

VIBRA SCREW CASE HISTORY



C-191

Foundry "No Bake" System No Problem

Customer

Monroe Steel Castings Division, Gulf & Western, Monroe, Michigan. Manufacturers of steel castings principally for off-the-road equipment, including valve castings, rear end housings and axle housings for tractors.

Problem

Monroe Steel Castings uses the three-part "no bake" sand mix consisting of dry sand, iron oxide and Pepset binder. The system operates on a 4 to 6 minute cycle; every 4 minutes, they strip a core. The handling problem is with iron oxide, which hangs up in storage, and can cause faulty cores. Formerly, the company used a foreign-made feeder, and when the iron oxide packed in the bin, the auger wouldn't handle it.

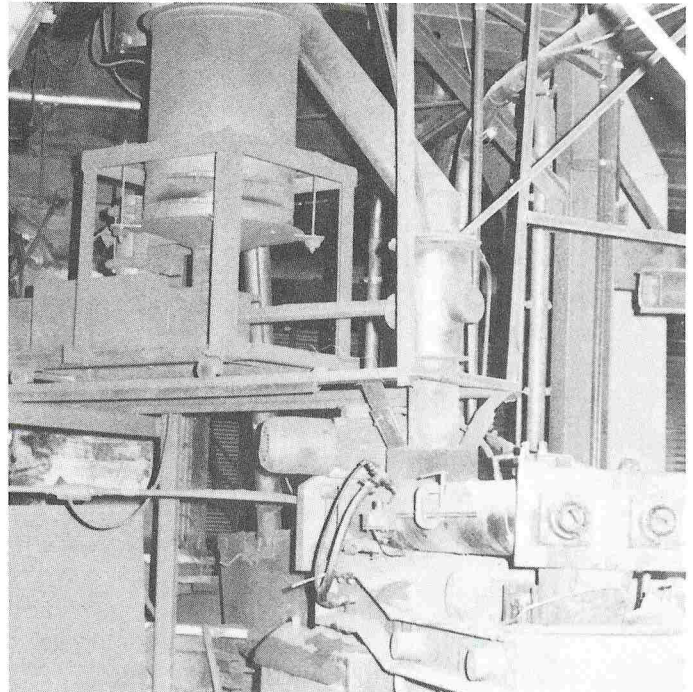
Solution

Vibra Screw LBB 20-5 Live Bottom Bin, 5 cu. ft. capacity and Live Bin Feeder with 1½" diameter screw.

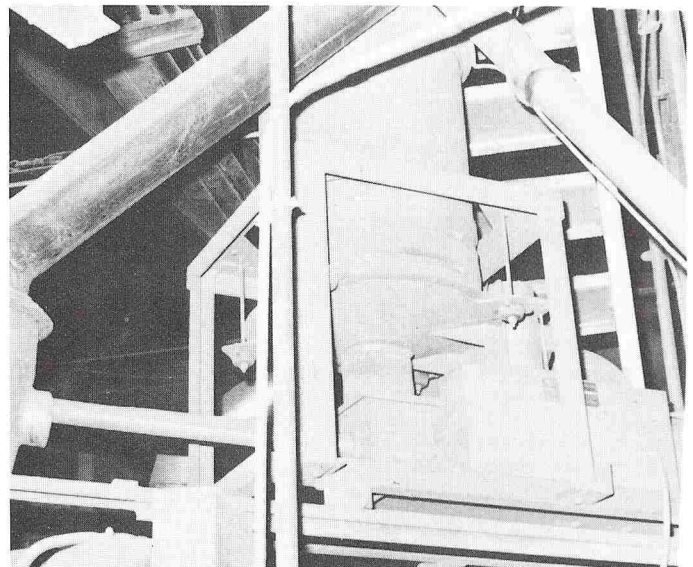
Both the Live Bottom Bin and the Live Bin Feeder are mounted on an elevated track so they can be pulled in, to a loading station, or pulled out, to a position above the HSM3 Baker Perkins blender which accomplishes the mixing. The Live Bottom Bin consists of a static bin and a live bin bottom which employs controlled vibration to assure a positive flow of the iron oxide to the feeder below it. The Live Bin Feeder is a screw feeder which combines a vibrating hopper and a rotating, vibrating feed screw for accurate, uniform metering of the iron oxide. It provides accuracy of ± 1 to 2 percent, from hopper full to hopper empty. The material is preconditioned by controlled vibration of the hopper so that when it enters the trough area its bulk density is essentially constant. After the iron oxide is mixed in the blender with the other two ingredients, the mixture then goes to make cores.

Results

The Vibra Screw equipment functions efficiently and economically at Monroe Steel Castings. The company has had no problems with maintenance, and they are very satisfied with their handling of what would otherwise be a troublesome bottleneck in a high-volume, heavy-casting production system.



Both the Live Bottom Bin and Live Bin Feeder are mounted on an elevated track, for receiving material from a loading station and feeding it to a mixer.



Iron oxide, which tends to hang up in storage, is hopped by the Live Bottom Bin and metered by the Live Bin Feeder.