



AFS[®]-8 and AFS-16

Analyzer Feed Systems

PRODUCE UP TO 16 LITERS PER HOUR OF CONSISTENTLY PURE, CLSI (a) TYPE I WATER FROM TAP WATER FOR DIRECT FEED TO CLINICAL ANALYZERS. THE AFS-8D AND AFS-16D SYSTEMS HAVE A DEGASSER OPTION.

Designed specifically for the clinical lab, AFS systems are a family of analyzer feedwater purification systems. The systems produce CLSI Type I water from tap water for direct feed to clinical analyzers. The AFS-8D and AFS-16D systems include 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.

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.

Meet Rigorous International Standards

The AFS Systems are designed to CE standards for electrical safety and have Class One Medical Device status (under FDA citation 21CFR 862.2050). The AFS Systems are designed to meet CLSI Type I and Type II reagent water specifications. The AFS manufacturing plant is ISO[®] 9001 v. 2000 and ISO 14001 certified.

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AFS Systems Use Multiple Technologies to Produce CLSI Type I Water

The Progard™ 3 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 3 Pretreatment 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 MW, and colloidal silica from water. The Q-Gard® A Purification Pack uses 100% nuclear-grade, single-use ion exchange resin to remove the remaining traces of inorganic contaminants. The final filter removes bacteria from product water.

Easy Maintenance

The Progard 3 Pretreatment Pack and Q-Gard A Purification Pack consumables snap in and out easily without tools. The RO cartridge is sanitized 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. Product water quality is monitored via an inline temperature-compensated resistivity meter. 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 Q-Gard A Purification Pack 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 Designed to Meet CLSI Type I Specifications

Resistivity: $\geq 10 \text{ M}\Omega\cdot\text{cm}$ ^(b)

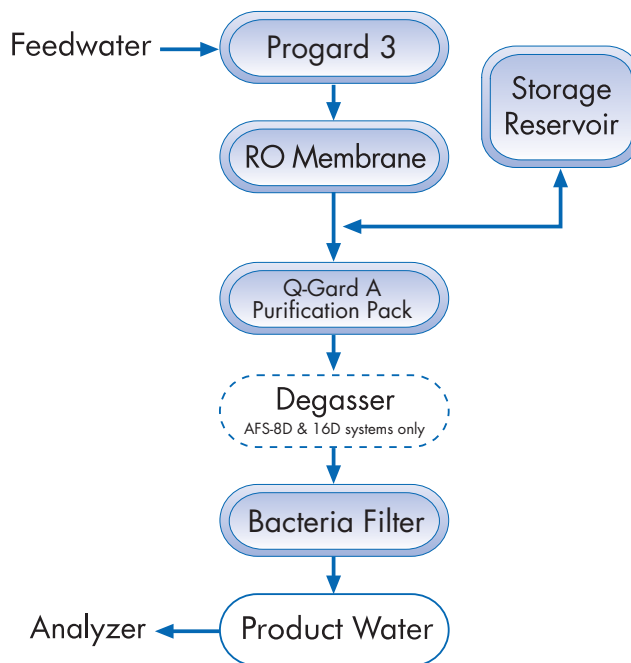
Bacteria: $\leq 10 \text{ cfu/mL}$ ^(c)

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

Particulate contaminants:
0.22 μm or 0.05 μm filtration available

Organic contaminants:
Reverse osmosis and activated carbon treatment

AFS-8D & 16D additional dissolved gas specification:
Controllable down to 3 ppm dissolved O_2 dependent on incoming water temperature



^a CLSI (Clinical and Laboratory Standards Institute)
- formerly NCCLS, UL® (Underwriters Labs)

^b Measurement compensated to 25 °C using an inline resistivity cell

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

Specifications

AFS System Specifications

Hourly nominal production flow rates:

| | |
|--|------------------------------|
| AFS-8, AFS-8D | 8 L/h |
| AFS-16, AFS-16D | 16 L/h |
| Peak dispense rate (to atmosphere): | 0.6 L max. |
| Tank dispense capacity: | 10 L max. |
| Product pressure: | 13–16 psi (1 bar \pm 10 %) |
| Typical RO ionic rejection rate*: | 94–99 % |
| Typical RO organic rejection rate: | 99 % (> 100 Da) |
| Typical RO particulate rejection rate: | 99 % |
| Typical RO microbiological rejection rate: | 99 % |
| Typical system recovery: | 28–38 % |
| Typical noise level: | 42 db A (at 1 meter) |

