

DFS SLURRY BLENDER and DISTRIBUTION SYSTEM with TRANSFER UNIT

FUSION™ 

Slurry Blender and Distribution System with Transfer Unit



This DFS system consists of a Slurry Blender and Distribution system, an external Transfer unit, and a Control Cabinet that controls all units. The Blender receives customer-supplied chemical from the Transfer unit or bulk feed system and facility UPW, performing a blend to tanks inside of the system. Each blend is weight-monitored and can be tracked with flow meters to ensure accuracy. The blends are validated by weight or optional conductivity and refractive index (RI) to qualify the batch before supplying to the facility fab. Distribution can be single, loop, dual loop, or deadhead transfers, while blending can be completed using three user selectable methods: batch, continuous batch, or continuous to the on-board distribution tank. Blends can be configured from the Recipe screen on the HMI, allowing blends to be adjusted to specified requirements.

The Transfer module integrates with two customer-supplied chemical vessels to allow for a constant supply of chemical. When one of the vessels becomes empty, the system automatically switches over to the other approved vessel. Chemical is supplied to the blender by one online vessel with the other vessel in standby.

Advantages

- ▶ Fully automated system
- ▶ Low cost of ownership
- ▶ High blend accuracy
- ▶ Flexible and user-friendly HMI
- ▶ System and/or component redundancy to maximize production uptime
- ▶ Automated system flushing
- ▶ Space efficient designs
- ▶ Full blend configuration and manipulation



Control Cabinet and Blender



Transfer Module



Chemical
Blending

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Blender Module

- ▶ HDPE blend/distribution tanks
- ▶ 3-point load cell system to monitor levels and blend chemicals
- ▶ Pressure and flow monitoring
- ▶ Automated flushing and drain sequences
- ▶ Maglev pumps (1 per tank)
- ▶ 10-inch filter housings (2 per tank)
- ▶ Maintenance points for system purging and draining
- ▶ Automated sampling chamber
- ▶ Solenoid valves with system force capability
- ▶ All wetted flow paths are PFA, PTFM, PTFE, or HDPE
- ▶ Polypropylene cabinet materials

Transfer Module

- ▶ Polypropylene cabinet materials
- ▶ PFA Teflon plumbing
- ▶ Pneumatic pumps

Safety

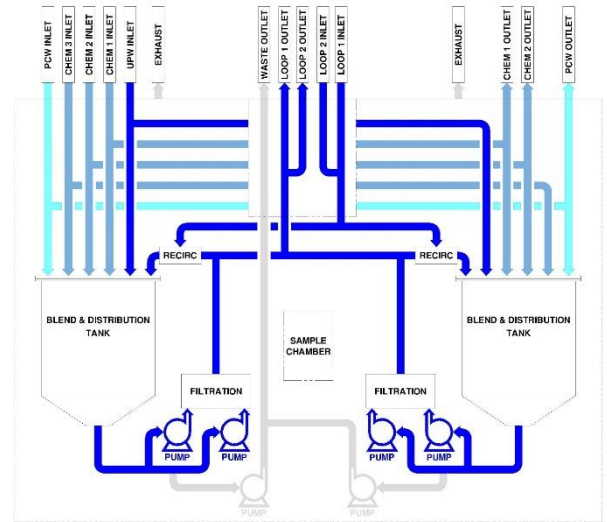
- ▶ Cabinet leak detection and alarming
- ▶ Cabinet exhaust monitoring and alarming
- ▶ Cabinet door interlocks
- ▶ Cabinet contains 110% of the largest volume
- ▶ Local and remote EMO capability
- ▶ Recirculating UPW spray gun for maintenance
- ▶ Waste pump for system draining and maintenance
- ▶ UL 508A Certified
- ▶ SEMI S2 Compliant

Options *Contact DFS for a complete list of available options.

- ▶ 3-part and 4-part blending
- ▶ Refractive Index, conductivity, or pH for blend qualification
- ▶ On-board humidified N₂ system
- ▶ Volumetric chemical additions
- ▶ Redundant maglev pumps
- ▶ PTFM lined tanks
- ▶ Pneumatic pumps
- ▶ Tank mixers
- ▶ FM4910 cabinet materials
- ▶ SEMI S2 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
Applications	Slurries
Distribution Flow Rate	40 to 60 LPM
Pressure Control	+/- 0.3 psig
Flow-Based Blend Accuracy	+/- 0.1% relative
Wt-Based Blend Accuracy	+/- 1% relative
Footprint	49"Dp x 121"W x 87"H

Facility Requirement	Utilities
Ultrapure Water (UPW)	40 LPM
Nitrogen (N ₂)	400 SCFH
Clean Dry Air (CDA)	24 SCFM
Exhaust	233-250 SCFM
Process Drain	40 LPM
Power	208VAC
Cabinet Drain	Pumped Waste



DFS Diversified Fluid Solutions
A Critical Process Systems Group Company

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