Process Control

Industrial IT solutions for the cement industry
Process Control
We ensure results in cement manufacturing through constant attention to time, money and compliance with your project needs. This not only safeguards but maximizes the return on your investment.
Your mission…
to efficiently bring high-quality cement products to the market.

We make the difference to your process
Challenge ABB to bring added value to your process, as this is what drives us to continually improve our Solutions. Our focus is entirely on delivering increased value to your operations.

Your Challenge  Our Response

Process Control
ABB provides tailored automation solutions that use real-time data. This process data gathered from all sections of the plant, is used to improve plant operation, protect your machinery, control your process more efficiently and increase product quality.

With ABB process control systems, reports are created quickly and easily, assisting you in continuous production management to maximize your profits.

Asset Data Optimization
ABB's latest information technology allows you to monitor and analyze your process constantly, ensuring immediate cost benefits and continuous return on investment.

Using the IndustrialIT architecture, ABB is able to interface seamlessly to your automation system with a wide range of products and solutions. These include instrumentation, input/output devices, drives, motors and human machine interfaces (HMIs).

Profitability
If you already have an installed automation base, migration to modern industrial information technology will require a flexible project plan. ABB uses a modular approach, which can be implemented in stages, to satisfy the demand for continuous production, further extensions and budget constraints.

Connectivity
With ABB solutions, the benefits are improved asset availability, bringing significantly lower production costs, through reduced maintenance, and higher productivity, through a more effective workforce.

Scalability

Maintenance Optimization

Meet current and future challenges with solutions devised in partnership.
We ask, we listen, we propose
Challenge us on expertise
With more than 20 years’ knowledge of cement manufacture, advice from ABB at the outset of your project can sort out details, clarify structures and provide roadmaps that will ensure the fastest return on your investment, while adding to existing return on assets employed.

Innovative thinking, leading-edge design
Challenge us on design and development
ABB is experienced in solutions from high-performance electrical distribution through to cost-effective automation and asset optimization.
In designing an automation system, ABB takes into account all demands for future growth and potential process changes for regulatory compliance or energy efficiencies, while retaining strengths in proven processes.
ABB saves you the huge costs and risk of development, engineering, installation and commissioning time by re-using best practice from more than 300 green-field and 100-plus modernization installations in the cement industry.
ABB, certified to ISO9001-2000, is continuously improving its quality systems and passing on the benefits to customers.

We focus on customers
Challenge us on procurement and supply
A single source for all your automation needs can help to speed design, delivery, installation and commissioning and to reduce maintenance costs.
Your time spent on finding optimum solutions, products or services is a hidden cost, reducing your added value. ABB’s customer-centric approach ensures that a single person acts as the interface for all of your needs – making all products and solutions available through one Account Manager, who knows your business and knows exactly where to find answers fast.

Your challenge: To find a partner that provides solutions at every stage of your project.

Customer Quote:
“We called in ABB at our initial brainstorming meeting. The advice they offered ensured the project started on a track that we would not have originally gone down. It was a success.”

ABB IndustrialIT fully integrates plant control, to deliver the best returns from your assets.
Technology driven, focused solutions

Challenge us on product offerings

ABB offers a comprehensive portfolio of automation-based products and systems, covering instrumentation, field devices, drives, motors, expert systems, Human Machine Interfaces and much more.

- All ABB products and systems are designed for maximum uptime and minimum maintenance.
- ABB documentation delivers clarity that enables savings in time and money.
- ABB products evolve in a structured and focused path, to enhance and future-proof your process.

Tailored software applications, transparent automation solutions and a resolute product release policy: all are essential from your supplier, to bring increased value to your business.

Comprehensive overviews and details of product hardware, software and automation technology are available on our website [www.abb.com](http://www.abb.com)

For further details of cement industry applications, go to our website at [www.abb.com/cement](http://www.abb.com/cement)

ABB’s IndustrialIT Process Portal provides you with solutions for fully integrated process control systems.

The flexible solution that makes ABB different.
Efficient installation and commissioning
Count on ABB experience
The most professionally designed process control application can be almost worthless, unless the installation and commissioning is in experienced hands.

With ABB’s professional engineering and commissioning team, excellent project management and well-proven installation techniques, we ensure that your plant is operational in the shortest time and within the specified budget.

