EASTERN INSTRUMENTS

Product Application Bulletin

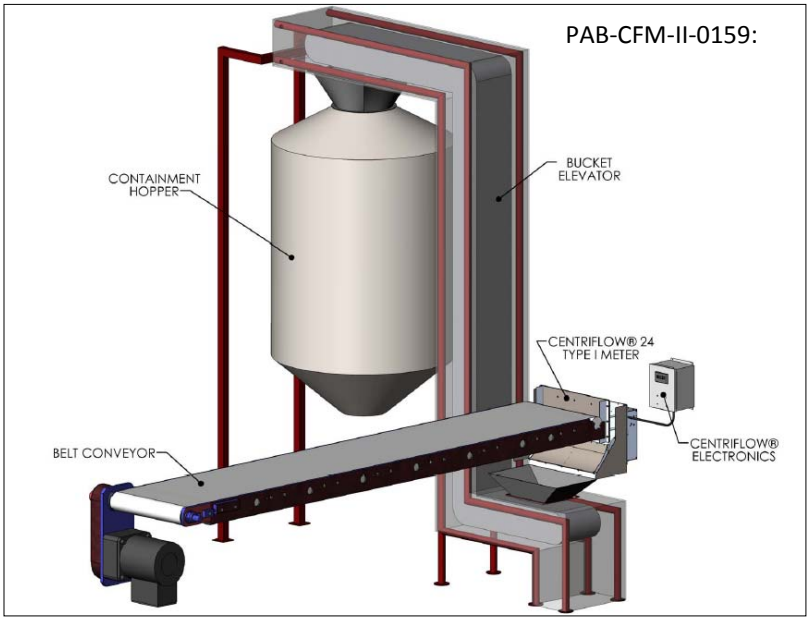
EDIBLE BEANS

PRODUCT: BEANS

CentriFlow®

CentriFlow®

Application: Bean Transport



Problem: The customer needed to accurately measure the mass flow rate and total weight of dry, edible beans (pinto, kidney, etc.) offloading from railcars. The beans were to offload from the railcar, onto a belt conveyor, flow through a measurement system then proceed to containment hoppers via bucket elevators. Due to existing space constraints, the mass flow meter needed to be compact. They also needed the meter to be reliable, durable, and wear resistant to the abrasive nature of the beans. The average density of the beans was 48 lb/ft³ with a maximum flow rate of 40,000 lb/hr and a minimum flow rate of 25,000 lb/hr. The belt conveyor had a capacity of 60,000 lb/hr, and maintained a belt speed of 200 ft/min. This meant that the flow meter needed to be capable of handling and accurately measuring a volumetric capacity from 8 to 20 ft³/min. Additionally, the flow meter needed to have a local display indicating flow rate, total weight of product from the rail car, and total offloading weight for the week.

Solution: The customer installed a CentriFlow® Meter.

The unit selected for installation between the belt conveyor and the bucket elevator was a CentriFlow® 24" Type I Meter. The surfaces that came into contact with the metered product were all made from fully hardened 301 Stainless Steel. 301 Stainless Steel was selected as a preventative measure against the abrasive nature of the beans as well as a way of satisfying sanitation concerns. An integrated Rate-meter/Totalizer displayed the flow rate, while totalizing the flow from each rail car. A second totalizer, totalized the weekly weight received.

Results: *Once the CentriFlow® Meter was installed, the unit was calibrated and commissioned within a few hours. After this initial unit was commissioned, the customer responded with an immediate order for two more units. The units are performing reliably and well within the stated accuracy of ±0.25%. The customer does not see any noticeable wear of the product wear surfaces and consequently, wear is no longer a concern.*

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