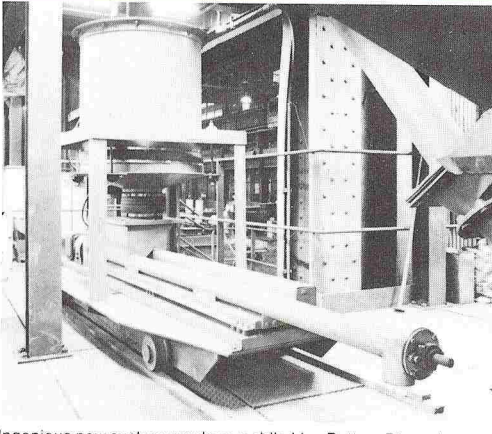


VIBRA SCREW CASE HISTORY

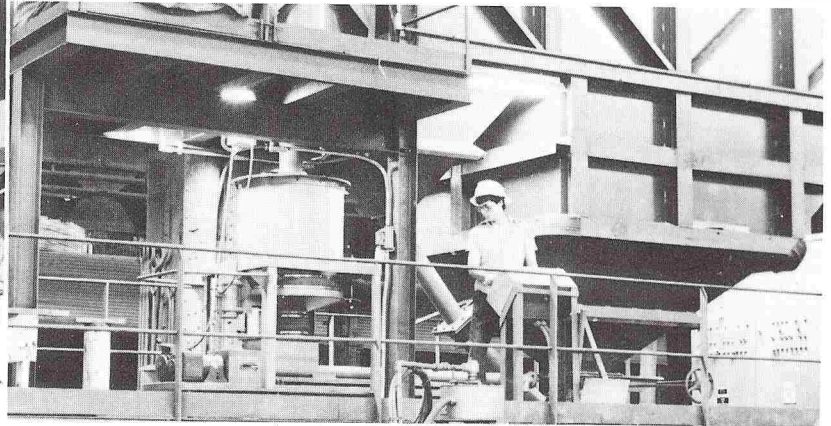


C-183

Mobile Feeding System Keeps Production Moving



Ingenious new system employs mobile Live Bottom Bin and Heavy Duty Feeder mounted on small rail car.



Car moves along track for loading at one end and discharge at other end of metered iron oxide to central hopper.

Customer

Mesta Machine Company, West Homestead, Pennsylvania. Manufacturers of rolling mill equipment and related parts for the metal producing industry.

Problem

The rolling mill equipment parts manufactured by Mesta Machine Company are so huge (ranging from 10,000 to 500,000 pounds) that the company maintains control of quality by making its own molds and castings. The "no-bake" sand mixing method they use is a relatively new development in the foundry industry. Three different materials go into the molding process. One of them, iron oxide, has a tendency to hang up in storage bins. Since inaccuracies in the addition of iron oxide can result in faulty molds, it must be accurately metered to the central hopper where it is mixed with the other two ingredients.

Solution

Vibra Screw Live Bin (15 cu. ft.), Live Bottom Bin (15 cu. ft.), and Heavy-Duty Feeder (4-in. diam. screw)

After consulting with Vibra Screw, engineers at Mesta Machine Company designed a totally new feeding system for their castings operation. The system consists of a loading and storage deck constructed above a platform with a rail track. The track leads to a large central hopper which receives the iron oxide and the other ingredients prior to blending. A 15 cu. ft. Live Bin, serving as a bag hopper, is hung from the loading platform. The Live Bin is a fully assembled, self-contained unit incorporating a vibrated cylindrical bin with a shallow cone bottom and integral baffle. After the iron oxide is dumped from bags into the unit, the entire bin and contents

are vigorously vibrated to assure complete and uniform discharge of material to a 15 cu. ft. Live Bottom Bin. This unit, serving as a feeder supply hopper, combines a static bin and a live bin bottom which is subject to controlled vibrations. The live bin bottom consists of a Vibra Screw Bin Activator having the same diameter as the static bin. Material is discharged in a positive flow to a Vibra Screw Heavy-Duty Feeder below.

Both the Live Bottom Bin and Heavy-Duty Feeder are mounted on a small rail car on the tracks to facilitate re-loading and calibration of the equipment. Once the Live Bottom Bin is filled to the desired capacity, the car moves along the track to the central hopper and begins discharging the material to the feeder. The Heavy-Duty Feeder employs controlled vibration of the trough and rotating feed screw to assure uniform and accurate feed. A hole in the central hopper permits the feed screw and tube to fit through it and meter the material directly into the center of the hopper. Once the batch is completely fed, the car moves back along the track to the Live Bin for refilling of the Live Bottom Bin. Because the other two materials are stored directly next to the central hopper, there would have been very little room for the iron oxide handling equipment in a fixed location — another advantage of the mobile units. From the central hopper, all materials are discharged to a blender for mixing before going to the molding machines. The entire operation is automated by a central control station.

Results

The Vibra Screw equipment has proved reliable, economical and "it works." Less maintenance is required and downtime has been significantly reduced.