

CASE HISTORY

Feeding at an even flow

By updating feeders, a custom processor improves its jet-milling production.

On a processing line dedicated to a single material, a feeder's cleanout features may not be of concern. But when a custom processor needed to run many different materials, a feeder that could quickly and completely empty its contents was essential.

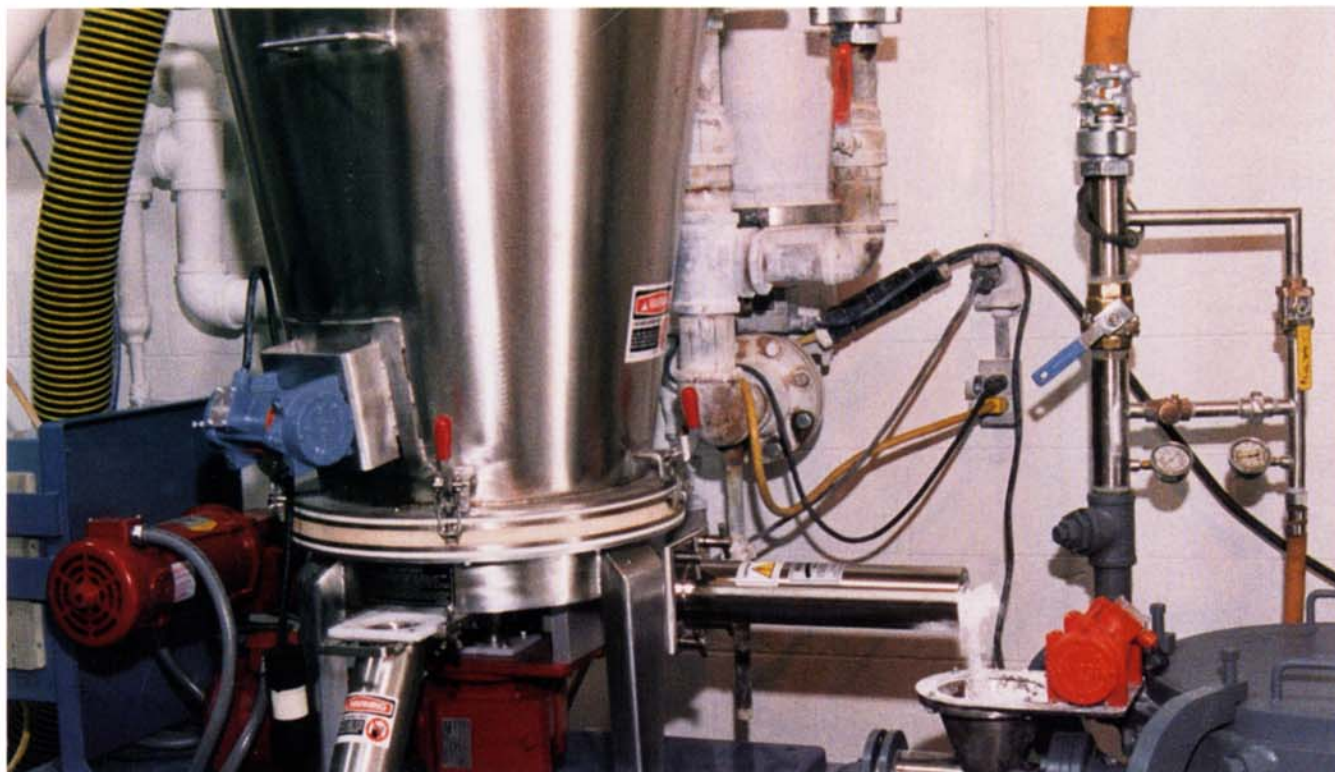
Located in Moorestown, N.J., Jet Pulverizer first began manufacturing milling equipment in 1946. The small, family-owned business expanded to include custom milling in 1969. Since then, half of the company's business has been derived from custom processing.

Jet Pulverizer's mills are used in many industries on a variety of materials — including talc, carbides, waxes, and resins. The company's mechanical mills can crush material to between 10 and 250 microns. The

company's jet mills can mill products to between 0.5 and 10 microns. Jet Pulverizer uses the same equipment in its custom-processing services that it manufactures for customers.

