 10

[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 Plus (Sartopore® 2 150)
[6] Measured value output adjustable to 25 °C compensated or uncompensated
[7] Depending on feed water
[8] If an Arium® Cell Plus is used

Ordering Information

Arium® Mini Plus for the production of ASTM Type 1 Ultrapure Water and Type 3 Pure Water

Equipment supplied:
1 Arium® Mini Plus; optionally supplied with UV lamp

Order No. without UV lamp	Order No. incl. UV lamp	Description
H2O-MA-T	H2O-MA-UV-T	Arium® Mini Plus, benchtop system for connection to the drinking water supply.

Arium® Mini Plus Extend

Order No. without UV lamp	Order No. incl. UV lamp	Description
H2O-MAR-T	H2O-MAR-UV-T	Arium® Mini Plus Extend, benchtop system with flexible dispensing unit for connection to the drinking water supply.

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Specifications of Water Purified by Arium® Mini

Type	ASTM Type 1 ultrapure water
Output performance for purified water	–
Water dispensing flow rate[1]	Up to 1.0 L/min.
Volume-controlled dispensing[1]	50 mL increments, between 0.05 L and 5 L
Volume accuracy[2]	±2% between 0.05 L and 5 L
Typical conductivity	0.055 µS/cm, compensated to 25 °C[4]
Typical resistivity	18.2 MΩ × cm, compensated to 25 °C[4]
TOC content[4] (system with UV lamp)	≤ 5 ppb
Bacteria[5]	< 0.001 CFU/mL
Particle content[5]	No particles > 0.2 µm
Pyrogens (endotoxins)[8]	0.001 EU/mL
RNase[8]	< 1 pg/mL
DNase[8]	< 5 pg/mL

Feed Water Specifications for Arium® Mini

Water pretreated by reverse osmosis, distillation or deionization

Inlet pressure	Without pressure
Temperature	2 °C – 30 °C
Specific conductivity	< 100 µS/cm, compensated to 25 °C
TOC content	< 50 ppb
Turbidity	< 1 NTU
pH range	4 – 10

[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 Plus (Sartopore® 2 150)
[6] Measured value output adjustable to 25 °C compensated or uncompensated
[7] Depending on feed water
[8] If an Arium® Cell Plus is used

Ordering Information

Arium® Mini for production of ASTM-Type 1 Ultrapure Water

Equipment supplied:
1 Arium® Mini; optionally supplied with UV lamp

Order No. without UV lamp	Order No. incl. UV lamp	Description
H2O-MM-T	H2O-MM-UV-T	Arium® Mini, benchtop system, for manual feed with pretreated water from a supply container

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Specifications of Water Purified by Arium® Mini Essential or Arium® Mini Essential Extend

Type of water	ASTM Type 1 ultrapure water
Water dispensing flow rate[1]	Up to 1.0 L/min
Volume-controlled dispensing[1]	50 mL increments, between 0.05 L and 5 L
Volume accuracy[2]	±2% between 0.05 L and 5 L
Typical conductivity	0.055 µS/cm, compensated to 25 °C[4]
Typical resistivity	18.2 MΩ × cm, compensated to 25 °C[4]
TOC content[4] (system with UV lamp)	≤ 5 ppb
Bacteria[5]	< 0.001 CFU/mL
Particle content[5]	No particles > 0.2 µm
Pyrogens (endotoxins)[8]	< 0.001 EU/mL
RNase	< 1 pg/mL
DNase[8]	< 5 pg/mL

Feed Water Specifications for Arium® Mini Essential or Arium® Mini Essential Extend

Water pretreated by reverse osmosis, distillation or deionization

Inlet pressure	0 – 6.9 bar; (0 – approx. 100 psi); recommended > 2 bar (> 29 psi)
Temperature	2 °C – 30 °C
Specific conductivity	< 100 µS/cm, compensated to 25 °C
TOC content	< 50 ppb
Turbidity	< 1 NTU
pH range	4 – 10

[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 Plus (Sartopore® 2 150)
[6] Measured value output adjustable to 25 °C compensated or uncompensated
[7] Depending on feed water
[8] If an Arium® Cell Plus is used

Ordering Information

Arium® Mini Essential for Production of ASTM Type 1 Ultrapure Water

Equipment supplied:
1 Arium® Mini Essential; optionally supplied with UV lamp

Order No. without UV lamp	Order No. incl. UV lamp	Description
H2O-MU-T	H2O-MU-UV-T	Arium® Mini Essential, benchtop system; for direct connection to pretreated water supply

Arium® Mini Essential Extend

Order No. without UV lamp	Order No. incl. UV lamp	Description
H2O-MUR-T	H2O-MUR-UV-T	Arium® Mini Essential Extend, benchtop system with flexible dispensing unit for direct connection to pre-treated water supply.

