

## Disposable Mixing Systems

### TECHNOLOGY

This patented technology incorporates disposable process surfaces with a complete stand alone hardware platform.

This unique system provides the ability to efficiently mix powder/liquid or, liquid/liquid solutions as well as maintain suspensions in a disposable environment. The mixing speed is variable, providing mild through aggressive agitation.

### ADVANTAGES

- Sizes from 30 to 3,000 liters
- Scalable mixing action
- Irradiated Class VI contact surfaces
- Minimize cross contamination
- Combine process operations
- Less validation
- Shorter cycle times
- Quicker start-up
- Turnkey services: design through preventive maintenance, including start up and validation support



### DESIGN FEATURES: *THE HYNETICS DIFFERENCE*

#### ✓ PATENTED MIXING ACTION

The key to the mixing technology is the mixing disc itself. It is an integrated part of the disposable bag and its shape is engineered with multiple slots and film flaps. The flaps open as the disc moves up from the bottom of the mixing bag and fluid flows through the slots of the disc. On the down stroke, the flaps close and energy is directed toward the bottom of the mixing bag and up the sidewalls, producing very effective mixing. Testing has shown complete mixing through flow measurements at various locations in the mix bag.

Operation of installed systems has shown that the unique HyNetics agitation hydrates powders rapidly, five minutes or less. The high turbulence created by the interaction between the vessel shape and the disposable mixing unit geometry helps “pull” materials into the fluid stream as they are metered into the disposable mixing bag. This provides a marked difference from traditional mixing tank designs in which powders are usually “dumped” and stirred creating a vortex.

## ✓ INTEGRATED PROCESS SYSTEM

Our systems are fully integrated, factory tested and modular. The units are supplied with a documentation package detailed sufficiently to support installation and operational qualifications including a generic test protocol that can be readily tailored to clients' specific needs. The process is controlled by relay logic with hard-wired interlocks or, optionally, using a PLC platform. The electrical control and instrument devices are NEMA 4X rated, and the panel is designed and certified to UL508A.

We offer process features including:

- Inflation, Purge and Vent Control
- Integrity Test
- Temperature Maintenance Jacket
- Weight Indication and Control System
- Peristaltic Pump
- Jib Crane and Electric Hoist for Powder Handling
- Data Logger and communication to SCADA Systems

## ✓ TURNDOWN

The mixing technology is scalable and the dynamics are consistent for all sizes. The system can efficiently mix down to near empty and maintain a consistent solution or suspension as the mix bag contents are dispensed. The agitator speed is decreased as the liquid level drops.

## ✓ POWDER HANDLING

We offer a Powder Feed Bag in three sizes; 1, 5 and 25 Kg. This bag integrates with the top of the mix bag and provides a dust free transfer of powders into solution.

## SIZES (LITERS)

- 30
- 100
- 250
- 750
- 1500
- 3000

## DISPOSABLES

We offer the patented HyNetics Mixing Bag and disposable tube sets that integrate fully with the systems.

## FOR FURTHER INFORMATION CONTACT:

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