

MORLEY

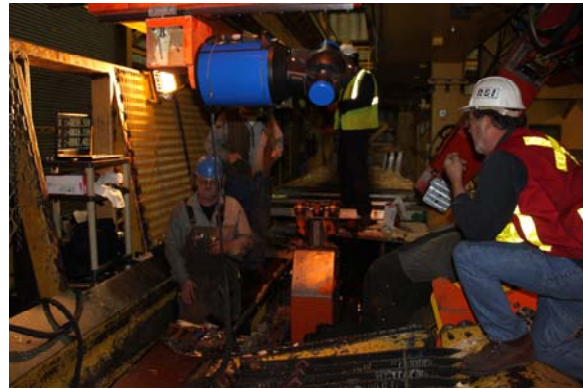
Precision Measurement Solutions for Manufacturers

Mini Case Study: Align and Calibrate Sawmill Robotics

Project: Resource Saver Industries – Overhead End-Dogging System

Location: Roseburg Forest Products – Dillard, OR

5 years ago we were asked by Resource Saver Industries (RSI) to help align and calibrate the new concept robotic sawmill equipment that they had designed and built for Roseburg Forest Products. The equipment was designed to increase the recovery rate, minimize the amount of waste per log, and still produce at the highest speeds possible. It used pivoting robotic arms to move logs to the next process, and Morley was asked to provide precise measurements of the pivot points. The pivot points that swing the pendulums were above and below the line of sight, and their center positions needed to be located and mapped out in order to optimize the process.



To achieve this Morley designed the “Rail rider” that enabled the Faro laser tracker to sit in a horizontal attitude and move over the pendulum arms and measure the location of each pivot point. In the first phase, we built a coordinate system to measure the in-feed and out-feed ends (80 feet apart) and tie pivot points to the bed line, log line, and mill centerline. After locating the pivot points, the millwrights set them to the nominal design values and welded them in place.



The second phase established the dynamic positioning of the arms. We placed the laser tracker target on each fixture at the pickup point of the log. At the same time, the engineer viewed the XYZ axis positions in real-time in the control room on our computer via a wireless connection, performed calculations, and entered new optimization numbers into the control system.

With control points established, we can continually improve our processes, begin the annual measurements in minutes, and achieve an overall accuracy of .005 inches. For the 2010 visit, we collaborated with RSI to create a new Calibration Procedures Manual to standardize the annual inspection and calibration project. The Faro Laser Tracker, our procedures, and the manual have greatly improved the speed and accuracy of the annual project; enabling a faster return to production for the mill.