Installation and commissioning is always planned in fine detail and locally-based ABB expertise ensures a quick response to any unforeseen issues.

In ABB, you can rely on a partner, which is able to provide the widest possible range of services, experience and expertise.

Maximize personnel efficiency
Depend on ABB training
ABB training programs are highly effective, with an optimized mix of theory and practical, hands-on exercises. The ABB University offers well over one hundred different training courses, covering all of our automation products and application solutions. Complementing standard courses, ABB University also offers customized training to meet specific needs.

More than 30 courses are specially tailored for cement industry customers.

Product training and IndustrialIT courses include, for example:

- Cement Process Technology
- Overview IndustrialIT 800xA System and Minerals Library
- IndustrialIT 800xA Applications for Minerals - Configuration and Operation
- IndustrialIT 800xA Applications for Minerals - Control Engineering with PDA tool and Control Builder
- IndustrialIT 800xA System - Hardware and Troubleshooting
- IndustrialIT 800xA System - Basic Configuration
- IndustrialIT 800xA System for Advant Master - Configuration
- Optimization
  - Expert Optimizer Technology (2 programs)
- Information Management
  - Knowledge Manager (5 programs)
- Online Measurement Solutions
  - SpectraFlow analyzer and Laboratory Information Management System
- Connectivity Solutions
  - ECS Production Planning Connector

Visit ABB’s training homepage for the latest courses at [www.abb.ch/abbuniversity](http://www.abb.ch/abbuniversity)
Optimization and Information Management

Integrated Process Control

Collaborative Production Management (CPM) solutions integrate all manufacturing systems, providing the real-time visibility, execution, tracking, reporting, and optimization of manufacturing processes. This results in decreasing costs through better production scheduling, execution and management, and increases revenues through improved customer service and product quality, increasing profits and enhancing shareholder value.

With ABB’s automation solutions, the process control, instrumentation, optimization functions and business information systems are integrated as one.

ABB’s SpectraFlow is the first online analyzer to provide safe, reliable, accurate elemental analysis without the need for special operating licenses or handling hazardous materials. The cross-belt analyzer can be installed without changing the existing belt structure, provides low total cost of ownership and contributes to an effective reduction in CO2 emissions.

The award winning Expert Optimizer is based upon the pedigree of proven successes of the well-known and highly regarded LINKman optimization system. It combines rule based control with modern tools like Neural Networks, Fuzzy Control and Model Predictive Control (MPC) incorporating model based state estimation in the moving horizon approach.

Feed quality problems are dealt with by combining Expert Optimizer with the Raw Mix Preparation solution, which achieves the goal of minimizing feed chemistry fluctuations at the lowest possible cost.

ABB’s Knowledge Manager provides the solutions and advanced tools needed to facilitate the collection, organization and distribution of combined production, quality and energy information throughout a plant’s organization, via web-based reports, trends, and graphs. The complimentary Laboratory Information Management System (LIMS) module ensures optimization of tasks like sample management, with fast and transparent integration of quality information with the process and production information.

Total Cost of Ownership (TCO) for integration of ERP and plant systems is reduced using ABB’s Industrial IT ECS Enterprise Connectivity Solutions. For example, a company with 20 production sites may need at least 50 interfaces to SAP components. With ECS, only one standard interface to SAP is required.

Visit ABB’s CPM homepage for the latest solutions at www.abb.com/cpm
Scalable automation solutions provide easy entry to benefit from next-generation automation products. A small, basic system can be rapidly extended into a fully integrated and optimized automation solution, to deliver even greater value.

Existing ABB customers have access to a range of migration plans, designed to modernize existing plants in structured steps. Non-ABB systems are easily upgraded to a leading-edge automation solution, using value-adding solutions from a comprehensive solution and product suite.

Customers who want to switch to added-value ABB solutions can easily migrate to modern, integrated process automation, thanks to ABB’s standardized product ranges that can be tailored to their needs. Communication protocols such as OPC, Profibus, Foundation Fieldbus and Modbus bring easy, economical interfacing with a wide range of third-party products.

Extensive software libraries cover many cement-based applications to bring easily maintained, tailored solutions. With ABB Aspect/Object-based architecture, representing your process plant in a structured manner, a huge amount of information can be assigned to every real object.

