EASTERN INSTRUMENTS

Product Application Bulletin

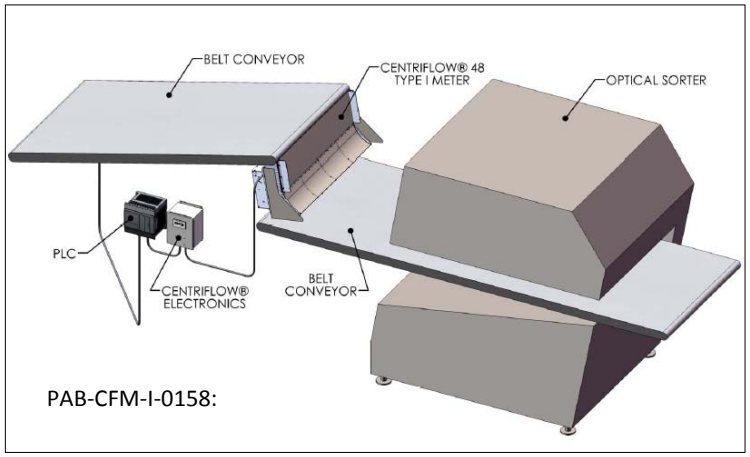
SHREDDED TOBACCO

PRODUCT: CIGARETTES

CentriFlow®

CentriFlow®

Problem: The customer needed to accurately measure the mass flow rate of a constant stream of shredded tobacco to control the feed through an optical sorter. The tobacco was to be moved by a belt conveyor, through a mass flow measurement system, and then proceed to the optical sorter. The average density of the tobacco was 4 lb/ft³ (64 kg/m³) with a maximum flow rate of 25,000 lb/hr (11,340 kg/hr) and a minimum flow rate of 10,000 lb/hr (4,500 kg/hr). While there could be no product plugging at any point in the process, the belt conveyor feeding the meter would occasionally create surges in the flow rate. The meter needed to be capable of handling and accurately measuring a volumetric capacity from 2500 to 6250 ft³/hr (71 to 177 m³/hr), while not restricting the flow of the product. The flow meter needed to provide output to a PLC to control the feed conveyor belt speed to a mass flow setpoint and to a local display indicating flow rate and total.



PAB-CFM-I-0158:

Solution: The customer installed a CentriFlow® Meter. The unit selected for installation between the belt conveyor and the optical sorter was a 48" Type I CentriFlow® meter. The meter was installed in the In-Line Flow Configuration at a 10° installation angle, satisfying the customer's need to prevent product plugging. The meter's electronics, which included an integrated Ratemeter/Totalizer, could deliver a flow rate, using the meter's signal, that was accurate up to within ±1.0% accuracy. The Ratemeter/Totalizer was used as a local display that showed both the flow rate of the product through the meter, as well as the totalized flow through the meter. The averaged analog 4-20 mA output (proportional to flow rate) from the Ratemeter/Totalizer was sent to a PLC that was able to use the signal to control the speed of the belt conveyor and thus the flow of the product.

Results: *Once the CentriFlow® Meter was installed, the calibration was completed and the tobacco flow was controlled. The meter performed well within the desired accuracy of ±1% to 2% of the calibrated flow rate. This allowed excellent control of the flow to the optical sorter and the customer was satisfied with its performance.*

416 Landmark Drive
Wilmington, NC 28412

www.centriflow.com

Phone:(910) 392-2490
Fax: (910) 392-2123