New ABB DCS800 drive debuts in paper mill's slitter-rewinder

Case notes

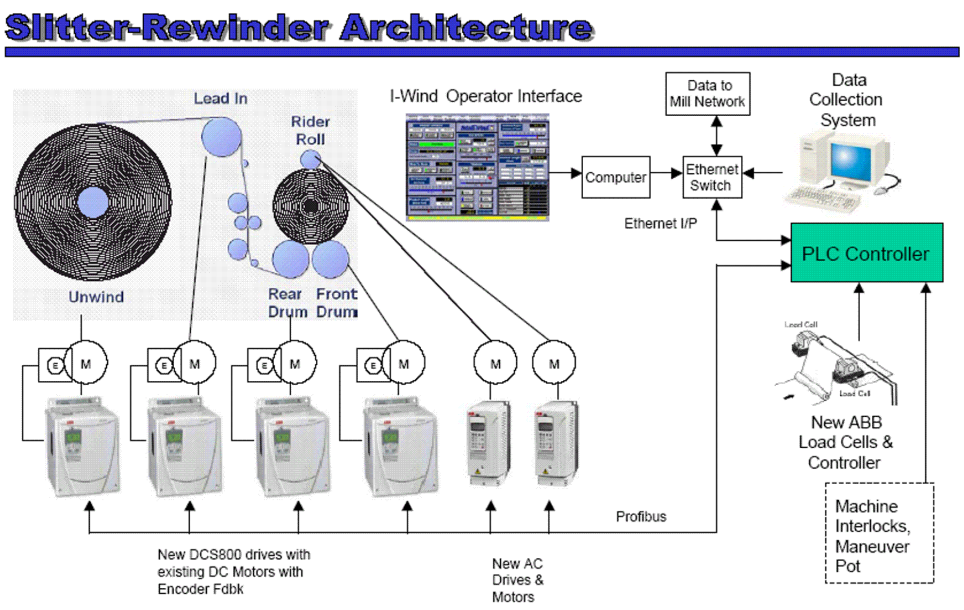

ABB drives increase production and improve roll quality and uptime; eliminate mill shutdowns

A vital part of any paper mill is the slitter-rewinder – responsible for unwinding huge, newly made rolls from the main papermaking machine, cutting them into smaller sections, and rewinding them as more manageable rolls for distribution. To increase productivity and efficiency, one leading paper mill facility in the Southeastern United States turned to SDS, Inc, a U.S.-based systems integrator, to rebuild its slitter-rewinder and incorporate the latest technology.

SDS provided a cost-effective solution that utilizes existing motor and components, integrating ABB's state-of-the-art ACS800 AC Drives with its new DCS800 Drives – the most advanced DC drive of its kind. The drive hardware was rounded out with SDS's Intelli-Wind, a popular two-drum winder HMI that provides TNT control, recipes, numeric and graphical set points, permissives and diagnostics.

Outdated Equipment – Inefficient and Costly to Maintain

This paper mill was among a large number of manufacturers that are still operating with drive systems that are 25-to-30 years old. The drive system on the slitter-rewinder was becoming expensive to maintain. Craig Tierno, senior application engineer with SDS, explains that a retrofit, which would replace analog regulators with digital counterparts, was not practical. The SCRs inside the power modules would not be dependable.

"Often, if a company's DC power modules are still within their life cycle, we will recommend retrofitting them with new digital, high-performance front ends (DFE) to enhance the regulation performance while firing the existing SCRs," says Tierno, "In this case, we could not do that."

FACT FILE

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New DCS800 Technology, in Concert with ACS800 Drives, Provide Valuable Synergy

SDS found a solution when it learned ABB was developing the DCS800, designed with some of the same software tools and communication modules as its AC products. Four ABB DCS800 drives were installed. The first drive controls the 500HP unwind motor that provides tension regulation for the unwind roll. The second DCS800 drive was installed on the 50HP lead-in paper roll, which is used to transport the paper to the slitter section. The third and fourth drives were installed on the 250HP front and rear drums – components that are responsible for providing machine speed reference and profiling torque to the re-wound roll. Two ACS800 AC drives and motors rated at 15HP were connected to the two ends of the rider roll to provide vertical force for acceleration and deceleration torque.

The load cells, which measure web tension on the unwind section of the machine, were replaced with ABB PillowBlock style Pressductor® transducers. Pre-calibrated for the application, the ABB load cells enhance tension control and reduced installation time and cost.

In coordination with the drives, the system integrator installed their own winder-operating software, called iWind, which is designed to optimize roll profile and quality while offering automatic stopping, product recipes, numeric and graphical set-points, permissives and full diagnostics.

Compatible Platforms; Retrofit and Use Existing DC Motors

Integrator personnel felt the DCS800 was a perfect fit for the paper mill's Engineering and IT staff, who were already familiar with the operating and commissioning functions of DC drives. ABB's complementary ACS800, with a look and feel similar to the DC product, made it easy for the mill to transition to AC.

"Making sure that the DC drives were fully complementary – hand-in-hand, step-in-step – with what we were going to do with the AC product, that was really important; having those two on the same platform," says Tierno. The new DC drives enable retrofitters to provide up-to-date technology and outstanding regulation at a fraction of the cost of replacing the entire power system.

Winning Combination Enables Optimum Uptime

Since the installation of the DCS800 and ACS800 drives, in complement with iWind software, the mill has been able to realize their goals of increased production, top-speed efficiency, better roll quality, reduced maintenance and minimal shutdowns. In fact, they have been able to virtually eliminate shutdowns that happened previously because of component malfunction.

Officials at SDS say they have been so pleased with ABB products and support that they plan to recommend ABB drives for eight upcoming paper manufacturing projects.

ABB and SDS have another reason to celebrate: the paper mill installation marks the first time that a DCS800 has been integrated into a total systems package in the United States. With the almost unlimited scalability of the DCS800, the entire team is looking forward to supplying customers with drives and software for many years to come.

ABB

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