

Total Solutions from

Semi Bulk Systems, Inc.



XSTREAM

Dairy Mix

Semi-Bulk Systems Vacuam® processes are specifically designed for the Dairy Industry, including Frozen Desserts, Yogurt Mix, Milk Powder Reconstitution and Sugar Liquefaction.

- ▶ Functionalize gums & stabilizers *without* shear or agglomerates
- ▶ COLD dispersion capability
- ▶ No damage to fat globules in milk or cream
- ▶ Full CIP capability
- ▶ Separation of dry powders from wet process areas
- ▶ Clean, dust free operation
- ▶ Meets 3A/USDA standards



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PROCESS XSTREAMLININGSM

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VACUCAM® EJECTOR MIXER:

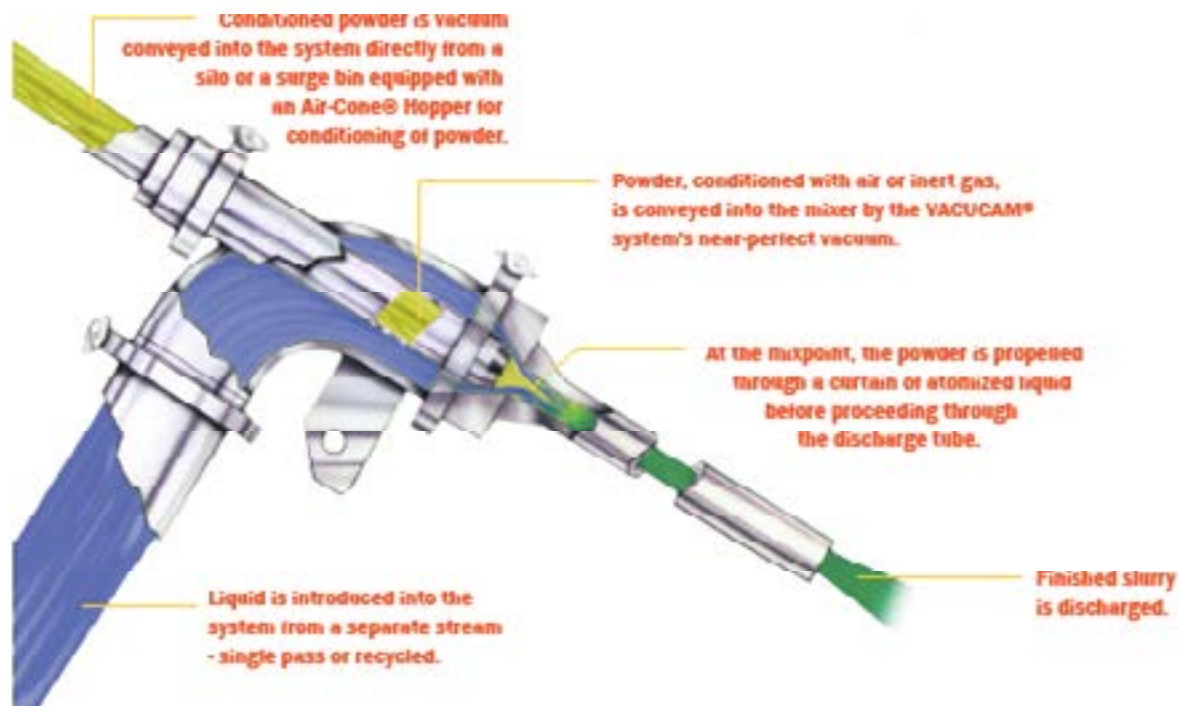


The VACUCAM® Ejector Mixer is the most effective system available for conveying, wetting and dispersing powders into liquids.

Here's how it works.

CONDITIONED POWDER IS CONVEYED INTO THE MIXER BY A NEAR PERFECT vacuum, which is created when pressurized fluid is forced through the Ejector Mixer's unique, patented annular nozzle. The fluid is discharged as a high-velocity, hollow jet into which the powder is drawn.

The VACUCAM® system achieves high-speed, instantaneous and complete wetting by bringing together conditioned powder and highly atomized liquid from two separate streams, incorporating particles of liquid with particles of powder. The reactive surface areas of both the powder and the liquid are maximized before intimate contact is actually made. The result is consistently uniform, superior wetting without the agglomeration or "clumping" usually associated with conventional mixing methods.



