ABB in Pulp and Paper

Putting it all together.
The right mix of skills, experience, products and

Achieving **true bottom line results** calls for more than just a new system. It takes people who understand your business, with in-depth skills, a strong track record and proven products and solutions.

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Your mill’s success depends on the quality of the decisions made each and every day by your executives, managers, operators and maintenance staff. The end result is measured by the return you bring to your shareholders. To be effective, you need to have the right solutions in place at all points of your operation. Today’s economic environment and global competitiveness leave you no room for risky decisions concerning processes and assets. ABB understands your challenges.

Look at ABB, and you will see an industry leader in pulp and paper. We have succeeded in part because our automation product suite and services cover all the areas of your value chain. They operate together smoothly, to ensure optimal efficiency and profitability, and to help you achieve dramatic and continuous productivity improvement at all levels of your operation.

What makes our solutions work so well? It’s the expertise we bring to each project.

With more than 3,000 industry experts worldwide and four R&D centers dedicated to pulp and paper, ABB has the resources to develop and implement the best solutions for your business. Because we’re a global organization, we can tap into an extensive knowledge base and deliver winning products and services regardless of your application or location.

In fact, more than 75% of the world’s pulp and paper mills buy a product or service from ABB. That says a lot about why companies choose us.

We know paper.
Everybody knows the power of being close to the customer. Our aim is to become easier to do business with, and create greater value for pulp and paper manufacturers by understanding them better.

The power of being close to the customer is as true in paper as in any industry. Our aim is to become easier to do business with and create greater value for pulp and paper manufacturers by understanding them better.

ABB has the resources to help your mill increase productivity in a sustainable way. Because our business structure is aligned with the pulp and paper industry’s framework, we are able to address the specific needs of local markets and, at the same time, use our global presence to provide technological leadership.

**Local presence**

With regional Centers of Excellence located throughout the world, we can stay close to our customers to efficiently deliver the systems, solutions and services that are right for local markets. By having a strong, industry-dedicated local presence, we can better understand our customers’ unique requirements. With experts in place worldwide who are dedicated to the pulp and paper industry, you will always find someone from ABB nearby, ready and able to assist.

**Global view**

We maintain technology leadership in each of our core products, because each of our Centers of Excellence focuses on research, development and manufacturing for a specific product area. This global view ensures that ABB stays on the leading edge of industry trends and requirements.

R&D is the strategic engine that powers ABB

Our history is filled with innovations that help pulp and paper makers realize higher levels of productivity and profitability. That’s why we continue to invest heavily in research and development today. It’s also why you’ll always experience the most benefit from an ABB solution.
Environmental sustainability

Sustainable development is integral to all aspects of our business. We work hard to balance economic, environmental and social priorities to create value for all our stakeholders. Our goals are to continuously improve our own social and environmental performance, and to take steps that improve quality of life in the communities and countries where we operate.

• We become a partner in initiatives that foster economic, environmental, social and educational development
• Offer our customers eco-efficient products that achieve reduced environmental impact over their complete lifecycles
• Share our state-of-the-art technologies with emerging markets
• Assure that all our operations and processes comply with applicable environmental standards and legislation
• Offer incentives to suppliers who have sustainability policies and systems similar to our own
IndustrialIT for Papermaking - Delivering on the promise of

IndustrialIT for Papermaking is a suite of solutions incorporating all the major automation systems commonly used to manufacture pulp, paper, board and tissue.
To stay profitable, our customers need the flexibility to integrate technology and equipment. So we developed IndustrialIT for Papermaking, a suite of solutions incorporating all the major automation systems commonly used to manufacture pulp, paper, board and tissue.

IndustrialIT for Papermaking is the realization of ABB’s IndustrialIT initiative. While others are only beginning to tie fundamentally different systems together in a common user interface, ABB has been using a common platform for both control and user interface for all of its new products since the introduction of IndustrialIT in 2001.

IndustrialIT for Papermaking breaks down the information barriers found in a mill’s systems to enable cost-effective enterprise-wide use of information.

Whether it’s putting automation system data in the front office, bringing legacy system interfaces into automation systems or building new production management applications, ABB’s IndustrialIT for Papermaking can do it. Customers benefit from having the advantages of a system that links all the major automation systems found in pulp, paper and tissue operations.

