

PRODUCT APPLICATION NOTE

WA0607

Industry:	Pulp & Paper
Application:	Winder Roll Diameter
Optech Equipment:	Watchman 3100
Application Description:	The customer needed to accurately determine winder roll diameter on a paper machine.

A large coated kraft paper mill required a sensor to accurately measure finished roll diameter. Paper machine operators require this input to know when to move another roll into winding position, thereby maximizing throughput.

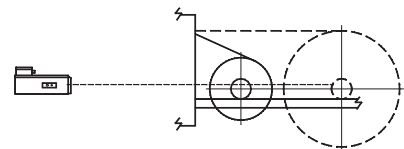
Previous set-ups used a contact type rotary encoder to monitor the angle of the support bracket of the winder roll coming off the paper machine to infer roll thickness. This set-up was inaccurate and subject to wear and frequent maintenance. Because of this, manual tape measurements were often made to confirm the target 72" diameter as the roll turned at high speed, creating an obvious safety hazard, as well as introducing errors in the accuracy and repeatability of the readings.

A Watchman 3100 was easily retrofitted, integrating within the machinery's tight geometry. The unit was installed horizontally and to the side of the roll approximately 6 m away, aimed at the hard chrome roll core, which moves away from the machine as the diameter increases. The laser rangefinder measures to the roll core to within an accuracy of 1 to 2 mm. These minor changes are converted into a 4-20 mA signal, and a digital display reads out the finished roll diameter in 1/8th inch increments (3 mm resolution).

Since the Watchman was installed, mill personnel have found that the system provides high accurate, reliable outputs, and improved overall efficiency by reducing the amount of waste layers (scrap). The system has also improved operator information (facilitating paper grade changes between rolls), and eliminated safety hazards associated with manually measuring roll thickness.

KEY ADVANTAGES OF LASER TECHNOLOGY IN LASER POSITIONING:

- Highly accurate, completely non-contact measurements: combines high accuracy of continuous wave lasers with long ranging capability of pulsed systems.
- Short set-up time and easy calibration.
- Narrow beam divergence for precise spotting to target.
- No co-operative targets required.



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