



Quad Plus®

Pulp and Paper Production Services

Increasing Productivity for Pulping
and Papermaking



You need to respond to the challenges of the pulp and paper industry: tightening competition, mass customization with strict process parameters, higher operational and materials costs, and compliance with strict environmental and safety standards. It is also important for you to automate and optimize your pulp and paper processes and extend your current equipment's lifespan, all while keeping improvement costs and shutdown time to a minimum. What is necessary to maximize safety and increase productivity while reducing energy and lifecycle costs? Seamless engineering solutions. Quad Plus can meet the demands of your pulp and paper production processes.

Pulp and Paper Application Challenges

Reducing defects and bottlenecks while improving safety standards starts with identifying areas for improvement, and then having the right combination of expertise and technology to effectively solve the problem.

Web Handling Defects

Detecting issues such as web breaks, reeling wrinkles, slippage, and paper defects at their source can reduce emergency stops and off-spec product rolls. Evaluating web tension and speed differentials in the winder and the machine can also prevent flaws. Integrating real-time measurements can ensure moisture, web profile basis weight, and thickness are within the targets.

Production Bottlenecks

Bottlenecks can significantly limit production capacity in the machine and winder. Manual slitter adjustments, outdated process and control technology, equipment capacity limitations, vibration issues, and drive system inefficiencies need to be identified through machine data analysis and then addressed through automation, design, replacement of legacy equipment, and optimization or control processing and communication.

Safety and Standards

Eliminating hazards, reducing liability issues, and meeting environmental standards is critical for the safety and production capacity. Risk mitigation, meeting TAPPI and IEEE standards, automating slitter positioning and web threading functions, and adding safety features such as guarding, fencing, and PLC-integrated safety features can dramatically reduce risks to your personnel and your products.

Pulp and Paper Process Design and Automation



Implementing new control design methodologies and process automation opportunities can address many inefficiencies, specific issues, and outdated technology throughout the entire papermaking process. The results include extending the life of your equipment while adding the capability to increase speed, capacity, and productivity, reduce changeover times, and stabilize product quality.

Automating paper grade and parent reel changes, slitter adjustments, blade changes, and rebuilding sections of the control system that limit speed or capacity are projects with paybacks of additional product production. Automating more risky manual processes can also increase the overall safety for your personnel who can manage recipes, paper grade changes, and slitter adjustments from outside the paper machine and winder.



Operational and Performance Assessments for Pulp and Paper

Risk Assessment and Safety Validation

Pulp and paper operations are dangerous due to the high speed and rotation of machinery, slippery conditions, sharp knives, and high temperatures. For new installations, rebuilds, or after accidents, a safety review will identify and protect from hazards or automate protection systems. Lockdown of safety PLCs also prevents unauthorized programming changes, ensuring that the machine runs safely. Validation includes physically testing the machine state and ensuring that the expected outcomes are observed.

Vibration Study and Analysis

Vibration should not cause paper defects, production interruptions, or add wear and tear to your machine. Whether done separately or part of the overall rebuild or optimization of the machine, vibration must be addressed. The study typically includes onsite sensor measurements, data collection, engineering analysis, and a report with recommended actions for both dynamic behavior and mechanical condition.

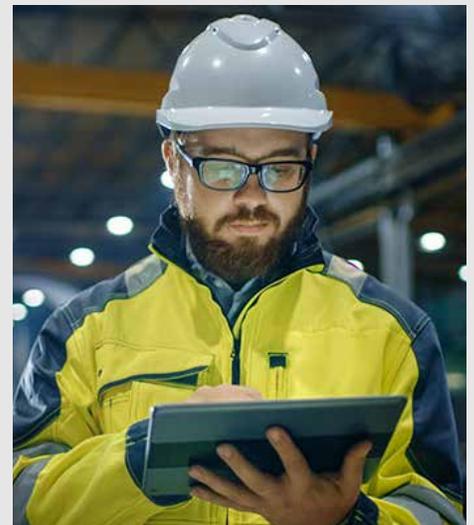
Power Studies

Reducing energy consumption throughout the papermaking process allows your mill to meet government regulations, meet IEEE 519 standards, and decrease utility and operating costs. Electricity usage management ensures consistent energy availability at an optimum level for all equipment in the entire mill and improves secondary reactive energy control.

Pulp and Paper Line Optimization

You've already optimized a section of your line hoping to increase capacity, but then experience a slowdown in another section. The entire web handling process must be evaluated to resolve these unintended consequences, starting with understanding all current control systems and process capabilities, new technology potential, and the different characteristics of the product as it feeds through the machine. Then, using advanced process control modeling, solutions can be designed to accurately control speed differentials across sections to maximize production capacity without causing issues down the line. For each section, the motor and drive systems need to be selected and designed based on the

normal running load and recommended drive capacity calculations. The sectional motors' load-sharing capabilities also contribute to achieving the power required to adjust to speed differentials in other sections. Design also accounts for responses to acceleration, deceleration, and braking and adaptive web tension control as the web is being formed, pressed, dried, calendared, and wound within the machine. High speeds, dynamically adjusting motion control, precision tension, and efficient control communication are necessary to allow rapid changes to speed and torque while ensuring the product is unwound from parent rolls, slit, trimmed, and rewound without damage.



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