Semi-Bulk Systems integrates the VACUCAM® Ejector Mixer into Modular, Skidded, process units to provide a ***TOTAL SOLUTION*** for various Dairy Processes

APPLICATIONS:

- **Convey** - powders from conditioned source
- **Disperse** - pigments, fillers, silica's, filter aids, carbons, catalysts, spices
- **Rehydrate** - NFDM, whey, protein, lactose, lime
- **Liquefy** – sugar
- **Dissolve** - salts, phosphates, sweeteners
- **Functionalize** - thickeners, gums, starches, pectin, carbopol, etc.
- **Emulsify** – oils into powder / liquid mixes



DAIRY PROCESSES

The TOTAL SOLUTION for Dairy Mix making is provided in standardized modular skids to address mix processes and with total design dry handling systems to address dry bulk ingredients, bulk bags, paper bags or minor ingredients.

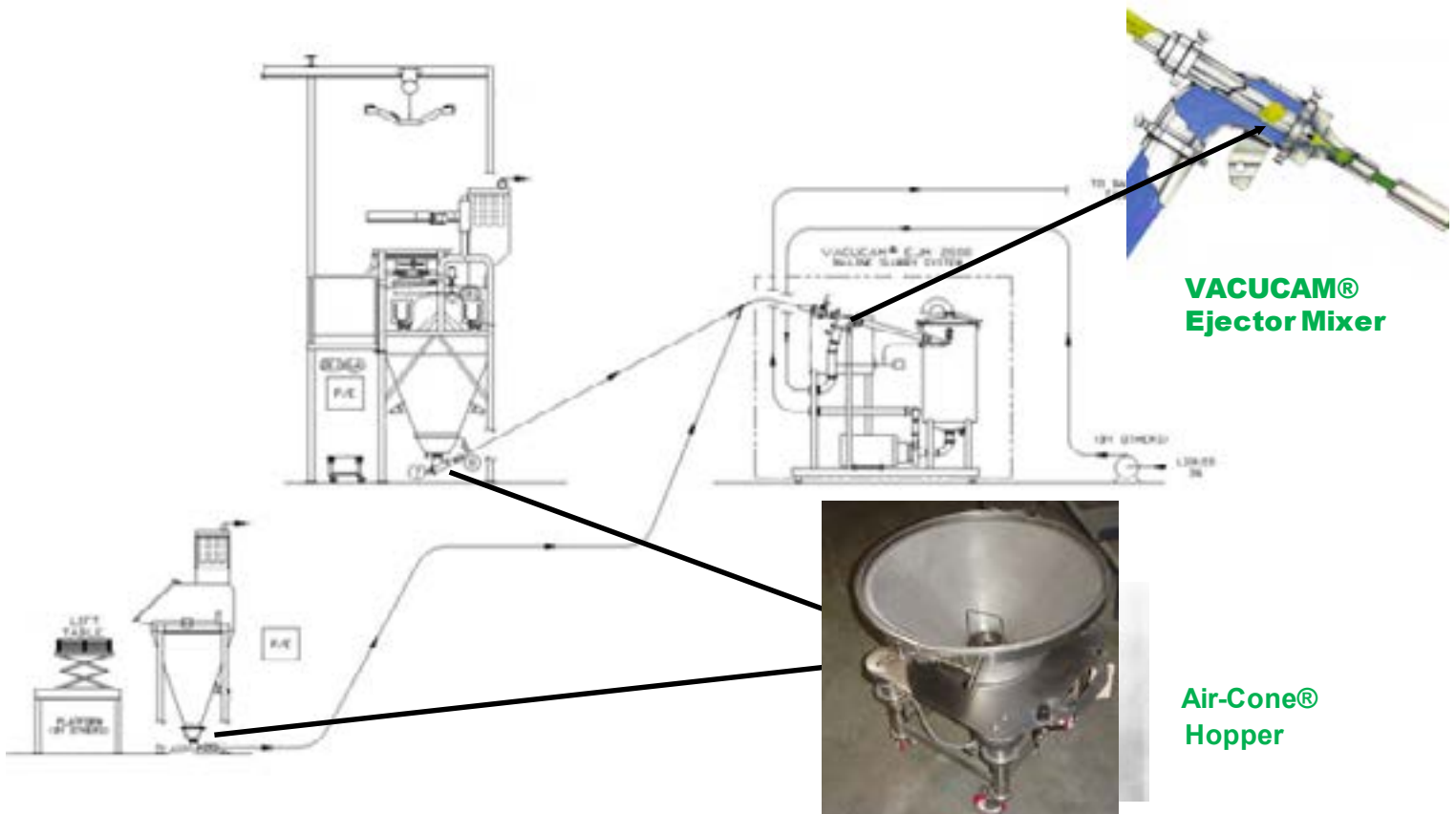
- ICE CREAM Mix Making
- YOGURT Mix Making
- CHEESE Mixes
- DAIRY POWDERS - Reconstitution
- Cultured Products
- Sugar Liquefaction

