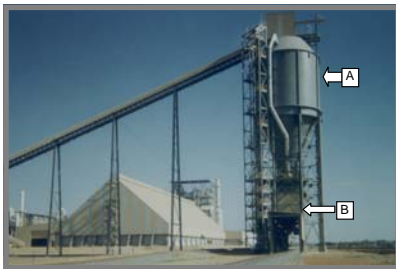


Unit Train Batch Loading Systems

FGR in collaboration with PEBCO Inc. has developed a fully Automated Train Batch Weighing and Loading System. This system has been successfully implemented on a variety of materials including coal and fertilizer. Trains pass through the loadout at a pre-determined steady speed and do not stop as they are loaded. Each batch is calculated based on the maximum gross weight and the empty tare weight. Individual car data is obtained either from a master database or via an R/F badge installed on each car. Actual batch weight loaded into each car is recorded in a database for the manifest. This is transmitted electronically for billing on completion.

1.



2.



Photograph No. 1 above clearly shows the loadout structure. The surge bin “A” is mounted directly over the weigh bin “B” which is mounted on load cells certified for sale by weight. Four double blade slide gates under the surge bin control the material flow into the weigh bin. During batching these are closed in sequence as the weight increases toward the target weight.

Because the train does not stop during loading, batching between cars must be rapid as well as accurate. Batches are usually accomplished in less than 12 seconds and are plus or minus 50 kg. for a batch of 60 tonnes (metric tons). Also the actual material in the surge bin is measured by strain gauges attached to the main support columns. This is used to determine the availability of material for loading and for stopping the feed conveyor.

In Photograph No. 2 taken inside the loading area, shows the Pebco telescoping loading chutes “A” and “B” outside the control room window. The train position is monitored by redundant photo eye sets.

Trains proceed through the loading area from left to right. When the locomotives are detected clear and a batch is ready, chute “A” lowers and its flow gate opens. This floods the front of the car and proceeds to load the bottom of the car as the train continues to move forward.

When the car reaches the correct position as determined by the photo eyes, chute “B” lowers and tops off the car. When either the end of car is detected or zero weight in the weigh bin is reached the chutes retract and the flow gates close enabling the next batch cycle to begin.