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Consumables

Arium® Sterile Plus



Sterile and particle-free water dispensing
- Excellent service life and flow rates
- Integrity tested
- Validated according to 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
- Automatic venting
- Certified quality

Description

The Arium® Steril Plus (Sartopore® 2 150) is a sterile, ready-to-use membrane filter capsule that provides a hydrophilic, heterogeneous polyethersulfone double membrane. They enable excellent service life and flow rates. Connected via a quick connector, the capsule reliably removes all particles and microorganisms in the last step of water treatment.

A hydrophobic PTFE membran at its highest point "upstream side" allows a simple and clean venting of the capsule. All pleated Arium® Sterile Plus membrane filter units are suitable for biopharmaceutical use in accordance with ASTM F-838-05 guidelines validated as a sterile filter. Each capsule is tested for integrity during the manufacturing process to meet the highest quality standards and safety regulations.

Technical Specifications | Ordering Information

Materials	
Membranes	Asym. Polyethersulfone
Bell assembly	Polycarbonate
Other plastics	Polypropylene

General Specifications	
Pore size	0.45 µm × 0.2 µm
Filtration area	0.015 m²
Input and Output	¼" Plug-in connector
Sterilization (max. 3 cycles)	Autoclaving at 134 °C, 2 bar, 30 min.
Max. diffusion	1 mL/min @ 2.5 bar
Min. bubble point	3.2 bar

Typical Specifications	
Bacteria	< 0.001 CFU/mL
Particle content	No particles > 0.2 µm

Order number	Description
5441307H4--CE	Arium® Sterile Plus (Sartopore® 2 150 Capsule), 1 pc

Intended Use

Device type:
- Arium® Mini
- Arium® Mini Essential
- Arium® Mini Plus
- Arium® Mini Plus Extend
- Arium® Mini Essential Extend

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Arium® Cell Plus Ultrafilter

For effective removal of endotoxins in cell culture applications

- Effective removal of RNase | DNase
- Reliable removal of endotoxins
- High flow rate performance
- Certified quality
- Sterile-packaged



Description

The Arium® Cell Plus is a point-of-use ultrafilter for efficient removal of endotoxins, RNase, DNase, microorganisms and particles.

Connected to an Arium® Mini, this sterile- packaged ultrafilter is ideal for your critical cell culture applications. A protective bell supplied with the ultrafilter additionally prevents retrograde contamination.

Moreover, the high-grade material selected for Arium® Cell Plus enables excellent total throughputs and optimal flow rates.

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Technical Specifications | Ordering Information

Materials	
Membrane	Polysulfone
Composite material	Polyurethane (PUR)
Housing	Acrylonitrile butadiene styrene (ABS)
Protective bell	Polycarbonate (PC)

Typical Specifications	
Flow rate (depends on the inlet pressure and type of system)	Up to 2.0 L/min
Endotoxins	< 0.001 EU/mL
Bacteria	< 1 cfu/100 mL
RNase concentration	< 1 pg/mL
DNase concentration	< 5 pg/mL

General Specifications	
Cut-off	15,000 Daltons | 0.005 µm
Inlet and Outlet	¼" Plug-in connector
Dimensions (height × diameter)	169 × 50 mm
Max. operating pressure	6 bar (87 psi)
Max. inlet temperature	50 °C
Effective membrane area	0.5 m²

Order number	Description
H2O-CUF	Arium® Cell Plus Ultrafilter, 1 pc

Intended Use

Device type:

- Arium® Mini
- Arium® Mini Essential
- Arium® Mini Plus
- Arium® Mini Plus Extend
- Arium® Mini Essential Extend

Arium® Mini Plus Pretreatment Cartridge



Reliable Protection for the Pretreatment of Feed Water

- Fast and effective adsorption of impurities by high-grade activated carbon
- Highly efficient catalyzer for removing oxidating agents such as chlorine
- Highly efficient reverse osmosis membranes; optimized water usage
- Low-energy membranes for ecological and economic operation

Description

Efficient purification is performed by a combination of activated carbon, a catalyzer and a downstream reverse osmosis membrane.

The spherical, catalytic activated carbon and an additional catalyst reliably remove oxidants, such as chlorine and ozone, heavy metal ions and particulate contaminants, from feed water.