Total Dry Mix Automated Process

- Single In-Line process to deliver to selected mix tanks
- Separate dry room from wet area
- Bulk bag handling of major ingredients. Paper bag handling of minor ingredients
- Multiple bulk bag hoppers for automated powder delivery of all dry ingredients

Vacucam Process Options

- In-Line Batch Recycle /Dynamic Batch
- Dynamic Continuous Steady State Process
- Batch / Continuous Batch



Dry Side Delivery

- Paper bags
- Bulk Truck
- Bulk Rail
- Bulk Bags
- Bulk Silo

VACUCAM® Process Benefits Through Process XstreamLining®

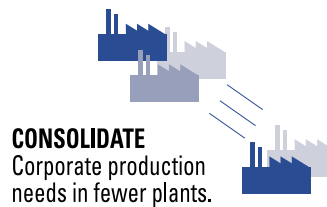
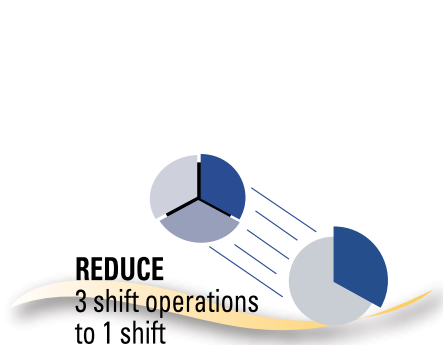
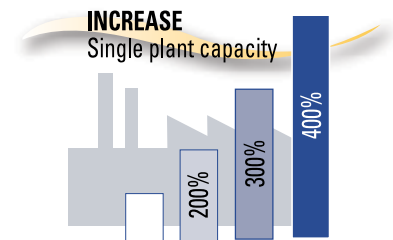
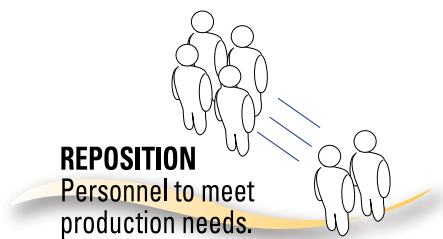
- High Capacity Processes- Increase plant capacity, reduce shifts, reduce number of plants
- Greatly reduced labor-reduced labor \$ per unit output
- Increase Process Efficiencies
- Increase Product Yields
- Total Automation – Elimination of possible errors
- Greater Accuracy –Confirm batch addition per individual batch menu
- Reduced Energy Requirements
- Reduced Maintenance / Replacements
- Improve Safety / Environmental / Ergonomics / GMP

