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Rotex Global LLC, Cincinnati, OH 800-453-2321
www.rotex.com

Particle Size Analyzer
With an extended dynamic range that spans 0.01 to 3600 microns, the Mastersizer 3000 particle size analyzer provides precise, robust wet and dry measurements across the milli-, micro-, and nano-meter size ranges. The smart design of the new optical core results in a small footprint that offers equally well-engineered sample dispersion accessories, including an entirely new dry powder dispersion unit. Such flexibility makes the system ideal for the multitude of particle sizing applications for which laser diffraction is now the technique of choice. Friendly and intuitive software drives every measurement, bringing operator-independent analysis, and offering data generation tailored to individual customer needs, with a range of presentation options.
Malvern Instruments Inc., Westborough, MA
508-768-6400 www.malvern.com

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Comparing Bulk Bag Fillers

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As bulk bag use has exploded, so has the variety of bulk bag filling machines from which to choose, complicating the task of identifying the best one for your specific need. To streamline the process, start by comparing how every model you are considering measures up to your six most important application parameters:

1. Will the filler handle your maximum capacity? In most cases, buying a filler with higher capacity than you now need will be less costly than replacing a filler you outgrow, so anticipate maximum capacity requirements during the useful life of your filler.

For the lowest volume applications, a manually operated filler can be equipped with manual fill head height adjustment, a feed chute vent port for dust-free air displacement, an inflatable cuff to seal the bag inlet spout, an inflator to expand the bag prior to filling, and a programmable scale system with a belt control valve for filling by weight. The cost of a scale system can be avoided by placing the entire filler onto an all-purpose plant scale, providing the filler is properly equipped for in-plant mobility. Adding a roller conveyor allows filled bags to be rolled out of the filling area for spot cinching while another bag is being filled. Cycle times can be further reduced by adding a pallet dispenser.

2. How ergonomic and efficient are the manual portions of the filler's operation? How and where the operator attaches the bag straps to the filler hooks is critical. Does the filler move the hooks to the operator for easy connections? If the hooks are stationary, are they accessible? Consider that the connection points of a conventional filler are often beyond the reach of most operators at floor level. Adding the height of a roller conveyor puts the connection points for bulk bags 8 ft in height at approximately 8 ft above the floor. Standing on a platform, a ladder, or roller conveyor while reaching overhead spout connection points can increase fatigue and the potential for injury while limiting capacity.

3. Is dust fully contained? Even the most basic filler is likely to be equipped with an inflatable spout seal to hold the bag spout firmly in place during filling. However, not every fill head is vented to a dust collector to filter displaced air and dust, and to vacuum ambient dust in the operator's vicinity during disconnection and cinching.

4. Can the filler multi-task? If your plant fills drums, boxes, or other containers, as well as bulk bags, multi function fillers are available to undercut the cost of separate equipment and reduce the amount of floor space required. Changeovers between different containers can generally be accomplished in minutes using the swing-arm-mounted chute if the unit is so equipped.

5. Will the filler match your feed source? High-capacity, semi-, or fully-automated fillers require high-capacity feeding systems that are typically automated and feed material into the filler by gravity or by a metering device. The ability to gravity-feed material depends on whether a material storage vessel can be located above the filler, and on the material's flow characteristics. The more free-flowing it is, the more accurately its flow can be varied (down to dribble-feed rate) to achieve accurate fill weights.

For non-free-flowing materials, a metered feeding system is required to feed the filler accurately and consistently. Metering systems can include a flexible screw conveyor, screw feeder, rigid auger, drag disk, bucket elevator, rotary airlock valve, or other device.

6. Does the filler meet your cleanliness requirements? Although all fillers can be constructed of stainless steel with ground and polished welds, their designs can preclude sanitizing according to government standards. If your application must meet sanitary requirements, your choices should be limited to designs that are accepted by the USDA Dairy Grading Branch or other agencies to which you must, or elect, to comply.

While numerous available options can complicate the selection process, they can also yield a highly efficient and cost effective solution to any given filling problem, providing that fundamental steps are taken to evaluate equipment against precise requirements.

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