ABB offers a wide range of solutions for the cement industry. Building on long experience, we use IndustrialIT technology and customize process control solutions to meet your exact needs.

Standard control modules are tailored and integrated to ensure ease of operation and simple maintenance.

Process control applications are implemented with function-oriented software modules specifically developed for cement applications, using IEC 61131-3 programming languages. Pre-defined communication between the Process Controller and Operator Interface significantly reduces the engineering time.

ABB is constantly developing new control modules for solutions to customer needs. The following shows the breadth of standardized control modules available.

Profit from ABB’s knowledge and experience

Modular, flexible solutions based on ABB’s IndustrialIT technology
Weigh feeder control
The Weighing Belt Feeder Proportioning function forms an interface between the operator or the Raw Mill Proportioning Solution and Belt Weighing feeders. This control module supports:
- Total feed setpoint (t/h)
- Operator menu for the actual % of each selected feeder
- Indication of actual individual feed rates
- Supervision of operator values and maximum feeder capacity
- Supervision of the total setpoint (100%)
- Pre-selection of the start-up for the feeder drives

Silo aeration
Used to control the silo aeration valves, with the operator simply defining the operation cycle. Activation of the valves is sequenced automatically and continuously for the pre-defined period.

Valve control
This module drives a solenoid valve unit, with limit switches if required, and may be used in a drive group or as a single unit. Two different configurable fault signals are available, with an interlock chain to prevent equipment damage.

Damper actuator control
Control of a motorized discrete actuator, with local operation in a drive group or as a single unit. Used in combination with a pulse control module to control a motorized actuator, by taking account of the actuator positioning and the motor torque.

Drive control
A module for control of uni- and bi-directional drives, with local operation in a drive group or as a single unit. Equipped with switchgear supervision, speed, pressure and flow control, with an interlock chain to protect devices from damage.

Intelligent motor control
This module includes the same functionality as the Drive Control module, but communicates over a bus system (Fieldbus, Ethernet). Enables a wide range of data parameters to be accessed simply from an intelligent switchgear module.

Loop control
PID module for closed loop control, with the following options:
- Auto tuning of control parameters
- Use of two external references, such as setpoints from Optimization or Autopilot
- Use of calculated input signal as Measured Value
- Validation of connected I/O signals
- Automatic balancing of the output value in cases of measurement value error, hardware and I/O errors
- Event logging for control mode changes and signal errors
- Support for pulsed outputs, in combination with a Pulse Control module

Field communications
All device modules will support process connectivity through conventional, local or distributed I/O systems, using current Fieldbus standards and serial asynchronous communication conductors.
**Optimize your assets**

ABB provides industry-focused professional services.

---

**Customer care – ABB is never far away**

**Performance Management**

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 Services Performance Management team provides a range of value-enhancing services including process optimization consultancy, upgrading CPM systems, on-site workshops, site audits and more. All dedicated to accelerating your return on investment by reducing cost and increasing asset effectiveness.

---

**Service**

An ABB Service Contract agreement is tailored to compliment your in-house expertise and provide the additional capabilities needed to maintain site asset performance at the required level.

**SupportLine**

At any time of the day, throughout the year, SupportLine lets you reach centrally located system specialists and development engineers from ABB, for technical assistance. Included is free access to the case tracking tool allowing you to follow the resolution progress.

---

**SupportLine**

Switzerland

Phone: +41 (0)844 845 845

Telefax: +41 (0)58 586 73 08

E-Mail: minerals.supportline@ch.abb.com

ABB SolutionsBank homepage:

http://solutionsbank.abb.com

Available 24 hours per day, 365 days per year.
ABB is committed to the cement industry. Since 1975, ABB’s dedicated Center of Excellence in Switzerland has continually developed standards for the cement industry.

During the last 20 years, ABB has delivered successful process control systems for more than 500 minerals and mining installations worldwide. More than 300 of these applications are in the cement industry, with some 100 representing modernized automation systems.

ABB is a leading global supplier of process control systems to the cement industry. Its engineering departments, with their industry-specific validation procedures, ensure consistently high quality in automation technologies.
Contact us, and try our solutions.