

# DFS MODULAR SYSTEM

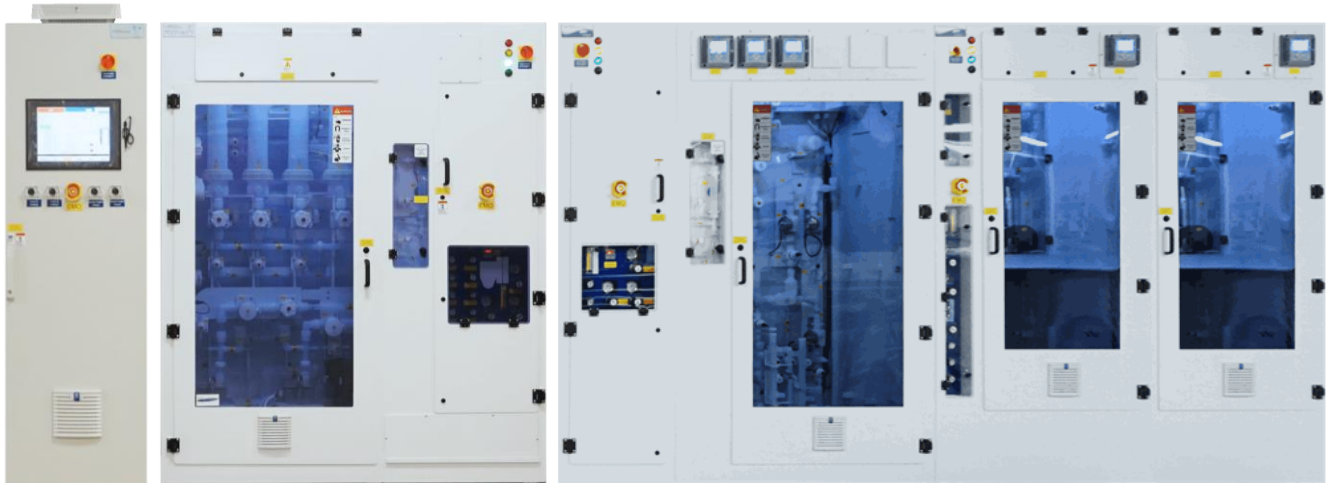


## Modular System

This DFS modular system includes a Control Cabinet, Fusion™ Blender, Titan™ Chemical Distribution Unit (CDU), and one or more Vessel cabinets. The Control Cabinet is networked to each unit enabling flexibility with facility footprint and layout optimization. Our Fusion On-Demand™ Blender can blend chemicals to your exact specifications using proven onboard metrology sets. The blender automatically blends up to 3 parts and feeds the CDU internal or external tank. The CDU maintains a continuous pressure-controlled supply of chemical to the production areas and uses redundant pumps and automated closed loop pressure control with pressure and flow monitoring.

## Advantages

- ▶ Fully automated system
- ▶ Low cost of ownership
- ▶ Pressure control to +/-0.3psig
- ▶ High blend accuracy
- ▶ Full blend configuration and manipulation
- ▶ Flexible and user-friendly HMI
- ▶ System and/or component redundancy as required to maximize production uptime
- ▶ Space efficient designs



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## Modular System Features

- ▶ Automated sampling
- ▶ Maintenance points for system purging and draining
- ▶ Solenoid valves with system force capability
- ▶ All wetted flow paths are PFA, PTFM, or PTFE
- ▶ Polypropylene or optional FM4910 cabinet materials

## Blender Module

- ▶ Metrology is selectable for blend confirmation; standards include conductivity, RI, and pH
- ▶ Inline 2-part or 3-part On-Demand blending
- ▶ Single or dual stream blending
- ▶ Centrifugal pumps for inline blending and pressure control
- ▶ Flow control valves for precision blending
- ▶ DFS high efficiency proprietary Blend Cell
- ▶ Multiple concentrations and blend supply points
- ▶ Temperature monitoring and control

## CDU and Vessel Modules

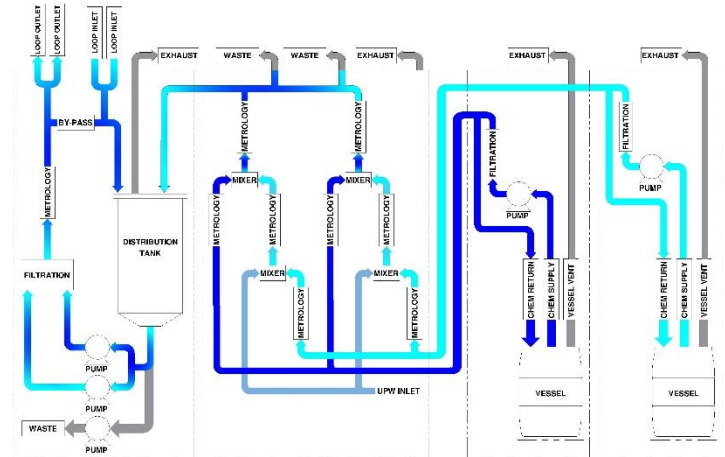
- ▶ Various sized HDPE or PTFM lined distribution tank
- ▶ Manual or automated UPW/N<sub>2</sub> pump and filter purging
- ▶ Redundant centrifugal or pneumatic pumps
- ▶ Parallel 10-inch or 20-inch filter housings (up to 5 filters)
- ▶ Single loop, dual loop, or deadhead supply with pressure & flow control
- ▶ Ultrasonic flow and level monitoring
- ▶ Flow-through pressure transducers
- ▶ Non-intrusive level sensors
- ▶ Single or dual vessel feed
- ▶ Conductivity verification of incoming chemical supply
- ▶ Vessel isolation from pressurized plumbing

## Safety

- ▶ Cabinet leak detection and alarming
- ▶ Cabinet exhaust monitoring and alarming
- ▶ Cabinet door interlocks
- ▶ Recirculating UPW spray guns for maintenance
- ▶ Cabinet contains 110% of the largest volume
- ▶ Waste pump for system draining and maintenance
- ▶ Bi-Directional vent to prevent chemical off-gassing
- ▶ Local and remote EMO capability
- ▶ SEMI S2 Compliant; SEMI S2 Certified upon request
- ▶ UL 508A Certified

## Controls

- ▶ PLC and HMI
  - On-screen system P&ID
  - Maintenance and shutdown monitoring
  - Force screens for maintenance and troubleshooting
  - Pump runtime monitoring
  - Password protected screens
  - Manual activation of valves/pumps
- ▶ Connectivity to system PLC Ethernet networks
- ▶ Communication with PC via PLC network



Model	Blender, CDU, and Vessel
Applications	Acids, bases, oxidizers
Flow Rate, Blend	20, 40, or 60 LPM
Flow Rate, CDU	20, 40, or 60 LPM
Pressure Control	+/- 0.3 psig
Flow-Based Blend Accuracy	+/- 0.1% relative
Vessel	Pails, drums, or totes

Facility Requirement	Blender	CDU	Vessel
Nitrogen (N <sub>2</sub> )	250 SCFH	100 SCFH	100 SCFH
Clean Dry Air (CDA)	15 SCFM	30 SCFM	30 SCFM
Exhaust	200 SCFM	225 SCFM	200 SCFM
Process Drain	38 LPM	38 LPM	38 LPM
Power	208VAC	208VAC	208VAC



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