

## AquaA™ for Heat Disinfection Data Sheet

Single-stage dialysis water reverse osmosis system



### Compliance with ISO Standards

The **AquaA** dialysis water system is designed to ensure compliance with ISO dialysis water quality standards

- ISO 23500-1** Part 1: **addresses** guidance for the preparation and quality management of fluids for hemodialysis and related therapies
- ISO 23500-2** Part 2: **covers** water treatment equipment for hemodialysis applications and related therapies
- ISO 23500-3** Part 3: **specifies** minimum water quality standards for hemodialysis and related therapies

### Comprehensive AquaA reverse osmosis system tailored to your clinic's needs

#### Key features & functionality

- Graphical touchscreen display
- Consumption-controlled water and energy-saving operation
- Initial self-testing of all safety-relevant sensors
- Emergency operation
- Dead space-free design
- Monitoring of performance data, disinfection records, as well as trend monitoring and error messages
- Redundant two high-pressure pumps including one high-speed cross flow pump
- Password-protected user levels
- Four independent programmable operating timers
- Settable interval flush timer programs
- Integrated leakage monitoring
- Heat disinfection with AquaHT

- Visual LED indicator with acoustical signal
- External leakage sensors (AquaDETECTOR)

#### Options

- Second stage with AquaA2
- Connection of up to three dialysis water distribution loops
- AquaUF (ultrafiltration)
- Remote Control Basic
- TSDiag+ (software remote control)
- Fresenius Medical Care Service Software
- Infrastructure Data Management System
- Pre-treatment monitoring systems

#### Certifications

- 510 (k) K213507
- UL Certified



# Technical Data

## Specifications

<b>Hemodialysis devices</b>	Up to 75 devices @ 800 mL/min consumption flow of each hemodialysis machine			
<b>Dialysis water outlet capacity</b>	+ 15 °C			
Heat membrane module 1:	900 L/h			
Heat membrane module 2:	1800 L/h			
Heat membrane module 3:	2700 L/h			
Heat membrane module 4:	3600 L/h			
	Capacity in liters/hour at a product water outlet pressure of 2 bar			
<b>Dimensions</b> in mm (h × w × d)	1840 mm × 610 mm × 1200 mm Distance between AquaA and option AquaHT is 500 mm			
<b>Footprint</b> in m <sup>2</sup>	0.75 m <sup>2</sup>			
<b>Weight</b> (first stage) filled	AquaA 900: 520 kg	AquaA 1800: 620 kg	AquaA 2700: 690 kg	AquaA 3600: 760 kg
<b>Operating output pressure</b>	Max. 6 bar			
<b>Membrane concentrate pressure</b>	Max. 19.9 bar			
<b>Inlet water connection</b>	1¼" external thread, stainless steel			
<b>Distribution loop connection</b>	Direct PE-Xa connector 25 × 3.5 (feed and return) Up to three dialysis water distribution loops. Up to two using Fluid Fly loops The dialysis water distribution system should have a maximum pressure loss of 2.5 bar			
<b>Noise level</b>	Noise level in SUPPLY mode: 68–72 dB (A); (Distance of 1 m) (depending on system capacity and features)			

## Electrical supply

<b>Electrical supply / three-phase current</b>	208 V 60 Hz; 3 / N / PE			
<b>Power consumption max.</b>	AquaA 900 / 1800: 6.0 kVA @ 208 V		AquaA 2700 / 3600 9.6 kVA @ 208 V	
<b>Radiated heat / loss</b>	AquaA 900: 0.96 kW	AquaA 1800: 1.16 kW	AquaA 2700: 1.20 kW	AquaA 3600: 1.26 kW
<b>Overcurrent protection</b> (Circuit breaker rating)	AquaA 900 / 1800: 20 A @ 208 V 60Hz		AquaA 2700 / 3600 32 A @ 208 V 60Hz	
	Tripping characteristic C, D, K, or comparable (due to high motor starting currents)			
<b>Type of protection against electric shock</b>	Protection class I			
<b>Applied parts classification</b>	Type B			
<b>Degree of water protection</b>	Drip-proof (IPX1)			
<b>Leakage currents</b>	According to ANSI/AAMI ES 60601-1 for 208 V, 60 Hz)			
<b>Overvoltage category</b>	II			
<b>Pollution severity</b>	II			
<b>Material group</b>	IIIb			
<b>Operating mode</b>	Continuous operation			

## Product water quality

The product water quality and efficiency depend on the inlet water quality.

