

AFS™-3 and AFS-3D

Analyzer Feed Systems

PRODUCES 3 LITERS PER HOUR OF CONSISTENTLY PURE, NCCLS* TYPE I WATER FROM TAP WATER FOR DIRECT FEED TO CLINICAL ANALYZERS. THE AFS-3D SYSTEM HAS A DEGASSER OPTION.

Designed specifically for the clinical lab, the AFS-3 and AFS-3D systems are members of a family of analyzer feed water purification systems. The systems produce NCCLS Type I water from tap water for direct-feed to clinical analyzers. The AFS-3D system includes a degasser option for removing dissolved gases from the final product water. The purified water is suitable for constant temperature water baths, cuvette washing, reagent reconstitution, on-board serum dilution, and any other procedure which requires reagent water.

**The AFS-3 Systems
Are Compact
Enough to Fit the
Layout of Any Lab**

System components are housed in a compact unit that can be mounted on a bench, wall, or floor stand.

AFS-3 Systems Meet Rigorous International Standards

The AFS Systems are designed to CE, UL* and the Canadian National Standard for electrical safety and have Class One Medical Device status (under FDA citation 21CFR 862.2050). The water produced by the AFS Systems meets NCCLS Type I and Type II reagent water specifications. The AFS manufacturing plant complies with cGMP* practices and is ISO® 9002 certified.

* NCCLS (National Committee for Clinical Laboratory Standards), cGMP (current Good Manufacturing Practices), UL (Underwriters Labs)

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AFS-3 Systems Use Multiple Technologies to Produce NCCLS Type I Water

The Progard™ Pretreatment Pack uses activated carbon and particulate prefiltration to remove contaminants from tap water and extend the life of the reverse osmosis (RO) membrane. The Progard pack also has a proprietary anti-scalant which prevents the RO membrane from scaling and virtually eliminates the need for a softener as pretreatment. The thin-film composite (TFC) RO membrane removes nearly all ionic contaminants, organic contaminants in excess of 100 molecular weight, and colloidal silica from water. The AFS Cartridge uses 100% nuclear-grade, single-use ion exchange resin to remove the remaining traces of inorganic contaminants. The 0.05 µm final filter removes bacteria from product water.

Easy Maintenance

The Progard Pretreatment Pack and AFS Cartridge consumables snap in and out easily without tools. The RO cartridge is decontaminated with a cleaning tablet. The cleaning cycle start-up is a simple, push-button operation which takes only seconds to initiate.

System Features

AFS systems produce purified water on demand. Automatic, periodic flushes of the RO membrane minimize biofilm accumulation.

Enhanced Electronics

AFS systems are controlled by a microprocessor which allows for easy monitoring of system operation and water quality. Meeting NCCLS specifications, product water quality is monitored via an inline temperature-compensated resistivity measurement. The user accesses system performance information from a menu-driven display. The cleaning cycles, as well as system display parameters and quality warning set-points, are initiated from the user interface menus. The AFS systems will warn the user if any system performance parameter falls outside of the acceptable range.

Measurement of RO feed and permeate conductivity allows for determination of the percent ionic rejection of the RO membrane. This is a critical measurement because a

drop in ionic rejection will decrease the life of the AFS Cartridge and increase operating costs. In most cases, simply initiating a cleaning cycle will restore RO membrane performance. By constantly monitoring RO membrane performance, the AFS systems help to minimize operating costs.