What is IndustrialIT?

IndustrialIT is ABB’s commitment to open interoperability of automation and power solutions and services, including those that leverage the ABB portfolio, third party products and the relevant standards. The underlying technology supports integrated solutions that translate into measurable value by increasing productivity, reducing total cost of ownership, reducing risk and increasing safety – the core values of IndustrialIT.

At the heart of IndustrialIT standards-based products and solutions is an information architecture that seamlessly links equipment and applications in real time. IndustrialIT technology consists of:

- Single window environment for information access
- Context-sensitive decision and action tools
- Unique object-oriented architecture
- IndustrialIT certified “building blocks” for maximum interoperability
- Fieldbus technology support for intelligent devices

A commitment to open standards

ABB’s commitment to the open standards that tie together all of a mill’s systems is the cornerstone of the IndustrialIT portfolio. This strategy enables evolution of existing systems as well as the integration of advanced software and hardware products from ABB and our partners.

Through ABB’s IndustrialIT solutions, customers have more choices, from bus technologies (FF, Proflbus and HART) that open the device world, to engineering standards (IEC 11 1) that make it easy to acquire competent engineering resources at an affordable cost, to connectivity standards (ISA S9 ) or PC standardized and efficient ERP integration.
Automation today is about *adaptability, flexibility, openness, connectivity, availability, programmability* and *maintainability*. ABB’s 800xA Extended Automation System delivers these *benefits* – and much more.
Manufacturing is entering a new era. It is no longer just about running process operations as efficiently and as profitably as possible. To boost enterprise-wide performance and create a sustainable competitive advantage, a holistic approach encompassing all aspects of plant and business management is required.

ABB recognizes the new challenges and has developed the 800xA, a real-time automation and information solution based on open technologies and the latest global standards. The 800xA is seamlessly integrated, and every component in the entire operation is linked. Associated information across all applications and systems can be easily accessed from any single workstation connected to the network.

With relevant information at their fingertips, operators and managers can predict and react quickly to all changes for a large increase in efficiency. The integrated system also creates a common engineering environment with efficient and practical engineering management tools, allowing engineering tasks to be conveniently performed from a single workplace.

The 800xA also protects your investments and contributes to higher returns on assets and reduced total cost of ownership. The open architecture allows third party applications to be seamlessly integrated, and provides the flexibility to implement functions you require today and add others as needs evolve in future.

The 800xA Extended Automation System is more than just technology. It involves the integration of people, products, systems, and solutions to give managers, engineers, operators, and maintenance personnel the ability to do their jobs better.
From small PLC applications to enterprise-wide automation and production management, IndustrialIT for Papermaking is a scalable suite of products that ensure easy integration of process automation components. Whether you're adding to an existing system, installing a new application or building a new mill, ABB’s IndustrialIT for Papermaking is never a bad decision.

The heart of our automation solutions is System 800xA, ABB’s extended automation system. System 800xA provides not only the technology base for open interoperability, but also many integrated functions from asset optimization, device management, CMMS integration and OEE analysis to production management, information management and flexible operator workplaces.

The IndustrialIT System 800xA enables traditional ABB control system users to incrementally extend their existing systems for a cost-effective and secure evolution path. By “using what you have” and extending it with new System 800xA features, functions, and technologies “to get what you need,” you can increase your operation’s efficiency while sharpening your competitive edge.

Flexible architecture for now and the future. Large or small, new or legacy, a comprehensive design that can be scaled to meet your requirements.
Energy efficiency begins with a well designed power distribution and electrification system.

ABB is more than a leading supplier of power distribution and electrification systems for the pulp and paper industry. ABB is a team of dedicated professionals that can design the network structure, recommend optimal voltage levels, short circuit capacities and proper electrical supply to guarantee the best long term reliability.

ABB has solutions for Power Network Management including the control, supervision, data collection, maintenance, voltage regulation and simulation. ABB also has the ability to measure and analyze existing networks and the knowledge to design and install the best solutions to protect the network against damage.

Advanced features such as load shedding can be utilized to save the most essential processes from disturbances. This capability is based on the tight integration between versatile protection functions and automation systems.

