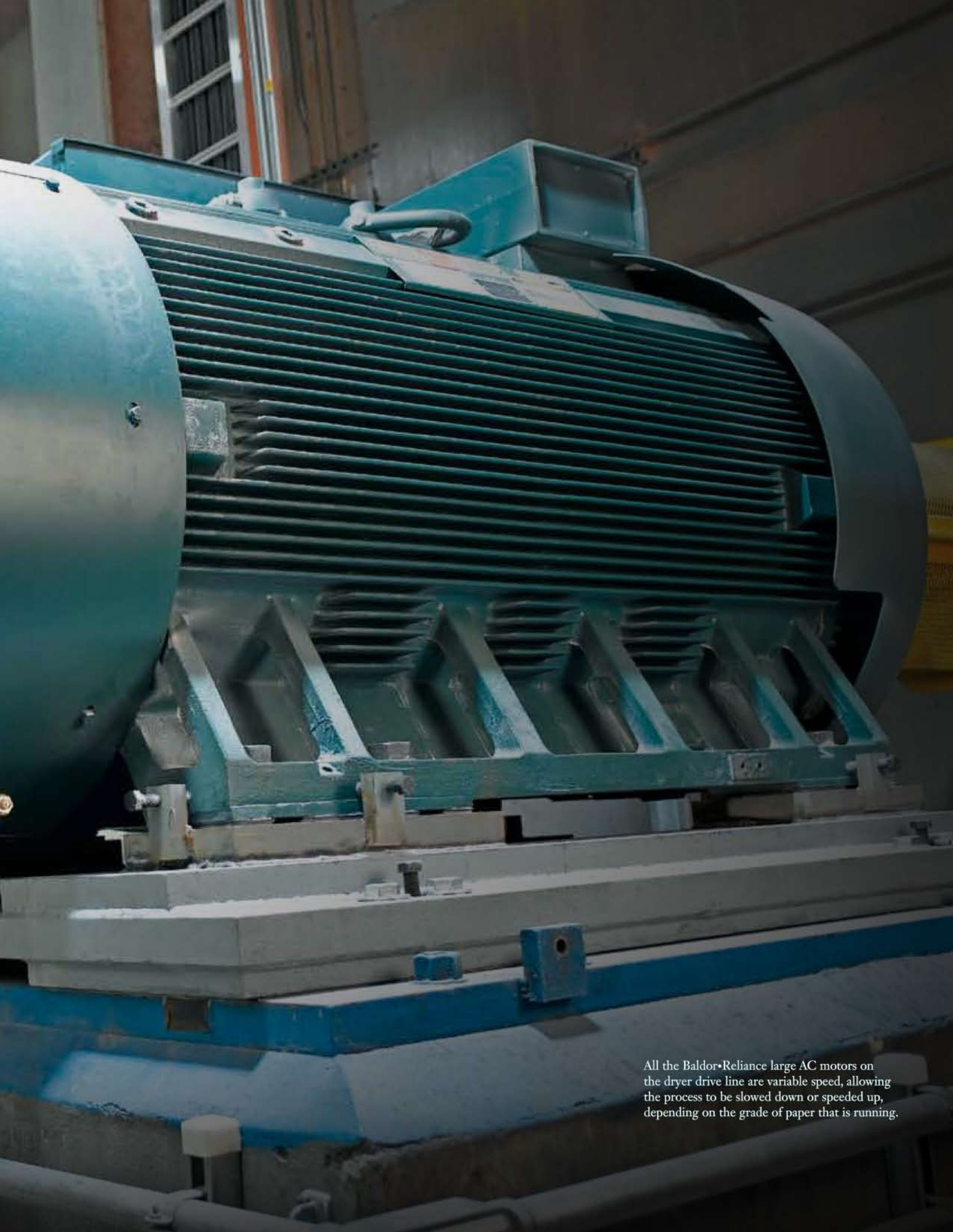




Domtar's Marlboro Paper Mill

Moves to
AC Technology

with Help from Baldor



All the Baldor•Reliance large AC motors on the dryer drive line are variable speed, allowing the process to be slowed down or speeded up, depending on the grade of paper that is running.

FEATURES

The Marlboro paper mill, located in Bennettsville, South Carolina, was originally opened by Willamette in 1990 and became part of Domtar in 2007. With one pulp line and one paper machine, this mill has an annual paper production capacity of up to 389,000 tons.

