

Bin Activator Keeps Sand Moving at International Harvester

Company

International Harvester Co., Foundry Division,
Indianapolis, Indiana

Problem

International Harvester experienced costly downtime of an automatic molding unit resulting from the inability of a surge hopper to discharge green molding sand to a molding machine. The molds produced are used for the casting of truck engines. The surge hopper is 4-ft. diameter tapered and is filled by a belt conveyor. The sand, having a bulk density of 80 lbs./cu.ft. is required to discharge from the hopper into a 2' x 18 $\frac{3}{4}$ " mold gate. It is extremely sticky and difficult to handle, tendencies which cause it to bridge and pack in the bin. International Harvester required a flow rate of 1800 cu.ft./hr. to achieve planned production rates.

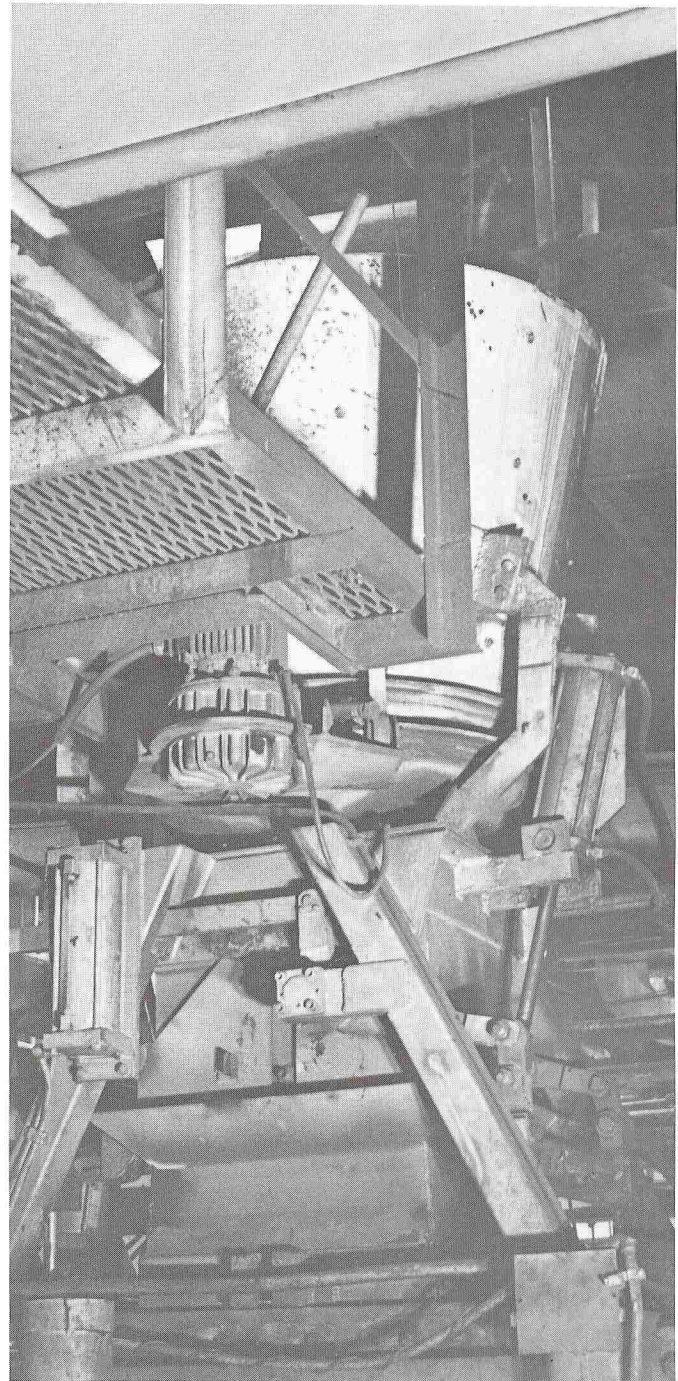
Solution

Two Vibra Screw 3-ft. dia. Bin Activators

Based on Vibra Screw's previous success in achieving consistent discharge of foundry sand, International Harvester installed two 3-ft. dia. Bin Activators on their two storage bins. The Bin Activator is flexibly hung from the bin by rubber-fitted, forged steel hangers. A flexible reinforced rubber sleeve seals the small gap between the main bin and the movable bottom. The patented dished-head design of the activator eliminates compaction which is often experienced with conical shaped dischargers. A gyrator mounted to the activator produces powerful horizontal thrusts which vibrate the entire Bin Activator and the contained material, but not the bin. A positive flow of material from the storage bin to the molding machine results.

Results

Since the installation of the Bin Activators, downtime caused by previous feeding problems has been eliminated. Bridging and clogging are no longer a hindrance and rapid discharge of sand from the surge hopper is accomplished on a first-in, first-out basis. Positive flow of green molding sand has enabled International Harvester to achieve the required production rate of 300 molds per hour.



Bin Activator, vibrated by the patented gyrator (center), discharges foundry sand without bridging or packing.