IndustrialIT: New Laboratory Automation Concept
AnalyzeIT AutoLab II
Your Challenge

Efficiency and cost-effectiveness are linked to provide a consistent means for cement quality, in control and production!

Incorporation of traditional and state-of-the-art sensors allow for the optimum in combining the needs of today with the plans for tomorrow’s growth.

Our Solution

ABB’s strong partnerships with the leaders in reliable samplers meet all cement plant needs for error-free repeatability, capability, and operability free the operation from variations while providing maximum uptime. ABB’s experience and collaboration with the leader in pneumatic sample transport system technology have enabled us to provide affordable sample collection. Interfacing with the practical and proven ABB Knowledge Manager (KM) and LIMS (Laboratory Information Management System) allows for instant access via our Web-based solution package.

KM/LIMS permits the full sample administration scope. The KM/LIMS is the first such system developed exclusively to meet the needs of the cement industry. Sample preparation, status, auditing, error detection and correction simplify complex task management. Better sample administration and reporting permits tighter quality control, better manpower deployment, and more predictable production efficiencies.

Via the ABB Industrial® architecture, the AutoLab II connects with online and offline sensor devices with plant PLC and DCS installations seamlessly. With the latest in laboratory automation concepts, it is now practical to take advantage of Industrial® tailored to your budget. Enhancement of legacy systems with ABB’s AutoLab II enables optimization without sacrifice.

Migration to a modern industrial information technology from an installed base expanding unequally requires flexibility in execution. The ABB modular solution approach is implemented in phases to meet budget constraints. Full accountability from one source ensures highest quality, one point of responsibility and immediate support to maintain original functionality and utility.

All from ABB... your dedicated supplier

Let Analyze® AutoLab II make the difference in your plant

ABB welcomes the opportunity to meet the challenge of a value-added solution to your plant. With strong partners providing the best in samplers, sampling preparation and overall sample handling, errors are reduced or eliminated.
New Generation of Laboratory Automation

Accommodating the Newest in New Technologies

Reliable and proven design
Innovation in thinking and implementation

ABB’s experience shows in the execution of a completely integrated system of specifically configured samplers for all aspects of the cement manufacturing process including automatic/semi-automatic or even manual combinations for sample handling. Hazardous or difficult locations for sampling are no problem for the robust designs used to collect, identify, split, load and send to the central laboratory for analysis. New, faster, error-free components ensure timely, correct, and unmatched operational dependability for transport of sample materials.

Once samples arrive in the laboratory, they are unloaded for further preparation. The sample carrier capsules are cleaned and returned to the sending point in the plant process location. At this point, ABB’s signature robot, the IRB 2400, used worldwide in a variety of applications, takes over. Depending on the frequency and types of analyses desired, sample material is transported via the robot to an automatic fine grinding mill, then to a tablet press or fused bead machine for X-ray fluorescence and (or) X-ray diffraction. All types of cement production analytical devices may be arrayed around a circle, or, alternatively, in a linear production line. The robot functions as an entire team of laboratory technicians to perform the specific analytical tasks demanded.

With virtually unerring non-stop sample processing, the entire laboratory activity can be sequenced and managed with no need for operator intervention for routine work. LIMS provides real-time monitoring of all analytical activities, status of the health and maintenance requirements of the various laboratory sensor apparatus and tracks the sample’s history and analytical sequencing. Installation and commissioning are uniquely rapid and straightforward, thanks to the modern and simplified interface design of the total system. This saves time, money, and allows you to begin enjoying the benefits of the advanced design and control systematics characteristic of the ABB AnalyzeIT AutoLab II.

A major advantage of the system is the openness in design which permits adjustments as needed for future growth, for new compliance practices, and for certification changes in environmental regulations. As more areas of the plant require monitoring of alternative fuels used or new methods in energy-saving activities, AutoLab II will demonstrate its incremental value in terms of continued flexibility and modularity. Risk management and development costs are minimized or avoided by this forward planning process...all provided by ABB. Whether revamping or providing for a greenfield plant, the ABB AutoLab II is truly a «one size fits all» design.
Customer Focus makes the ABB difference
Trust ABB to select the best in supply

As the single source for all laboratory automation needs, ABB selects the best of the available suppliers to complement a functional design. This means efficiency in overall design, delivery, installation and commissioning while reducing maintenance costs. Intelligent machines are the key to the total configuration and are chosen for the specific customer’s plant needs. These machines link directly to KM/LIMS. At this point, LIMS functions administer all laboratory and quality management aspects.

The medium is via an OPC server through ABB’s ControlIT and OperateIT, using Profinbus DP. This method optimizes the inherent advanced technology in the new intelligent machines being deployed in AutoLab II. Thus, the commonality of the databases provided by ABB’s advanced automated laboratory enables full utility of the functionality of all sensors and devices and their respective design innovations in a unified manner. Maintenance and management of the assorted machines becomes automatic and consistent. The avoidance of this otherwise time-consuming activity saves many hidden costs and adds value to your investment in quality systems. ABB’s customer-centric approach guarantees a single entity as the interface for all of your needs – all products and solutions are available through one Key Account Manager, whose business is to know your business, and know exactly where to find the solution to your changing needs.