Product Water Quality Meets NCCLS Type I Specifications

Resistivity: $\geq 10 \text{ M}\Omega\cdot\text{cm}^*$

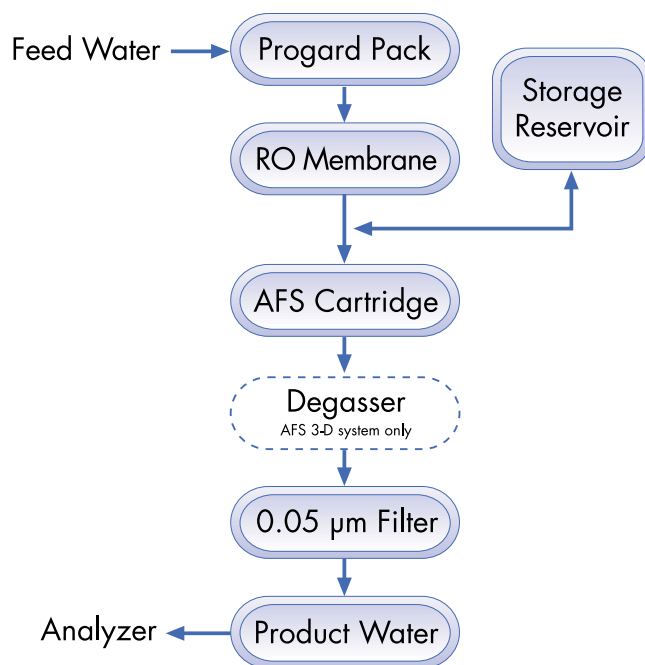
Bacteria: $\leq 10 \text{ cfu/mL}^{**}$

Silica: $\leq 0.05 \text{ mg/L}$

Particulate contaminants:
0.22 µm filtration

Organic contaminants:
Reverse osmosis and activated carbon treatment

AFS-3D additional dissolved gas spec:
Controllable down to 3ppm dissolved O_2 dependent on incoming water temperature



* Measured using a flow-through resistivity cell compensated to 25 °C

** Using total count agar or R2A media incubated at 35 °C for 48 hrs

Specifications

AFS-3 and AFS-3D System Specifications

Hourly production rate:	3 L/hr Typ.
Peak dispense rate (to atmosphere):	0.6 L max.
Tank dispense capacity:	10 L max.
Product pressure:	13-16 psi (1 bar +/- 10%)
Typical RO ionic rejection rate*:	96%
Typical RO organic rejection rate:	99% (> 100 daltons)
Typical RO particulate rejection rate:	99%
Typical RO microbiological rejection rate:	99%
System recovery:	10-15%
Noise level:	42 db A (at 1 meter)

Incoming Feed Water Requirements

Quality:	Potable mains (tap) water
Inlet pressure into AFS system:	15-90 psi (1-6 bar)
Temperature:	2-35 °C
Minimum feed flow rate:	2.0 L/min.
Total chlorine into Progard 2 pack:	< 3 ppm
Dissolved gas content:	≤ Saturated
Maximum fouling index SDI (into Progard 2 pack):	< 12**

Utility Requirements

Power (depending on system):	120 V, 60 Hz, 100 V, 50/60 Hz-70 VA-2A S.B. fuse; 230 V, 50/60 Hz-70 VA-1A S.B. fuse
Outlet:	Grounded (GF) protection recommended
Distance:	1 m (3.3') from system max.
Drain distance:	Max of 3.6 m (12') of drain tubing and elevation limit 1 m (3') above system max.
Drain capacity:	2 L/min.
Supply connections:	1/4" or 1/2" NPT preferred
Product Line Length:	3.6 m (12') max.; 6' length recommended

AFS Systems Physical Characteristics

Height:	455 mm (18")
Width:	255 mm (10")
Depth (without reservoir):	355 mm (14")
Depth (with reservoir):	500 mm (19.5")
Dry weight:	12.5 kg (27.5 lbs) plus 1 kg (tank)
Weight in use (filled with water):	15.5 kg (34 lbs) plus 13 kg (28 lbs) (tank)

* Depends on maintenance of the RO membrane. These specifications are based on 15 °C water and 50 psi feed pressure to the AFS system.

** If SDI index is > 12 a 12" Rogard™ Cartridge is recommended upstream.

Ordering Information

Description	Voltage	Catalogue No.
AFS-3 Water System	120 V 60 Hz	ZAFS 600 30
	230 V 50 Hz	ZAFS 500 30
	100 V 50/60 Hz	ZAFS 700 30
AFS-3D Water System	120 V 60 Hz	ZAFS 600 3D
	230 V 50 Hz	ZAFS 500 3D
	100 V 50/60 Hz	ZAFS 700 3D

Description	Qty/Pk	Catalogue No.
Consumables		
Progard 2 Pretreatment Pack	1	PROG 000 02
AFS Cartridge	1	CP1A LLR ES
Millipak® 100 Bacteria Filter and Vent	1	MPGL 107 W1
Simfilter™ Hollow Fiber Bacteria Filter and Vent Filter	1	HFBC TFA FS
Progard 2 Pretreatment Pack, Millipak 100 and Vent Filter	1	CPAF S3P RM
Progard 2 Pretreatment Pack, Simfilter Bacteria Filter, and Vent Filter	1	CPAF S3P RB
Sanitization Chlorine Tablets	45	ZWCL 01F 50
Accessories		
Floor Stand (floor drain installation only)	1	ZAF3 STA ND
Wall Mounting Bracket	1	SYST FIX 01
Millipak Mounting Kit	1	MPKM NTK IT

To Place an Order or Receive Technical Assistance

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