XstreamReductions in

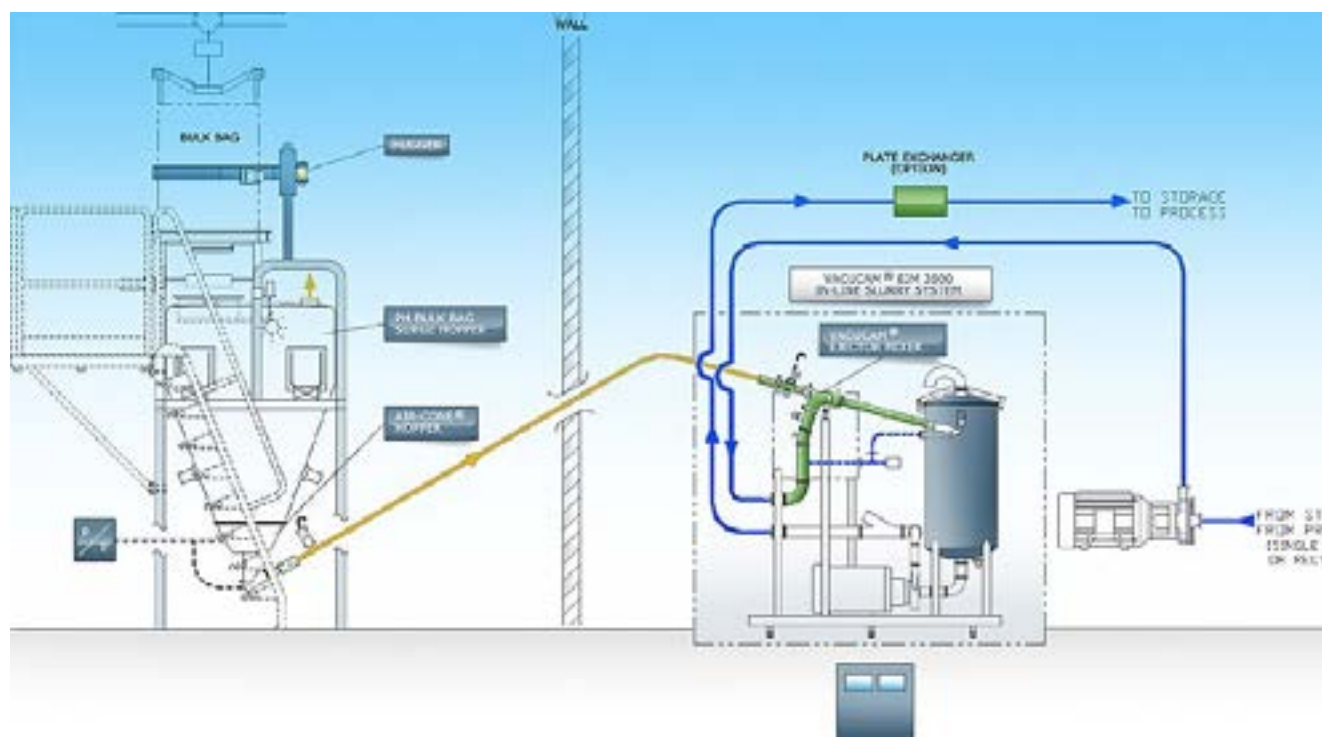
Time
Waste
Labor
Injuries
Inconsistency
Bottlenecks
Energy

XstreamIncreases in

Capacity
Efficiency
Quality
Product Yield
Profitability
Automation
Market Advantage



NFDM Reconstitution / Milk Protein Slurries



- High Capacity Processes—10-15tph dry powder
- Single pass-30% solids---50%+ w/ recycle
- Make fluid milk directly into silo or add solids to fluid milk
- Total hydration / no solids fall-out in silo

Milk Powder Reconstitution :

The reconstitution of Milk Powders, including NFDM, whole milk, caseins, whey protein, lactose, or other milk powder products, can be rapidly rehydrated using the VACUCAM® EJM 2000 skidded unit which provides a very versatile system for single pass or batch recycle processing to a single silo or batch tanks or to multiple use points. The VACUCAM® unit provides 100% rapid rehydration. Depending on the unit size selected, powder rates of 300 to 550#/minute are typical with larger units capable of conveying and processing in excess of 1000#/minute. The unit will typically process 30%+ NFDM solids on a single pass with much higher solids achieved on batch recycle. A major challenge in dairy operations when adding dry powders to fluid milk to increase solids levels is in controlling finished product temperature. The Vacuam® process will fully hydrate milk powders into cold milk or water and the resultant product is able to be used immediately. The combined savings in time and energy is phenomenal!

The design of the dry side feed system becomes extremely important to maintain the delivery rate to the VACUCAM® Ejector Mixer System. Bulk bags are discharged dust free into PH Bulk Bag Surge Hoppers (90, 140 or 165 cu.ft. capacities). The rate of unloading the bulk bags become the critical factor for meeting the design capacity for the process. The dry side can be designed with a single bulk bag unload hopper, dual bulk bag hoppers alternating delivery to the single VACUCAM® EJM 2000 skidded unit, or a single hopper (PH210 Bulk Bag Surge Hopper) with dual bulk bag unloading capability. The Sanitary CIP Design Hoppers are equipped with vibrating screens at the inlet, bulk bag support frames with Hugger® bulk bag massager, Load Cells, Air-Cone Hopper discharger, and other options for total automation and hands free operation.