Consultative supply recommendations
Your needs are our goals

A completely automatic sampling system built for today’s cement plant by the leader in the field of manufacture and supply to hundreds of installations. Totally new in terms of faster throughput, incorporating the latest in engineering design, and interfaced with the ABB Knowledge Manager (KM) suite of modules. KM provides LIMS (cement-dedicated Laboratory Information Management System) with ABB’s RMP (Raw Mix Proportioning) for the epitome of production optimization.

The AnalyzeIT AutoLab System employs the latest developments created specifically for the needs of our cement customers. The newest and most revolutionary product now integrated in AutoLab II is the Hot Meal Sampler from Herzog Maschinenfabrik. This automated sampler provides timely, dependable representative samples from the process point safely and reliably. Up to now, automation of sample collection at this location has been problematical and inconsistent. The full integration of this device for the first time anywhere into the automated plant sending station as an intelligent machine and its control via ABB’s ControlIT and OperateIT via an OPC server has enhanced the automation and trouble-free collection and handling of such difficult sampling. Interfacing and full integration into the roboticized laboratory is one more step toward the new concept of laboratory automation found in AnalyzeIT from ABB.
Let ABB audit your needs and recommend a configuration that will keep your controllers happy and your production managers content. Today, there are vast choices in sensors, intelligent machines and sophisticated devices that have a bewildering assortment of interfaces and benefits. What is best for your plant is a system configuration that meets your needs for quality assurance, for production consistency, and low cost of ownership. Combining Information Management with human/machine/interface design (HMI) and automation is an exacting technology. It requires expert evaluation and decision making that can make the most of available on-line and off-line instrumentation.

The latest in direct digital rock analyzers (PGNAA conveyor belt analytics) and central laboratory analytics utilizing XRF, XRD, and laser granulometry along with environmental instrumentation normally include ABB's expert and careful evaluation of the best configuration of off-line and -real-time- at-line, on-line, in-line, and other combinations of quality monitors.

All of these have their unique data gathering systems and database management. Discrete interfacing can contribute to input confusion and lessen the value of the investments in such machines. Fortunately, ABB's experience can simplify and integrate these data generators and provide a seamless stream of usable information via Knowledge Manager and AutoLab II. Detection and reconciliation of errors become child's play and data output is converted into decision-making tools ready for the operator.

ABB's selection of products and solutions used in laboratory automation is designed for maximum uptime, operability, capability, and minimum maintenance. Structured design and a focused end goal will enhance your process, lower your overall costs, and keep your plant running in prime condition. Upgrades to software are automatic and transparent. Let ABB's AutoLab II bring incremental value to your business.

Visit our Web site at www.abb.com/cement for more comprehensive and detailed information on our products and solutions.
Future upgrades from the combined standard and new online and offline devices are paced to your plant’s growth. Finally, a ready means of easy entry for those wanting to benefit from the new generations of automation products, as they become available. A small, basic system embodying the core of AutoLab II can be rapidly extended to a fully integrated and optimized automation solution, delivering more value in staged increments.

Combining laboratory and information management makes laboratory automation accessible and practical. Lab automation under this umbrella becomes a production tool that keeps costs down, ensures consistency, assures quality, and grows with the business needs. Quality becomes a core solution and partners with data management in the overall plant requirements.

The sum is greater than its parts: Optimum ABB Lab Automation via AutoLab II is more than “pieces of equipment” used for analytical purposes. Combined with KM/LIMS and RMP, true plant integration of quality and production/process control becomes reality. Scaleable solutions tailored to your needs mean that you can take advantage of ABB’s innovations at any level suitable to your plant budget. The new technology embodied in ControlIT and OperateIT provide:

• timely organization of plant data
• full process comprehension
• compliance certification
• consistent plant production to standards
• overall quality and management control
The Value Proposition with ABB’s AnalyzeIT AutoLab II

**Variance**
Ready access to sensor data permits monitoring of variances as they occur...enabling...
- **Faster** reaction and response to avoid costly excursions.
- **Automation** of laboratory reduces manpower requirements for tedious, repetitive tasks that make performance of these tasks more reliable and free from human error. This saves money and liberates technical lab staff for more creative and valuable work.
- **High availability** of equipment and modules means lower maintenance time and related costs.
- **Improved engineering throughout**
- **Seamless integration** with legacy and state-of-the-art equipment.

**Training**
Product Courses and Industrial IT Courses:
- AnalyzeIT AutoLab
- AdviseIT Laboratory Information Management System LIMS (2 programs)
- InformIT Knowledge Manager (6 programs)
- Raw Mix Proportioning
- Cement Information Management System
- Mass Balance Workshop
- ControlIT AC800M/C – Control Builder Professional
- OperateIT – Basics and Configuration, Advanced Functions in Graphics, Operation
- OptimizeIT ABB Expert Optimizer Technology (2 programs)

Visit ABB’s training homepage for the latest courses at: [www.abbuniversity.com](http://www.abbuniversity.com), or phone us at +41 58 586 88 02.

With offices in almost every country on the globe ABB provides local support and engineering facilities that are never far from you. Our worldwide logistics ensure rapid spare parts delivery to minimize down time of your process. Remote diagnostic tools allow us immediate fixes to alarms and fault messages. Dedicated Account Managers offer fast response to your specific requests.

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