

AquaA™ A2 for Heat Disinfection Data Sheet

Double-stage dialysis water reverse osmosis system



Compliance with ISO Standards

The **AquaA** dialysis water system streamlines 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 requirements for water 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)
- Second stage with AquaA2

Options

- 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

Hemodialysis devices	Up to 75 devices @ 800 mL/min consumption flow of each hemodialysis machine			
Dialysis water outlet capacity	+ 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			
	Minimum capacity in liters/hour at a product water outlet pressure of 2 bar			
Dimensions in mm (h × w × d)	2x (1840 mm × 610 mm × 1200 mm) Distance between AquaA and AquaA2 is 500 mm; AquaA2 and AquaHT is 500 mm			
Footprint in m ²	2x (0.75 m ²)			
Weight (first stage) filled	AquaA 1800: 620 kg	AquaA 1800: 620 kg	AquaA 2700: 690 kg	AquaA 3600: 760 kg
Weight (second stage) filled	A2 900: 280 kg	A2 1800: 350 kg	A2 2700: 400 kg	A2 3600: 510 kg
Operating output pressure	Max. 6 bar			
Membrane concentrate pressure	Max. 19.9 bar			
Inlet water connection	1¼" external thread, stainless steel			
Distribution loop connection	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			
Noise level	Noise level in SUPPLY mode: 68–72 dB (A); (Distance of 1 m) (depending on system capacity and features)			

Electrical supply

Electrical supply / three-phase current	208 V 60 Hz; 3 / N / PE			
Power consumption max. (first stage)	AquaA 1800: 6.0 kVA @ 208 V	AquaA 2700 / 3600 9.6 kVA @ 208 V		
Power consumption max. (second stage)	AquaA2 900 / 1800: 6.0 kVA @ 208 V	AquaA2 2700 / 3600 7.2 kVA @ 208 V		
Radiated heat / loss	AquaA A2 900: 2.12 kW	AquaA A2 1800: 2.32 kW	AquaA A2 2700: 2.4 kW	AquaA A2 3600: 2.52 kW
Overcurrent protection (Circuit breaker rating) (first stage)	AquaA 1800: 20 A @ 208 V 60Hz Tripping characteristic C, D, K, or comparable (due to high motor starting currents)	AquaA 2700 / 3600 32 A @ 208 V 60Hz		
Overcurrent protection (Circuit breaker rating) (second stage)	AquaA2 900 / 1800: 20 A @ 208 V 60Hz Tripping characteristic C, D, K, or comparable (due to high motor starting currents)	AquaA2 2700 / 3600: 25 A @ 208 V 60Hz		
Type of protection against electric shock	Protection class I			
Applied parts classification	Type B			
Degree of water protection	Drip-proof (IPX1)			
Leakage currents	According to ANSI/AAMI ES 60601-1 for 208 V, 60 Hz)			
Overvoltage category	II			
Pollution severity	II			

Material group	IIIb
Operating mode	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 (first stage)	AquaA 1800: 1800 L/h	AquaA 1800: 3600 L/h	AquaA 2700: 5400 L/h	AquaA 3600: 7200 L/h
Information about the required inlet water volume @ 50% effective yield				
Drain Requirements (first stage)	AquaA 1800: 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 (first stage)	DN 70 (HT-pipe)			
Drain Requirements Ring Base	AquaA2 900: 900 L/h	AquaA2 1800: 1800 L/h	AquaA2 2700: 2700 L/h	AquaA2 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 bis +35 °C
Relative humidity	20 to 80% @ 20 °C (non-condensing)
Installation altitude	Up to 3000 m above sea level with option AquaHT up to 2000 m

Technical Data

External connection options

Ethernet (TCP / IP)	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).
Service / diagnostics	For in-house computer diagnosis. Port: RJ45
External start / stop	Starting and stopping reverse osmosis via control inputs.
Volt-free contacts	24 V / 1 A for the connection of external status information Alarm, Warning, Supply, Standby, Rinse, Emergency operation, Disinfection
External failure	Electrically isolated input as "collective alarm" from ext. equipment
External locking input	Inlet for external locking of the water supply by an external unit; e.g., water pretreatment
External leakage	Connection of an external leakage alert system; e.g. AquaDETECTOR

Transport and storage conditions

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

Materials in contact with dialysis water

Materials used	Biological evaluation of medical devices according to ISO 10993-1
Membrane	Spiral wound, Polyamide composite

Product codes

Double Stage	Point of use Capacity (800ml/m consumption per POU)
AquaA 1800 A2 900 H: 24-090A-0	18
AquaA 1800 A2 1800 H: 24-180A-0	37
AquaA 2700 A2 2700 H: 24-270A-0	56
AquaA 3600 A2 3600 H: 24-360A-0	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.