An extensive electrification project requires dozens of tasks to be coordinated and executed in a professional way. Professional project management secures your success. Highly qualified ABB personnel ensure smooth and effective project execution from installation to startup.
System Drives

ABB pioneered digital sectional control solutions and drive technologies for paper machinery. Our latest technology, the Direct Drive, dramatically improves paper machine efficiency and the control of the drives system.

By eliminating gearboxes and pulse encoders, ABB’s Direct Drive technology uses fewer components and simpler mechanical drive arrangements, making it easier to install and maintain.

ABB offers the widest range of Paper Machine Drives system solutions:

- Pulp dryers
- Paper and tissue machines
- Board machines
- Coating machines
- Finishing machinery

System solutions are based on the industry knowledge combined with superior products and services:

- AC, DC, Direct Drive technologies and products
- Global network of industry expertise to provide complete lifecycle services
- Dedicated system engineering based on high performance core products
- Efficient integration with installed automation systems

From the fast startup through the entire operational lifecycle, papermakers benefit from IndustrialIT for Papermaking, Paper Machine Drive solutions.
Web Imaging

The ABB Web Imaging solution offers state-of-the-art cameras and tools for the identification and classification of web defects.

Utilizing high resolution intelligent cameras, ABB can optimize your solution for performance, space and cost. But the real advantage is not just in better detection, but in the capabilities the tools give papermakers to reduce the time to identify problems and take corrective actions.

Applications include:

• Newsprint
• Specialty papers
• Basestock
• Fine writing and printing
• Lightweight coated
• Premium coated
• Liquid packaging board
• Food board
• Tobacco
Quality Control

Quality Control QCS800xA includes the most durable scanner, the most accurate measurements, and the best machine and cross-direction control available. Combined, these provide the preferred quality control solution in the paper industry.

ABB quality control helps mills face challenges like stringent quality demands from customers and higher raw material, labor and maintenance costs. We leverage our extensive process knowledge and technological expertise to deliver the most accurate measurement solutions available.

We pioneered and continue to develop industry-leading scanning measurement solutions for all sheet parameters and paper grades. Our scanning platforms are the industry’s strongest and smartest, providing more information for greater and faster control. ABB solutions result in higher product uniformity, minimized process upsets and efficient raw material usage, and our comprehensive profiling solutions ensure minimal product variations, improving paper quality and increasing production efficiency.
Cross Machine Actuators

Today’s profiling solutions require tighter zone spacing, higher precision, accurate mapping and creative control solutions. ABB’s focus on quality provides the accuracy and precision required by today’s challenging control applications.

ABB can now provide for all of your cross machine actuator needs:

- **Air-Water xP** offers the most robust design in the industry. By eliminating the need for electronics in the drying environment, they can maintain a high degree of reliability and require minimal maintenance.

- **Slice xP**, with an embedded inductive sensor for precise measurement, helps mills achieve optimal profiles.

- **Dilution xP** uses the industry’s most advanced mechatronic technology for superior control of cross-direction variations.

- **Coat Weight xP** ensures an optimum, smooth blade or rod coating application through precise positioning of the coater blade.

- **Induction xP** controls caliper and sheet finish gloss by applying induction heating to hard nips, soft nips and supercalenders. Zone widths of 120mm, 75mm and as low as 60mm provide optimum profile control.

- **SteamPlus xP** can provide a 15% increase in production or 55% reduction in energy costs with up to 80% reduction in moisture profile variability.
Composite Plant

Delivering a new mill on time and under budget is critical to the success of any project. ABB’s Composite Plant business can provide the following systems and services:

**Professional Services**
- Budget estimation
- Pre-engineering
- Engineering
- Project management
- Logistics
- Installation
- Testing
- Commissioning
- Startup

**High Quality Systems and Products**
- Power distribution
- Process electrification
- Automation
- Quality control
- Instrumentation
- Drive systems

ABB’s extensive experience in pulp and paper electrification and composite plant projects is your best guarantee of success. With over 200 projects in 17 countries, ABB professionals provide unparalleled experience for any greenfield or rebuild project.
Collaborative Production Management

ABB helps pulp and paper manufacturers realize the full benefits of a coordinated balance between supply chain costs, customer service levels and production efficiency. ABB ensures the right product to the right customer at the right time.

