

APPLICATION REPORT : MATERIAL HANDLING INDUSTRY

Vibratory Feeder Safely Conveys Copper into Furnaces at Materion



CHALLENGE

Worldwide leader Materion Corporation produces high performance alloys at the company's facility in Lorain, Ohio. These advanced materials are used in a variety of markets, from consumer electronics to medical devices and heavy industrial equipment.

Raw materials fed into blast furnaces include purchased copper, nickel and tin, and internally recycled scrap in a wide variety of forms. In the past, workers at the Lorain plant manually fed raw materials into induction furnaces, creating safety issues and inconsistent material flow into the furnaces.



"Cleveland Vibrator came up with a unique solution to help us make a better product and simplify our production process."

Nathan Goebel, Plant Manager
Materion Corporation

SOLUTION

The worker safety issue was resolved in July 2017 when Materion installed a specially-built Electromechanical Vibratory (EMF) Feeder fastened on a track-mounted cart with a Variable Frequency Controller from Cleveland Vibrator Company. CVC engineers designed a custom-made feeder with a hopper and integrated the new unit into existing equipment. Materion workers now control the rate of material flow into the furnaces and also have a system that is easy to use and eliminates a potential safety hazard.

FEATURED PRODUCT

Electromechanical Vibratory (EMF) Feeder fastened on a track-mounted cart



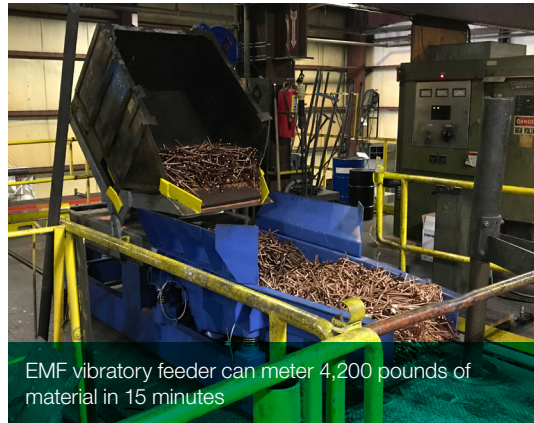
SPECS

- Flow requirements: Approx. 4,200 lbs. in 15 min (8.4 TPH) at 0° down slope
- Tray: 30" bottom width x 8" depth x 66" flat length
- 11" bolt-on sloped skirts at feed end for first 36"
- Twin CVC Model RE-9-6 Electric Motor Vibrators (TENV design)
- Variable Frequency Controller for remote operation

Vibratory Feeder Safely Conveys Copper into Furnaces at Materion

For more than 80 years, global leader Materion Corporation has developed advanced materials for a variety of markets, from consumer electronics to medical devices and highly-engineered bushings and bearings for heavy industrial equipment.

Materion engineers a portfolio of high performance alloys, including its patented ToughMet® copper nickel tin alloys which are used in demanding products in aerospace, automotive, electronics, and oil and gas. Most of these high performance alloys are produced at the company's state-of-the-art facility in Lorain, Ohio.



EMF vibratory feeder can meter 4,200 pounds of material in 15 minutes

In the past, workers at the Lorain plant manually fed raw materials into induction furnaces. This practice created safety issues and inconsistent material flow into the furnaces. These issues were resolved in July 2017 when Materion installed a specially-built Electromechanical Vibratory (EMF) Feeder fastened on a track-mounted cart with a Variable Frequency Controller from Cleveland Vibrator Company.

The raw materials Materion utilizes include purchased copper, nickel and tin, and internally recycled scrap in a wide variety of forms, according to Nathan Goebel, Plant Manager at the Lorain facility. The mixes are assembled before the contents are transported via portable tubs to the base of a two-story platform. From there, a crane lifts the tubs up to the CVC EMF Feeder, which is positioned on the second story platform above the induction furnace. After loading, the feeder and cart unit moves 18 feet on two track wheels from the back of the platform to the furnace opening.

“Since our plant workers no longer handle the raw material, we have eliminated the hazard when transferring material from the tubs to the furnaces,” Goebel explains. “After we approached Cleveland Vibrator, their engineers designed a custom-made feeder with a hopper and integrated the new unit into our existing equipment. We can now control the rate of material flow into the furnaces and also have a system that is easy to use and eliminates a potential safety hazard.”

The CVC Electromechanical Vibratory Feeder can meter 4,200 pounds of material in 15 minutes (8.4 TPH) at a 0° down slope. The specially-built feeder tray—featuring a bolt-on liner made from ToughMet—measures 30” wide x 8” deep x 66” long. Sloped side skirts measuring 11” high are attached for the first 36” of the feed end. Twin CVC Model 9-6 Rotary Electric Vibrators—which operate at 1200 RPM—power the feeder.

The Variable Frequency Controllers installed for remote operation of the feeder unit significantly impact on safety and ease of operation. Standing at a safe distance, plant workers can operate the two vibrators and the gear motor that drives the two track wheels on the four-wheel cart by using the wireless hand-held controller. “That was an important component to add because now our operators use the controls which keep them away from the hazard,” observes Goebel. “They also don’t need to manhandle the material because now it is precisely fed into the furnace.”

“We have a ‘Safety First’ culture at Materion and eliminating safety hazards is a primary goal,” says Goebel. “Once we contacted Cleveland Vibrator and discussed our needs for a controlled feeder, they came up with a unique solution to help us make a better product and simplify our production process.”

ABOUT THE CLEVELAND VIBRATOR COMPANY

The Cleveland Vibrator Company has been driving innovations in materials handling since 1923. From its corporate headquarters in Cleveland, Ohio, and in partnership with HK Technologies in Salem, Ohio, the organization has met the challenges of more than 15,000 customers around the globe in a vast array of industries. Cleveland Vibrator Company's comprehensive product line includes air-piston, rotary electric, electromagnetic, turbine and ball vibrators, as well as a wide variety of fabricated feeders, vibratory screeners, ultrasonic screeners, vibratory conveyors and vibratory tables used for light, medium and heavy-duty industrial applications. For more information, contact Cleveland Vibrator Company at 800-221-3298 or visit clevelandvibrator.com.