

VIBRA SCREW CASE HISTORY



C-233

Vibra Screw Feeders Used in All Eight Steps of Toner Manufacture

Customer

Aunyx Manufacturing Company, Hingham, Massachusetts. Manufacturer of toner and developer for copier machines and computers.

Problem

In the manufacture of toner, the Aunyx Company processes the basic raw material, which is plastic and carbon black, through eight steps to arrive at the finished product. The raw material has a bulk density of about 40 lbs. per cu. ft., and a particle size of 12 microns. It is extremely difficult to handle: entrained air will cause it to flood; when it is deaerated, because of its small particle size and low melting point, it picks up heat rapidly and then may fuse into lumps, causing erratic flow. Despite these problems, the material must be processed through all of its stages without flow interruption, and feeders are needed which can handle the material continuously and accurately.

Solution

2 Vibra Screw Live Bin Feeders, 1½-in. flight screw, 3 cu. ft. hoppers.

2 Vibra Screw Live Bin Feeders, 1½-in. flight screw supplied from Live Bottom Bins, 28-10, 10 cu.ft. capacity.

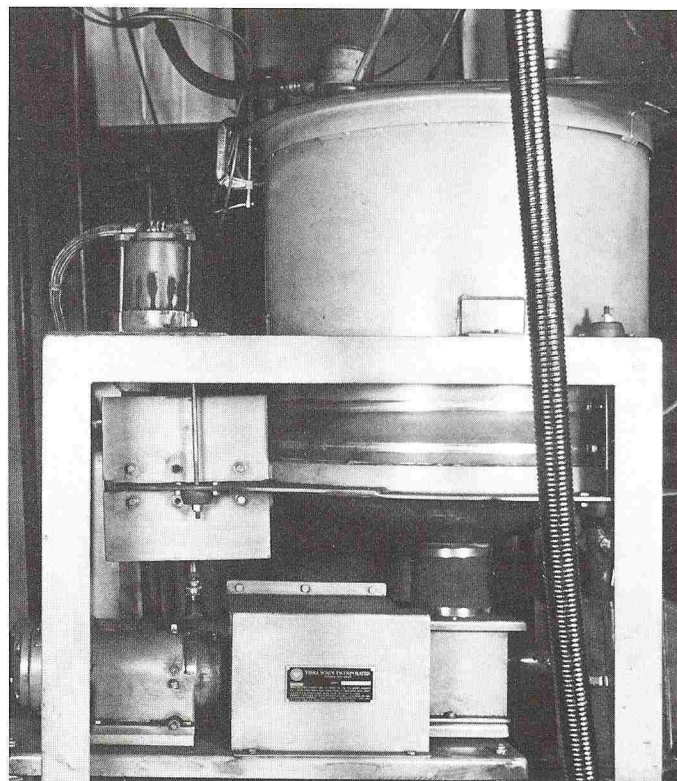
2 Vibra Screw 7-24 Heavy Duty Feeders, (1) 1-in., (1) 1½-in. flight screw, both with 4 cu. ft. hoppers.

After an in-depth investigation of various feeders which might handle their unusual requirements, the engineering department of Aunyx decided that Vibra Screw feeders offered the dependability and accuracy they needed. The Live Bin Feeder is a vibrated volumetric screw feeder which has a vibrating hopper, or live bin, delivering material to a rotating and vibrating feed screw. Vibration in the trough assures that each flight of the screw is filled and emptied completely. In one application, in order to increase the capacity of the 3 cu. ft. hopper of two Live Bin Feeders, the hopper was replaced with a Live Bottom Bin 28-10, which has a 10 cu. ft. capacity. In this application, the Live Bottom Bin feeds material directly into the screw chamber of the Live Bin Feeder. The Live Bottom Bin is a self-contained, preassembled unit combining a static cylindrical bin and a live bin bottom which is subjected to controlled vibration.

The vibrating, or Bin Activator, section of the Live Bottom Bin incorporates an integral vibrating baffle which promotes the flow of material from the upper regions of the static bin, assuring mass flow. Controlled vibration preconditions the material in the bin so that when it enters the trough area of the Live Bin Feeder, its bulk density is essentially constant. In addition, the company uses 7-24 Heavy Duty Feeders with 4 cu. ft. hoppers to meter material. These screw feeders also employ controlled vibration to ensure $\pm 1-2\%$ feed accuracy.

Results

The Vibra Screw feeders and Live Bottom Bins have performed so efficiently at Aunyx that today, they are used in every phase of the operation from raw material to finished product. They are in constant operation, 24 hours a day. One essential measure of the success of the operation: the company has quadrupled in production within the last three years.



Vibra Screw Feeders and Live Bottom Bins perform efficiently 24 hours a day at Aunyx.