

Flow of Foundry Sand: Speed without Spillage

Company

Texas Foundries, Inc., Lufkin, Texas. Producers of malleable iron, ductile and steel castings.

Problem

Texas Foundries uses foundry molding sand in its malleable iron castings operations. The prepared sand is required to discharge from a surge storage hopper to a 300 ft. per minute conveyor belt which has plows to direct the sand to the molder's hoppers. The company had previously used a rotating plate feeder to feed the sand to the conveyor, but the sand tended to spill and flow was unreliable and inconsistent.

Solution

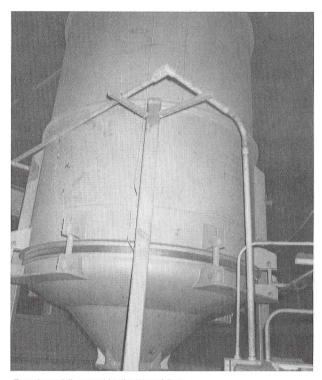
A Vibra Screw Live Bottom Bin

The company installed a Vibra Screw Live Bottom Bin to handle storage and discharge of the foundry sand. This controlled vibration bin consists of a storage bin with an attached vibrating Bin Activator. The Bin Activator section of the bin incorporates a powerful gyrator and an integral baffle which serves to direct vibrations high up into the bin while relieving headload at the outlet.

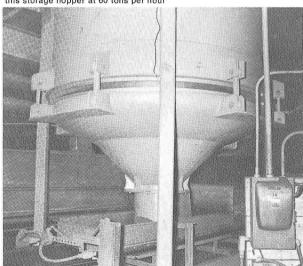
The sand, which has a bulk density of 70 lbs./cu. ft. and 3.5% moisture content, is fed to the 400 cu.ft. static bin portion of the Live Bottom Bin by a belt conveyor. The 7-ft. dia. Bin Activator creates a positive discharge of the material at the rate of 60 tons per hour.

Results

Texas Foundries is now able to avoid sand spillage by discharging it from a single nozzle rather than off a rotating plate feeder. As soon as the equipment is started up, immediate flow results. The Live Bottom Bin requires little maintenance and assures a consistent and reliable flow to the belt conveyor, thereby reducing downtime.



Foundry molding sand is discharged from this storage hopper at 60 tons per hour



Live Bottom Bin keeps sand moving steadily and consistently without spillage