Shortly after becoming a part of Domtar, mill officials determined that they needed to move the mill's technology forward to be more in line

with the latest industry norm for paper mill applications.

That meant converting existing DC motors and drives to AC technology. The cost of rebuilding DC motors and the ongoing cost of brush maintenance also contributed to the decision to make the switch.

Bill Rogers, manufacturing services department manager at the Marlboro mill, led the effort to find not only

the right motors for the retrofit but also the right company to trust with this complex project. Rogers says they looked at a number of manufacturers, but in the end chose Baldor because of the quality of the product and because he and his team felt more comfortable with the level of support they were getting from Baldor versus the others.

"We had a preference for the bearing lubrication design of the Baldor•Reliance® large AC motors,"



This first Baldor•Reliance motor installed was this 1,500 HP variable speed, totally enclosed, blower-cooled AC unit on the paper machine fan pump. The pump, located in the basement just below the paper machine, provides the stock flow used to put the fiber on the machine.



Domtar had the option of using a 3,000 HP motor for its boiler-feed water pump system; however, it chose to use dual-tandem Baldor-Reliance 1,500 HP variable speed, totally enclosed, blower-cooled AC motors. This engineered solution fit the existing electrical supply, so no changes had to be made to the transformers supplying power.

says Rogers. “But we also liked the fact that Baldor engineers were willing to work with our plant engineers to study the options available prior to any commitments being made to purchase the motors. The Baldor team was very helpful and provided a lot of background and support engineering.”

The work that Rogers is referring to was conducted by Baldor’s paper and forest products industry team, a group dedicated to supporting this industry. The team visited the mill on several occasions, studied the application requirements and then made recommendations for an engineered solution. Michael Feldkirchner, Domtar’s senior electrical project engineer, agrees with Rogers that it was definitely good support.

“Baldor went beyond what other manufacturers did by supplying us with engineers to come on-site and look at our applications,” says Feldkirchner. “They sent us reports back for our review and made good recommendations. They made sure that what we selected worked now and would work for future upgrades, as well.”

With the decision made to purchase Baldor motors, Feldkirchner began working with engineers at the plant

Right: After reviewing and evaluating various drive options, Domtar selected ABB drives because officials have said they are the best product for the job. Raw data collected by Domtar shows the mill saved roughly 200 kVA of power with the new AC drives/motor combination versus the DC products, achieving a 10% reduction in electrical usage.



Baldor•Reliance V*S Master motors, like this 200 HP totally enclosed, fan-cooled unit on the dryer, are inverter duty AC motors designed to provide full load torque continuously from 0 to base speed. The unique inverter duty insulation system in this motor eliminates the formation of corona, which can greatly shorten motor life.



Domtar's Marlboro Mill has an annual paper production capacity of up to 389,000 tons.

where the motors were being built. Again, he says, the level of support he received from the plant was greatly appreciated.

"Baldor's King's Mountain plant was very helpful in getting us the drawings early in the process," says Feldkirchner. "We really appreciated the good job the plant did in getting us the information we needed."

The first Baldor•Reliance large AC motor installed was a 1,500 HP variable speed fan pump motor located in the basement below the paper machine. This was followed by two 1,500 HP variable speed motors installed on the boiler-feed water pump; a 1,500 HP variable speed motor installed on the biomass boiler-induced draft fan; and finally a series of eight variable speed AC motors, from 20 HP to 800 HP, installed on the dryer section of the paper machine. The majority of these motors are on critical applications, and any motor failure would stop the paper-making process, costing the mill a significant amount in lost production.

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senior electrical project
manager,
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Understandably, reliability is a top concern for Rogers, but he says the mill has gotten the performance and reliability they expected from the Baldor•Reliance motors installed. "This project has been extremely successful," says Rogers. "These motors have performed up to our expectations. We had no issues at start up, no issues with any of the motors, and everything is performing as planned."

Changing out all of the motors from DC to AC was a major undertaking, and despite his confidence in the engineering support he received from Baldor's industry team, Feldkirchner says he was still nervous about how everything would turn out. "Someone very wise told me that anytime you touch a motor on a paper machine it's potentially a career-altering decision," says Feldkirchner. "But after all of this time, we can look back and know that we definitely made the right decision."