VACUCAM® In-line Units Automated Wet Room

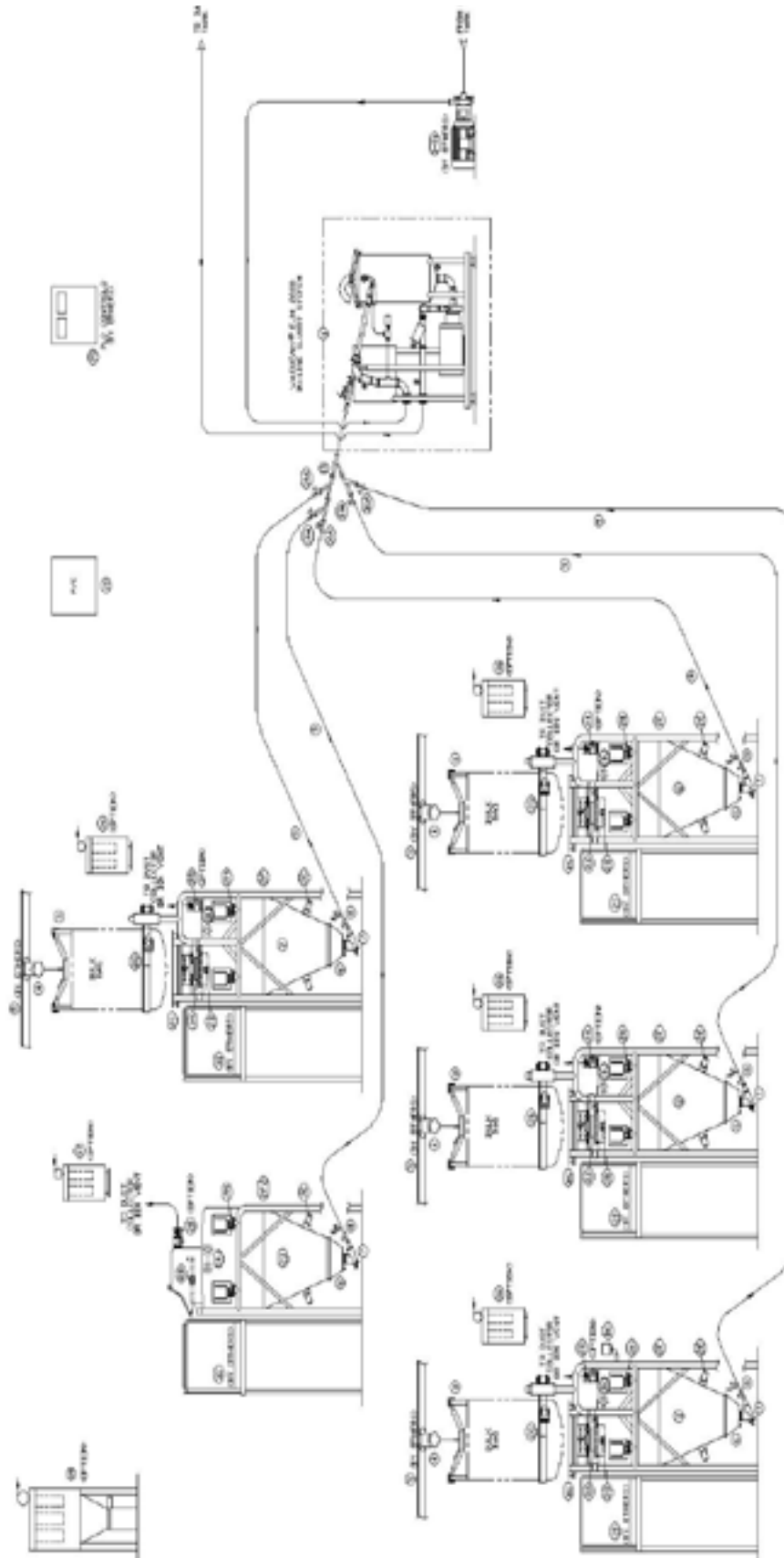


BULK BAG UNLOAD W/ SURGE HOPPER



The **TOTAL** Solution

Complete Automated Powder Delivery and Mixing Process
Bulk Bag & Paper Bag Feed to Modular Mixing System





Floor Level or Platform Level Installations



Total Solutions from

Semi Bulk Systems, Inc.



Get XStream Results

***With Several Standard Module Process Options,
for Dairy, Beverage, and Sugar Liquefaction***

***Learn more at www.Semi-Bulk.com
or call (800) 732-8769
to speak to a representative***

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