RECOMMENDED BLENDING EQUIPMENT FOR

Powdered Detergents

In the bulk production of powdered detergents, sodium carbonate, zeolite and other builders are blended with surfactants, chelants, dispersants, stabilizers, bleaching agents, optical brighteners, processing aids, enzymes, and other additives. Water, liquid surfactants, perfumes and colorings may also be sprayed onto the dry ingredients during the blending cycle.

Thorough and accurate mixing in a well-designed Ribbon Blender ensures a consistent finished product. Compared with other common powder mixers, such as conical screw designs and rotating blenders, the more economical and higher throughput Ribbon Blender is often the better choice for detergents and other high-volume, low-margin applications.

Ross Ribbon Blenders

Ross Ribbon Blenders are well proven in the manufacture of detergents and intermediate compositions. Granular and powdered raw materials are loaded into the U-shaped trough and mixed by a horizontal solid-shaft agitator consisting of inner and outer helical ribbons. A full load usually corresponds to a product level around the outer ribbon’s tip, allowing enough headroom for the materials to be vigorously blended. Minor liquid ingredients, if any, are gradually added to the blend through atomizing nozzles installed in a spray bar. This step is normally performed while the dry components are being agitated to ensure uniform coating and prevent the formation of undesired lumps.

The position and precise pitch of each ribbon in a Ross Blender are designed to produce a well-balanced axial and radial flow pattern: the outer ribbon moves material in toward the center, and the inner ribbon moves them out toward the walls. At the same time, the difference in the ribbons’ speeds causes product to move along the blender’s horizontal axis in two opposite directions. Fast and thorough mixing is achieved despite differences in particle shape, size and density among the batch ingredients. Maximum tip speeds in the neighborhood of 300 ft/min are typical but with variable speed control, the blending action can be fine-tuned to match the characteristics of a particular recipe.

Ross Ribbon Blenders are fabricated to close tolerances for accurate mixing. Clearances between the agitator and the trough surfaces typically fall within the 1/8” to 3/16” range. This enhances mixing performance by preventing materials from stagnating in any part of the blender during the mix cycle. Installing scrapers in strategic parts of the agitator is an option worth considering for formulations that tend to pack in corners.
Advantages of Ross Ribbon Blenders:

- Direct drive design is standard on all Ross Ribbon Blenders. Unlike belt-driven blenders which are noisy and prone to slippage, direct-driven Ribbon Blenders are more reliable and require less maintenance. The cost-effective and space-saving combination of a gearmotor (one-piece motor reducer) and a variable frequency inverter delivers electronic speed control, soft-start capability and overload protection.

- Stainless steel surfaces are polished to 60-grit finish and each weld is “radiused” for easy cleanability. Optional higher grit finishes also supplied.

- Different duty models are available for accurate sizing according to average bulk density. Standard capacities range from ½ to 1,000 cu.ft.

- Ross Ribbon Blenders can be customized to incorporate pneumatically-operated covers and discharge valves, bag dump stations, custom ports, interchangeable paddle agitator, liquid spray bar, load cells, high speed choppers, heating/cooling jacket, vacuum construction, integrated control panel or operator station, PLC recipe system and other accessories to help ensure streamlined ingredient transfers, efficient discharge and fast changeovers.

Just a few applications of Ross Ribbon Blenders:

- Advanced Ceramics
- Animal Feeds
- Baking Pre-mixes
- Chemicals
- Coffee Beans
- Cosmetic Powders
- Dental Powders
- Drink Mixes
- Flavorings
- Glass
- Metal Powders
- Pesticides
- Pharmaceuticals
- Polymers
- Refractory Powders
- Soups
- Spices
- Sugars and Sweeteners
- Trail Mix Snacks
- Vitamin Supplements

For more information on Ross Ribbon Blenders

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