EASTERN INSTRUMENTS

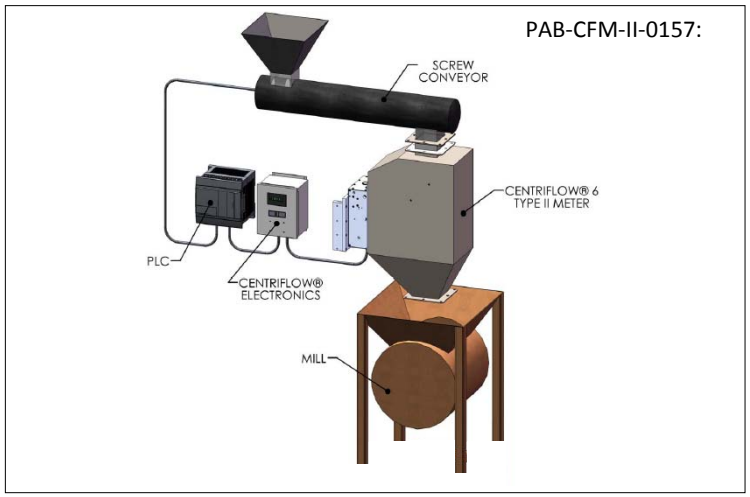
Product Application Bulletin

RAW CALCIUM CARBONATE
PRODUCT: WALLBOARD

CentriFlow®

CentriFlow®

Problem: The customer needed to accurately measure the mass flow rate of crushed calcium carbonate (limestone) to control the feed into a mill. The calcium carbonate was to be moved by a screw conveyor, through a mass flow measurement system, and then into the mill. The meter needed to be enclosed in order to contain the calcium carbonate through the process The density of the calcium carbonate is 90-105 lb/ft³ with a maximum flow rate of 15 ton/hr and a minimum flow rate of 10 ton/hr. This meant that the flow meter needed to be capable of handling and accurately measuring a volumetric capacity from 191 to 333 ft³/hr (5.54 to 9.43 m³/hr). The flow meter needed to provide output to a PLC to control the feed screw conveyor speed to a mass flow set point and have a local display indicating flow rate and flow total.



Solution: The customer installed a CentriFlow® Meter. The unit selected for installation, was a CentriFlow® 6" Type II Meter, being fed vertically from a screw conveyor. The Type II Configuration is ideal for processes that are highly pulsating due to the feed system and/or products that need to be contained or enclosed. An integrated Ratemeter/Totalizer was used to locally display flow rate and to totalize the flow through the meter. The Ratemeter/Totalizer also averaged the 4-20 mA output signal (proportional to the flow rate) from the meter to the customer's PLC. This allowed the customer's PLC to control the screw conveyor's speed, which in turn controlled the flow rate of product to the mill.

Results: *Once the CentriFlow® Meter was installed, the calibration was completed and the calcium carbonate flow was controlled. The meter performed well within the desired accuracy of ±0.25% of the full scale volumetric flow rate. This allowed excellent control of the flow to the mill and the customer was well satisfied.*

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