Through better production scheduling and real-time production management, mills can decrease inventory costs, reduce over/under production and increase cash flow through improved customer order fulfillment and overall production asset efficiency.

ABB IndustrialIT for Collaborative Production Management (CPM) tightly integrates all key business, process and supply chain systems. This linkage of orders, assets and logistics enables superior, coordinated management at the critical points in your operation.

We provide the industry's most advanced, profit-enhancing CPM solutions for:

- Customer Service Management
- Production Planning
- Production Tracking
- Quality Management
- Energy Management and Optimization
ABB’s broad portfolio of instrumentation in conjunction with our partner products enable us to supply all of the instrumentation required by today’s paper manufacturers.

ABB’s integrated instrumentation solution includes the supply of the field devices and related off-site and on-site services like engineering, installations and commissioning work. Our instrumentation portfolio includes:

• Instrumentation services
• Flow measurement
• Pressure measurement
• Temperature measurement
• Analytical instruments
• Recorders and controllers
• Actuators and positioners

Fieldbus
To fully benefit from data available from today’s instrumentation, mills must utilize fieldbus technology to integrate data into the automation and ERP system.

ABB’s 800xA Extended Automation System ensures functionality between devices and the operator. The use of FDT/DTM technology enables independent engineering and maintenance of field devices, regardless of manufacturer or protocol. To meet a mill’s unique needs, ABB supports HART, PROFIBUS or FOUNDATION Fieldbus.
Open Control

ABB’s 800xA smoothly integrates pulp and paper mill control processes and applications. As a result, operators and other mill personnel have instant access to real-time information, anywhere in the network, from a single workstation.

ABB’s 800xA helps papermakers stay competitive in an increasingly complex environment, with a solution that improves a mill’s flexibility and efficiency while reducing development cycles, production times and inventories.

The 800xA links front-end business systems with the mill’s process automation, enhancing information flow throughout the enterprise. System applications include:

- **Process Information Management System**
  Provides personnel at all levels with access to real-time and historic data. Produces customizable reports in meaningful, easy-to-read formats for quick analysis.

- **Advanced Process Control**
  Enables effective plant management by using information to predict and control operations.

- **Process and Control Optimization**
  Increases papermaking efficiencies and maximizes paper machine performance over its lifecycle by using tools and advanced techniques to analyze and improve processes.
Coating and Chemical Delivery

Chemical delivery systems and coating kitchen automation optimize a mill’s use of chemicals, adding value to the base sheet by enhancing quality. ABB’s solutions can be easily customized to meet specific technical requirements.

ABB designs and installs turnkey industrial systems for every aspect of the use, preparation and management of process or functional chemicals used in paper manufacturing processes:

- Deinking additives
- Recycled bleaching fibers
- Wet end and surface application of additives for tissue machines
- Fillers and additives for the wet end of paperboard machines
- Sizing and coating for paper and board machines

Using its process expertise and experience in paper chemical delivery, ABB has developed innovative and optimized solutions to coating and chemical delivery problem areas encountered in paper mills: powder handling, dispersing, starch cooking, filtration, transfer, control system and coating effluent treatment.
Consolidation in the pulp and paper industry has caused widespread cost-cutting and labor reductions, creating new demands for robotic applications.

ABB has developed robotic applications that complement the traditional process of paper roll wrapping. One ABB application automates paper roll wrapping by inserting inner and outer headers into a variety of roll sizes, and another applies preprinted labels to completed rolls.

Our robotic applications have drawn especially positive customer feedback. As one of the leading suppliers in the world, we have delivered 130,000 robots.
Field Services

ABB’s full portfolio of field services for products and systems – from spare parts to consulting, optimization and outsourcing – improves equipment productivity, minimizes equipment costs and extends useful equipment life.

ABB is one of the world’s largest automation companies with a wide range of automation offerings and an extensive, global installed base of control, motion and robotic products and systems.

Providing world-class support to ensure maximum performance of your ABB automation equipment investment is important to us.

Our complete portfolio of services and service products – from spare parts to consulting, optimization, and outsourcing services – can help to maximize your investment by:

• Improving equipment productivity
• Minimizing costs throughout the equipment life
• Extending the useful equipment life

We get the job done, when it’s needed, where it’s needed.
Maintenance and Field Services
With a global team of more than 10,000 service professionals, we provide fast and efficient response. Our service professionals are trained and certified to help you avoid downtime and get you back online as quickly as possible.