Bill Henry, Jet Pulverizer vice president, said the company's custom-processing services fill a need in the bulk solids processing industry. As a custom processor, Jet Pulverizer does the jobs their customers don't have the capability, capacity, or desire to do themselves.

"[Our customers come to us] for our expertise and ability to handle problems and work out solutions," Henry said. "[Our service] gives them flexibility. When they want to change a product, they can just hand the problem over to us and say, 'Here, fix it.' So we end up doing a lot of product development."



At Jet Pulverizer, the screw feeder is used to feed material to jet mills.



These feeders, with features such as a flat-bottom feed chamber and conditioning agitator, evenly meter hard-to-handle materials.

Ed Fay, president, said Jet Pulverizer's customers are large companies, many in the food and pharmaceutical industries, that may not want to set up a system to mill a specific product.

Because Jet Pulverizer manufactures the same equipment that it uses in custom processing, Fay said, the company offers its customers an advantage over its competition.



The discharge port allows operators at the custom processor to

though it wasn't significant, some waste was generated. Fay said the extra cleanout didn't slow production or cause any material to become contaminated with residue from previous jobs. "We take the time to take the feeders apart and clean them," he said.

Another problem was that some feeders were simply wearing out. "We were getting quite a few breakdowns," Fay said. "We had

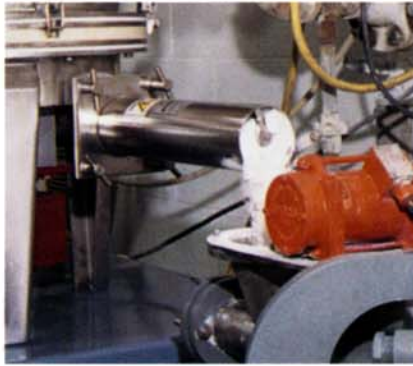
A self-cleaning solution

Jet Pulverizer installed the feeder at the custom-processing facility in summer 1998. The switch to a new feeder went without a hitch.

Designed to meter hard-to-handle powders, the feeder is suitable for the variety of materials Jet Pulverizer processes for their customers. Components include a feed hopper that supplies material into a feed chamber, a metering auger, a conditioning agitator, and a clean-out port.

The feeder's hopper is either filled by a belt conveyor or hand fed from paper bags. In operation, material enters the circular, flat-bottom feed chamber. The hopper sits atop an isolation pad, which allows the hopper to become uniformly active when the agitator applies vibration to it. The metering auger is located below the feed chamber, directly under the agitator.

The feed hopper design, combined with gentle vibration, works to fill the metering auger with a uniform supply of material. With the auger located beneath the feed chamber, the feeder can self-empty of material. The entire feeder can also be quickly emptied of material by means of the discharge port located on the flat bottom of the feed chamber. When opened, the port allows material to completely discharge from the feeder without the need to operate the feed auger.



The metering auger is located below the feed chamber, directly under the agitator.

"The hopper has straight sides," Henry said, "so nothing hangs up on them. The agitator at the bottom feeds everything into the metering auger, so it's a nice design."

Even flow, easy cleanout

Since the new feeder was installed, the jet mill has operated more efficiently. With its active feed hopper, the feeder evenly supplies material to the jet mills while preventing ratholing. Fay said the feeder works especially well with sticky materials.

"It's set up so it won't rathole," Fay said, "and it won't do all those things that feeders do from time to time that affect the feedrate. So the feedrate is fairly uniform and material doesn't hang up in the feed hopper."

In addition to its improved feedrate, the feeder allows Jet Pulverizer operators to eliminate waste.

"One advantage to this new feeder is that it can be cleaned faster and it empties itself out almost completely," Fay said, "whereas the old feeders we still use retain 10 or 20 pounds of material at the end of every run."

In spring 1999, Jet Pulverizer installed two additional feeders at the plant. Since the installation, downtime has been reduced by 30 percent on those jet mills with new feeders.

"The new feeders have cut down on the number of aggravations," Fay said. Not only does the feeder improve production, he said, the unit is also safer than other designs.

Fay said he was satisfied with the feeder's performance and would buy another model — particularly a version for smaller jet mills — the next time the company is ready to replace a feeder. "These feeders are easier to use and easier to clean." **PBE**

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