



APPLICATION NOTE: Ultrasonic Meter Maintains Moisture Control in Fiberboard Dual Plate Refiner

A large manufacturer of medium density fiberboard (MDF) products required an accurate and reliable solution for monitoring water flow into a wood chip dual plate refiner, which shears wood chips into fine sawdust pulp. The moisture content of the final product needs to be kept at 18-22% water by weight to reduce excess fines (i.e., fine particles) during grinding. This also mitigates the risk of fire or explosion in the event a spark occurs in the grinding process. In addition, the company needed to measure the water flow when the feed to the refiner was bypassed to a waste discharge line. At this stage plant engineers can compare water consumption to the chip load on the refiner with periodic manual grab samples verifying the water content of the finished product. This helps improve the facility's production rate by increasing machine uptime and reducing product loss.

Flow Technology's QCT Series in-line ultrasonic flow meter was selected for both the water feed lines and the bypass circuit. The QCT Series flow meter is an accurate, reliable and cost-effective flow measurement device for these types of applications.



(L) Wood chip dual plate refiner and (R) QCT Series meter at work in a feed line.

The QCT Series in-line ultrasonic meter provided the data needed to accurately control water addition to the refiner mill. The data collected can be used to automate water flow control based on chip load to the refiner. This system was incorporated into the other dual plate refiners in the plant. The option to have analog 4-20mA output as well as linearized frequency and Modbus RTU gave the customer flexibility integrating the flow meters into the existing PLC control scheme.

The QCT Series of in-line ultrasonic flow meters provide an accurate flow measurement. The meters offer a measurement range up to 100:1, very low pressure drop and are an economical alternative to magnetic flow meters.

HIGHLIGHTS

Industry: Industrial
Service: Flow Rate
Fluid: Water

Application

Measure water flow and consumption during wood chip grinding to maintain proper moisture content

Problem

- Low fiber moisture content presents risk of fire or explosion during grinding
- Flow rates change depending on the chip load of the refiner
- Plant engineers want to analyze flow data to justify flow control automation

Solution

- FTI in-line ultrasonic flowmeters as a cost effective, accurate flowmeter solution
- Multiple output options give the customer flexibility integrating to existing process controls