Bacteria (CFU) and endotoxins (EU)	> 99% for bacteria and endotoxins
Total dissolved solids	> 96% for dissolved salts; average
Efficiency / yield	Up to 85% water conversion factor

## Water supply

Feed pressure	Dynamic 1.5-6 bar			
Minimum inlet flow	AquaA 900: 1800 L/h	AquaA 1800: 3200 L/h	AquaA 2700: 5400 L/h	AquaA 3600: 7200 L/h
	Information about the required inlet water volume @ 50% effective yield			
Drain Requirements	AquaA 900: 900 L/h	AquaA 1800: 1800 L/h	AquaA 2700: 2700 L/h	AquaA 3600: 3600 L/h
	Information about the required drain volume @ 50% effective yield			
Drain water connection	DN 70 (HT-pipe)			
Drain Requirements Ring Base	AquaA 900: 900 L/h	AquaA 1800: 1800 L/h	AquaA 2700: 2700 L/h	AquaA 3600: 3600 L/h
	Information about the required drain volume @ 50% effective yield			
Drain water connection Ring Base	min. DN 50			

## Operating conditions

Water hardness	< 1.0 °dH
Iron	< 0.1 mg/L
Manganese	< 0.05 mg/L
Chloride	< 100 mg/L
Silicate	< 25 mg/L
Total chlorine	< 0.1 mg/L
Conductivity	< 2500 µS/cm
Total salt content	< 1500 mg/L
pH	6-8
Silt density index	< 3
Feed water temperature	+5 °C / max. 35 °C
Atmospheric pressure	700-1150 hPa
Ambient temperature range	+5 °C to +35 °C
Relative humidity	20 to 80% @ 20 °C (non-condensing)
Installation altitude	Up to 2000 m above sea level

# Technical Data

## External connection options

<b>Ethernet (TCP / IP)</b>	Electrically isolated interface for data exchange. Port: RJ45 The system can be connected to the in-house network Devices complying with the regulations of (DIN) EN 60950 or IEC 60950 may be connected to the Ethernet (TCP/IP).
<b>Service / diagnostics</b>	For in-house computer diagnosis. Port: RJ45
<b>Volt-free contacts</b>	24 V / 1 A for the connection of external status information Alarm, Warning, Supply, Standby, Rinse, Emergency operation, Disinfection
<b>External failure</b>	Electrically isolated input as "collective alarm" from ext. equipment
<b>External locking input</b>	Inlet for external locking of the water supply by an external unit; e.g., water pretreatment
<b>External leakage</b>	Connection of an external leakage alert system; e.g. AquaDETECTOR

## Transport and storage conditions

<b>Storage temperature range</b>	+5 °C to +40 °C (protect from frost)
<b>Storage time</b>	Storage time of preserved system: maximum 12 months
<b>Atmospheric pressure</b>	500-1150 hPa
<b>Relative humidity</b>	20-70% @ 20 °C (non-condensing)

## Materials in contact with dialysis water

<b>Materials used</b>	Biocompatibility testing of medical devices according to ISO 10993-1
<b>Membrane</b>	Spiral wound, Polyamide composite

## Product codes

Single Stage	Point of use Capacity (800ml/m consumption per POU)
<b>AquaA 900H:</b> 24-090A-1	18
<b>AquaA 1800H:</b> 24-180A-1	37
<b>AquaA 2700H:</b> 24-270A-1	56
<b>AquaA 3600H:</b> 24-360A-1	75

## Indications for Use

The AquaA Water Purification Systems are reverse osmosis units intended for use with hemodialysis systems to remove organic and inorganic substances and microbial contaminants from the water used for treating hemodialysis patients or other related therapies. These devices are intended to be a component in a complete water purification system and are not complete water treatment systems. Each reverse osmosis unit must be preceded by pre-treatment devices and may need to be followed by post-treatment devices as well, to meet current AAMI/ANSI/ISO and Federal (US) standards.