

# VIBRA SCREW CASE HISTORY



## C-265 Vibrated Bin Feeds Frozen Tobacco.

### Problem

Several American tobacco companies now use a production technique called D.I.E.T. in producing special brands.

The process freezes cut tobacco blends using CO<sub>2</sub> in a pressurized reactor vessel. They immediately transfer the frozen product to a storage bin for discharge into an expansion column. Heat is transferred into the tobacco in the transfer column, sublimating the solid CO<sub>2</sub> and decreasing the tobacco bulk density for use in the final blends.

All users of the process have the same requirements--and the same problems. They require a uniform first-in, first-out discharge of product from storage, yet in attempting to achieve this, the stringy tobacco fibers tend to arch and pack.

At one major tobacco company, an existing storage bin would not feed the tobacco in a uniform, reliable manner and resulted in shutdowns, product waste and even fires. At this location a Matcon discharger had been used to assist flow. Its design incorporated a vibrated conical member, supported on a pneumatic cylinder. In operation, it would repeatedly freeze open or closed. When flow did occur, it was uneven, with little or no flow along the bin walls with frequent arching and packing of the tobacco fibers. The constant mechanical and flow problems could not be tolerated in the user's 24 hours per day, 7 days a week process.

### Solution

Vibra Screw Test Center personnel visited the facility experiencing the packing and process interruption to familiarize themselves with the tobacco product and its problems. They specified a Live Bottom Bin with integrated Bin Activator. The 7 ft. diameter bin has a 500 cu. ft. capacity and is insulated with four inches of ceramic fiber to accommodate the frozen tobacco at temperatures as low as -120°F. The Vibra Screw system feeds an inclined belt conveyor delivering product to the expansion column.

### Results

This tobacco company is an important competitor in the industry, and its personnel had significant experience in tobacco handling and the difficulties in handling frozen tobacco. Its engineers were skeptical of the Vibra Screw design. But, after the first day's closely supervised operation, these tobacco professionals were convinced. The Live Bottom Bin worked.

Vibra Screw's patented oil-filled gyrators and the dished head bin discharger allowed no interruption of flow. Vibra Screw engineers suggested the user test the system with a variety of blends. The system has subsequently successfully discharged all blend variations. Product flow is uniformly first-in, first-out, regardless of the product's many variables.