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

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Technical Specifications | Ordering Information

Materials	
Housing	High-grade polypropylene
Filter media	Spherical, catalytic activated, carbon
Feed water requirements	See Technical Specifications on page 3

Order Number	Description
H2O-CPR	Arium® Mini Plus pretreatment cartridge; qty. per pkg.: 1

Intended Use

Device type:

- Arium® Mini Plus
- Arium® Mini Plus Extend

Arium® UV Lamp (185 | 254 nm)

Ultrapure water, free of TOC

- Horizontal installation, optimized temperature gradient
- Effectively destroys organic compounds
- Easy replacement



Description

The horizontally arranged UV lamp provides particularly reliable results. In contrast to vertical devices, the temperature gradient is less pronounced and thus prevents the influence on the activity of UV waves.

The two different wavelengths reliably remove organic substances up to a TOC (total organic carbon) content of ≤ 5 ppb*.

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Technical Specifications | Ordering Information

Materials	
TOC value for product water*	≤ 5 ppb

Order number	Description
H2O-CEL1	Arium® UV Lamp (185 | 254 nm), 1 pc

Intended Use

Device type (only versions with integrated UV lamp):

- Arium® Mini
- Arium® Mini Essential
- Arium® Mini Plus
- Arium® Mini Plus Extend
- Arium® Mini Essential Extend

* Depends on the type of system and on the feed water

Arium® Scientific Pack

Deionization Cartridge Featuring Top-Down Flow Technology

- High performance capacity due to efficient ion exchange resins
- Fast and effective adsorption of impurities by high-grade activated carbon
- Optimized flow prevents separation of the mixed-bed resin
- Patented connection method; easy exchange of consumables



Description

The cartridge kits have been optimized for removal of both organic and inorganic constituents. Each kit has been designed specifically to match the particular laboratory water system and delivers ultrapure water that exceeds the ASTM Type 1 quality standard. This consistently high-quality water ensures optimal reproducibility of your results.

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

The top-down technology provides ideal purification kinetics, preventing any mixing of cleaning media. The cartridge has been designed for enhanced flow rate in the cross section and optimal contact time with the medium.

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Technical Specifications | Ordering Information

Materials	
Housing	Highly pure polypropylene
Filter media	Spherical, catalytic activated carbon Ultrapure mixed bed ion exchange resin, semiconductor-grade
Further data on purified water quality	See Technical Specifications on page 3

Order Number	Description
H2O-S-PACK	Arium® Scientific kit; qty. per pkg.: 1

Intended Use

Device type:

- Arium® Mini
- Arium® Mini Essential
- Arium® Mini Plus
- Arium® Mini Plus Extend
- Arium® Mini Essential Extend

Arium® Bag

The Most Innovative Bagtank System

- Fast and easy replacement of the Arium® Bag
- High user safety as the Bagtank eliminates the need for cleaning chemicals



Description

Pure water is stored inside the laboratory water system, which reliably protects preteated pure water from secondary contamination.

Sartorius Bagtank technology enables consistent water quality over a prolonged period, ensuring continuously reproducible results.

Unlike conventional water tanks, the Arium® Bag ensures high user safety and saves time as it eliminates the need for a complicated cleaning procedure with chemicals.

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Technical Specifications | Ordering Information

Materials	
Bag	S71 proprietary film
Tubing	TuFlux®

Bag dimensions [H × W]	
5-Liter bag	40 × 33 cm (15.7″ × 12.9″)

Order Number	Description
H2O-CBS-5-S	Arium® 5-Liter bag; qty. per pkg.: 1

Intended Use

Device type:

- Arium® Mini
- Arium® Mini Plus
- Arium® Mini Plus Extend

Sartorius Service

We Ensure the Quality of Your Results

At Sartorius, quality products go hand in hand with professional service. With our wide service offering, we will help guarantee the safe, reliable and optimal operation of your Arium® Mini. Just ask us and we will even cover the entire life cycle of your laboratory water system – from commissioning to qualification to regular maintenance. Together with you, we will ensure the consistently high quality of your laboratory water purification.

Our Services at a Glance:

Installation and Commissioning
Your advantage: Your system will operate reliably at peak performance from day one

Equipment Qualification (IQ | OQ)
Your advantage: You will meet all regulatory requirements (GMP | GLP)

Regular Preventative Maintenance, Including **Calibration**, inspection and testing of your system and exchange of consumables

Your advantages: Optimal operation of your system; reliable results; prevention of downtime or even equipment failure

Get more information now at:
www.sartorius.com/en/services

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