

### Bin Activators Integral Part of Modern Foundry System

#### Customer

Joy Manufacturing Company (Foundry Division), Claremont, New Hampshire. Leading manufacturers of steel castings. Sand preparation system by States Engineering Corp., Fort Wayne, IN.

#### Problem

Joy Manufacturing Company operates a sophisticated sand handling and casting system at its Claremont plant. Shakeout sand, used in the production of castings, is stored in large storage silos and must be discharged on demand in a positive, even flow to a modern complex sand preparation system which automatically cools, mixes, mulls, aerates and controls moisture. After casting, hot sand is recycled back to the bin for reuse. The sand must be discharged from the bin on a first-in, first-out basis. With typical storage systems though, the sand tends to rathole, causing newly loaded, recycled sand to discharge first while fresher sand hangs up around the bin sidewalls. The sand is also sticky, causing problems of bridging and clogging at the discharge outlet.

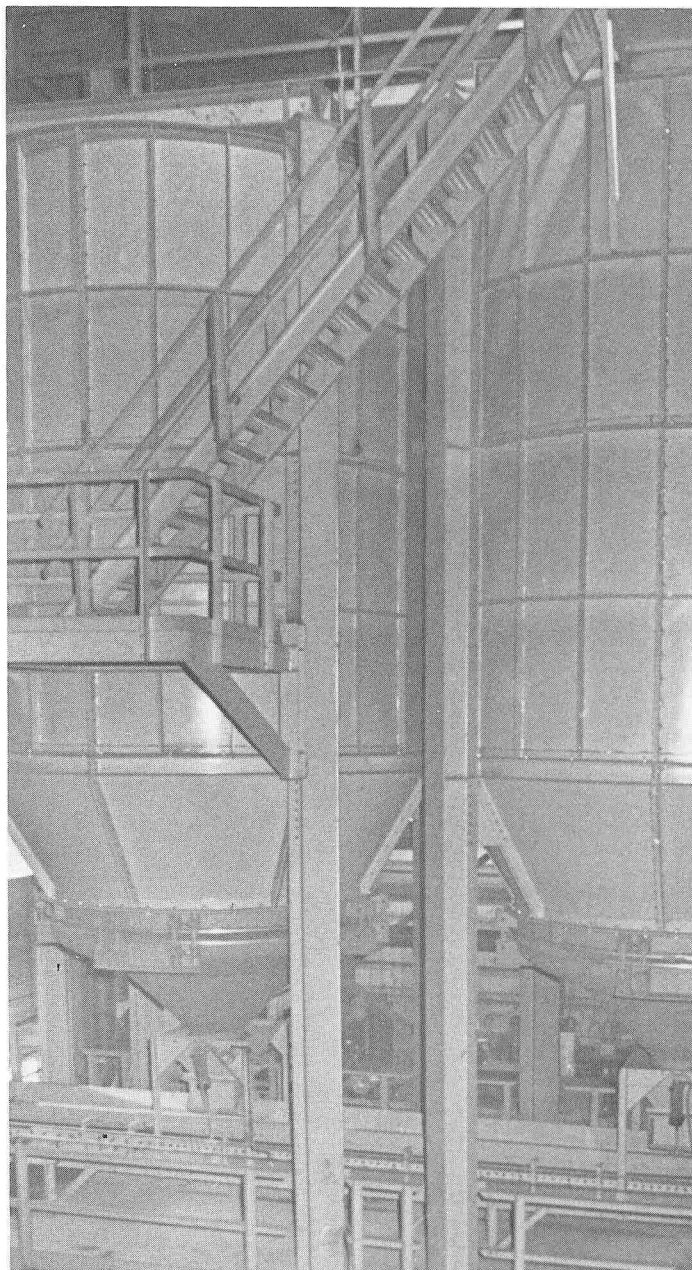
#### Solution

Two 10-ft. diameter Vibra Screw Bin Activators

Joy Manufacturing installed two Vibra Screw Bin Activators on their storage silos which measure 12-ft. and 10-ft. in diameter with 60° cones. The Bin Activator is a vibrated bin bottom flexibly hung from the storage bin by forged steel hangers. Riding with it is a patented oil-lubricated, oil-cooled gyrator. In operation, the gyrator produces powerful, horizontal thrusts which vibrate the entire Bin Activator, its baffle and the sand, but not the bin. The vibratory thrusts throw the sand horizontally towards the discharge outlet. At the same time, the curved baffle resolves the thrusts into strong vertical impulses extending far up into the main bin. Overhead bridging, ratholing and hang-ups are thereby eliminated.

#### Results

The Bin Activators have now eliminated sand build-up and ratholing in the storage bins. All sand is utilized and moves through the system on a first-in, first-out basis. Bins no longer have to be prodded to initiate discharge. Joy has increased production efficiency and reduced downtime significantly.



Storage silos tower over Bin Activators which discharge sand without bridging or clogging.