Optimization Services
Our Process and Asset Optimization Services use a proven, continuous improvement methodology, special tools and in-depth systems knowledge to find the valuable improvement opportunities currently hidden in your production assets.

Spare Parts and Repair Services
A global logistics network is strategically positioned to provide fast parts and repair service throughout the world, 24 hours a day. Our organization uses standardized processes, tools and metrics to ensure that components are delivered quickly.

Support and Remote Services
From telephone and self-service web support to direct and secure system interaction, remote services provide real-time, 24/hour direct access to global technical specialists and service experts.

Migration and Retrofit Services
Many ABB products provide useful service for 20 years or more, however when a product reaches the end of its lifecycle, ABB helps mills have a smooth transition to new software and equipment. Throughout the product lifecycle, we work to provide solutions that expand the functionality and extend the life of your equipment, while maintaining your core investment.

Migration Management
As we advise papermakers on their technology needs, alternative solutions and emerging technologies, we also consider their future engineering needs. Based on existing requirements and lifecycle status, ABB migration teams recommend and develop timely, cost-effective solutions that effectively address evolving market opportunities and demands.

Training
ABB’s training programs for engineers, programmers, maintenance and operations personnel provide the comprehensive, up-to-date technical expertise that increases workers’ skills, knowledge and productivity. Training is available on-site at ABB training facilities, locally at your mill or online.

Evolution Management
For smooth operation, ABB offers lifecycle management programs that help mills effectively manage changing connectivity requirements and software updates.

• StepUp programs simplify the upgrade process by providing enhanced performance capabilities and maximizing the value of installed systems and components, while minimizing maintenance costs and reducing downtime.

• SoftCare enables mills to easily keep up with changing industry and IT standards. Evolving SoftCare helps your mill benefit from increased efficiency, reliability, production yields and ROA as well as lowered production and maintenance costs.
Getting the most from your assets requires an in-depth knowledge of both process strategy and the equipment used to enact that strategy. Access to the high-level expertise required to make value-generating business decisions is a benefit of working with ABB Reliability Services.

ABB Reliability Services provide a wide range of value-enhancing services dedicated to accelerating your return on investment by reducing cost and increasing asset effectiveness. ABB’s technology and application experts work side-by-side with your plant personnel to develop solutions that are directly linked to business objectives and the critical capabilities required to support them.

The fast pace of change, and the continuing pressure to reduce cost by reducing personnel makes technology difficult to manage. Companies today must look outside for the expertise they used to have inside.
ABB Full Service®
ABB is a global leader in maintenance outsourcing, with more than 125 ABB Full Service partnership agreements around the world. ABB Full Service programs are developed to improve maintenance effectiveness by optimizing management practices, resulting in continuously improving mill productivity as measured by overall equipment effectiveness, as well as reduced maintenance costs per ton of production.

• Increased asset effectiveness
• Reduced operating costs
• Sustained productivity improvements

Consulting
ABB Consulting Services identify valuable opportunities for improvement in production processes and operations infrastructure, and reliability practices. Our consultants have in-depth knowledge of best practices in a wide range of business, engineering and maintenance operations. Key consulting services include:

• Plant Performance Benchmarking assesses performance, effectiveness, reliability and capability of production assets and processes, compared to the paper industry’s best-in-class.

• World Class Reliability™ Benchmarking measures your mill’s maintenance practices against hundreds of plants worldwide and identifies gaps in your performance and proposes solutions for closing those gaps.

• Total Plant Reliability™ programs are developed to improve maintenance effectiveness by optimizing management practices, resulting in improved mill productivity and reduced maintenance costs.

• Safety, Health and Environmental Excellence improves the safety culture within your mill.

Equipment Performance Management
Equipment Performance Management (EPM) optimizes the total lifecycle of specific asset classes, such as motors, drives, automation systems, breakers, and transformers. With EPM, ABB assumes responsibility and accountability for the management of your equipment, with priority on energy and automation chains. This includes ABB products and systems, as well as similar products from other manufacturers, and tightly linked equipment.

Within a long-term partnership, ABB guarantees the performance of covered assets under fixed cost and performance-based contracts.