

# VIBRA SCREW CASE HISTORY



C-247

## Coal Cleaning Test Facility Uses 5 Bin Activators

### Customer

EPRI (Electric Power Research Institute). Coal Cleaning Test Facilities, Homer City, Pa. The Institute is sponsored by a nationwide group of electric utility members.

### Problem

This facility has the capability to process all four ranks of coal: lignite, sub-bituminous, bituminous, and anthracite. Currently, tests are planned for all four. Bulk density of the coal ranges from 40 to 60 lbs. per cu. ft. It is brought in by truck or rail and goes first to a crusher building where it is reduced to  $-3/4$  in. top size. From there it goes by tripper belt conveyor to five storage hoppers which are 16 ft. in diam. and 20 ft. high, with 100 ton capacities. The traveling tripper can be set to blend the coal into all five bins, or put it into any one of the five. Dust collectors are located at belt discharge and belt loading points. From storage, the coal passes over weigh feeders and then it is dropped onto the plant feed belt which carries it to the test facilities where various cleaning processes take place. Control of the process is computerized, and with the aid of sonic level detectors and weigh feeders on the bins, both the amount of coal in each bin and the rate of flow can be determined at any time. Depending on its grade, size and moisture content, coal exhibits a wide variety of flow characteristics, from free flowing to extreme flow resistance. The system can only operate smoothly when all coals being tested flow evenly and steadily from storage.

### Solution

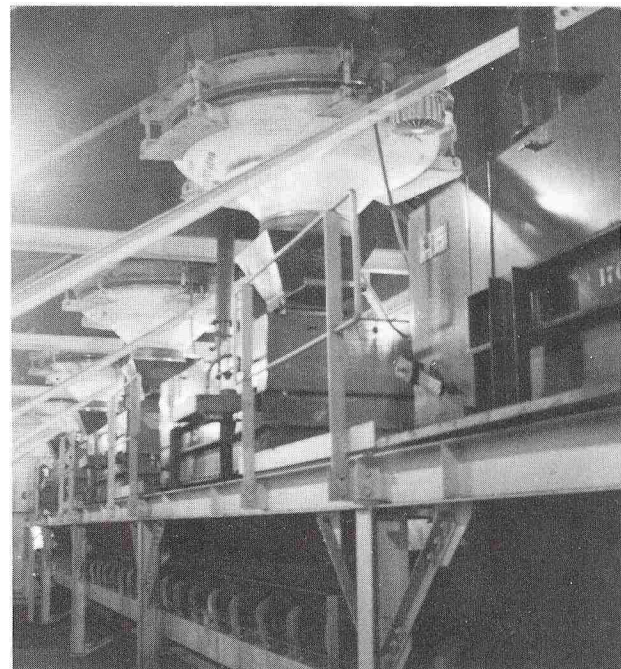
5 Vibra Screw Bin Activators, 6 ft. diameter, carbon steel construction, preassembled mounting rings.

To assure flow of all coal under test, a system was designed which obtains mass flow from the storage hoppers by use of Vibra Screw Bin Activators.

The Bin Activators, flexibly mounted to the bottom of the hoppers by preassembled mounting rings, provided controlled vibration of the Bin Activator, its integral baffle, and the material in the bin, but not the bin. The vibrating baffle relieves headload over the discharge outlet, and resolves horizontal thrusts of the Bin Activator's gyrator into vertical impulses which extend far up into the material in the bin. This prevents both flow stoppages and surges produced by intermittent flow.

### Results

The EPRI facility has ensured a smooth running, efficient system by anticipating contingencies and providing for them. Moving coal out of storage, often a source of trouble, has been made smooth and dependable by utilizing Vibra Screw Bin Activators.



These Vibra Screw Bin Activators guarantee the continuous discharge from storage to process of four ranks of coal—dependably, evenly and steadily.