Incoming Feedwater Requirements

| | |
|---|---------------------------|
| Quality: | Potable mains (tap) water |
| Inlet pressure into AFS system: | 15–50 psi (1–3 bar) |
| Temperature: | 2–35 °C |
| Minimum feed flow rate: | 2.0 L/min |
| Total chlorine into Progard 3 Purification Pack: | < 1 ppm**† |
| Dissolved gas content: | \leq Saturated |
| Maximum Fouling Index (SDI) (into Progard 3 pack): | < 5*** |

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 ft) from system max. |
| Drain distance: | Max of 3.6 m (12 ft) of drain tubing and elevation limit 1 m (3 ft) above system max. |
| Drain capacity: | 2 L/min |
| Supply connections: | ¼ in or ½ in NPT preferred |
| Product Line Length: | 3.6 m (12 ft) max.; 6 ft length recommended |

AFS Systems Physical Characteristics

| | |
|------------------------------------|--|
| Height: | 457 mm (18 in) |
| Width: | 255 mm (10 in) |
| Depth (without reservoir): | 355 mm (14 in) |
| Depth (with reservoir): | 500 mm (19.5 in) |
| Dry weight: | 12.5 kg (27.5 lb) plus 1 kg (tank) |
| Weight in use (filled with water): | 15.5 kg (34 lb) plus 13 kg (28 lb) (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.

** For feedwater with total chlorine concentration between 1 ppm and 3 ppm, Millipore suggests the use of an external PrePak, or other Millipore recommended pretreatment.

*** For feedwater with an SDI between 5 and 12, Millipore suggests the use of an external PrePak, or other suitable pretreatment device. Please contact your Millipore representative if the SDI exceeds 12.

† Under certain feedwater conditions, additional pretreatment will be necessary even if the chlorine content is below 1 ppm. Please contact Millipore for more information.

Ordering Information

| Description | Voltage | Catalogue No. |
|----------------------|----------------|--------------------|
| AFS-8 Water System | 120 V 60 Hz | ZAFS 600 80 |
| | 230 V 50 Hz | ZAFS 500 80 |
| | 100 V 50/60 Hz | ZAFS 700 80 |
| AFS-8D Water System | 120 V 60 Hz | ZAFS 600 8D |
| | 230 V 50 Hz | ZAFS 500 8D |
| | 100 V 50/60 Hz | ZAFS 700 8D |
| AFS-16 Water System | 120 V 60 Hz | ZAFS 601 60 |
| | 230 V 50 Hz | ZAFS 501 60 |
| | 100 V 50/60 Hz | ZAFS 701 60 |
| AFS-16D Water System | 120 V 60 Hz | ZAFS 601 6D |
| | 230 V 50 Hz | ZAFS 501 6D |
| | 100 V 50/60 Hz | ZAFS 701 6D |

| Description | Qty/Pk | Catalogue No. |
|---|--------|--------------------|
| Consumables | | |
| Progard 3 Pretreatment Cartridge | 1 | PROG 000 03 |
| Q-Gard A Purification Pack | 1 | CP2A LLR ES |
| PrePak 1 Pretreatment Pack | 2 | PRPK 000 01 |
| Millipak® 100 Bacteria Filter and Vent | 1 | MPGL 10Z W1 |
| Simfilter™ Hollow Fiber Bacteria Filter and Vent Filter | 1 | HFBC TFA FS |
| 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 |
| Pack Support (2 tubes, 2 gauges) | | ZFPA CKS P2 |

To Place an Order or for Technical Assistance

In the U.S. and Canada, call
1-800-MILLIPORE (1-800-645-5476).
 In the U.S., Canada and Puerto Rico, fax orders
 toll-free to **1-800-MILLIFX (1-800-645-5439)**
 Internet: www.millipore.com/bioscience
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|---|--|
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