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# Powder Handling SOLUTIONS

**Knowing the  
Powder is Crucial  
to a Successful  
Startup**

**Processing**  
SOLUTIONS FOR THE PROCESS INDUSTRIES

# Around the Blend

## Exterior Coatings Producer Blends Abrasives with No Shaft Seal Wear

Since its founding in 1987, contractors have applied over 100-million-square-feet of Master Wall Inc., products — stucco, coatings, and exterior insulation and finish systems (EIFS) — on residential, commercial and industrial buildings.

Master Wall founder and president Steve Smithwick says the company's Aggre-flex EIFS system is "one of the most common commercial cladding in the country." Also known as synthetic stucco, it consists of a water barrier, adhesive, insulation, mesh, base coat and Master Wall's Superior Finishes topcoat, layered with a trowel. Similarly, Master Wall® Superior Finishes over Stucco systems consist of

a water barrier, a base coat and Superior Finishes topcoat.

Superior Finishes over Stucco enhances building exteriors with custom colors and textures ranging from fine to coarse sand, to Aggre-Flex Superior Stone Finish resembling cut stone. The topcoats are a challenge to blend and require a durable, heavy-duty blender, ex-



plains  
Glen

Smith, manager of process engineering at Master Wall. The high-density topcoats, up to 100 pounds-per cubic-foot, are comprised of heavy, abrasive aggregates — coarse particulates of sand and marble — blended with pigments in an acrylic polymer binder. The material caused the shaft seals of Master Wall's blenders to wear and leak.

### A Succession of Blenders

Master Wall's original mixer was a small two-speed propeller-type blade unit placed atop a 30-gallon stainless steel pot, producing only three, 5-gallon pails of stucco per batch. Master Wall soon acquired a 150-gallon ribbon blender, and over the next 13 years, added two more ribbon blenders (450 gallons and 900 gallons) to the Lithonia, Georgia plant. The ribbon blenders combine the ingredients producing the water barriers, base coats and Superior Finishes topcoats. Today the plant produces thousands of five-gallon pails of products in one shift.

In 2006, Master Wall opened a plant in Payson, Utah, to better supply the western United States. The company specified a Munson HD-48-SS ribbon

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blender having a 750-gallon-capacity equivalent to 150 five-gallon pails per batch to handle the heavy-duty coatings mixing jobs.

When blending the coatings, ingredients are added to the 100 cubic-foot ribbon blender in several steps. First, liquid acrylic polymer and water are metered by a pumping system. While the blender is running, 50-pound bags of pigments and fillers, together with various pre-weighed chemicals, are manually dumped into the blender. Next, pre-weighed aggregates are added from self-dumping hoppers using a forklift. Typically, the blend contains about 25-percent liquids and 75-percent solids.

The blender runs at full-speed for the entire mix time of a batch, which is usually about one hour. Once mixing is complete, a sample is taken for quality control. An operator measures viscosity and pH, and visually compares the sample to a control. When the batch is approved, material is discharged through a manual butterfly valve into five-gallon pails, which are palletized for shipping. The 1/16-inch to 1/32-inch clearance between the ribbon blades and blender trough minimizes residual material after discharge.

"The Munson blender blades sweep closer to the wall than our other blenders, resulting in less waste," reports Smith.

Cleaning between batches is not usually needed (production is scheduled so that products with increasingly larger aggregates follow those with smaller aggregates); the blender is simply washed out at the end of the day. While batch sizes vary, the largest batch size is 750 gallons — about 10,000 pounds of material — utilizing the blender's full working capacity. The blender's double helical ribbon agitator design is energy-efficient and offers faster blend times than other ribbon configurations.

"With our other blenders we sometimes have to go longer than the desired time to fully homogenize the powders, but with the Munson, we can sometimes mix in less than the set time, due to the 2-to-1 length-to-width ratio of the double helical ribbon agitator," says Smith.

**Munson Machinery Company, Inc.**

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