



Paint and coatings manufacturing

Creating value through integrated solutions



ABB has developed solutions and engineering services for the paint and coating manufacturing processes, including design, installation, commissioning of automated paint production plants.

Process engineering

Paint and coating applications

ABB design and supply turnkey production units for the following paint and coating applications:

- decorative paints (water- and solvent-based),
- industrial paints,
- automotive paints,
- marine paints,
- coil coatings,
- etc.

Our expertise extends to resins, glues, adhesives, compounds, inks, gelcoats and sealants.

In the range and scope of its technologies, systems and services, ABB will bring you customized solutions for a successful investment.

Process specialists

Combining the mastering of production processes and operating phases with its market knowledge, ABB has been involved in the development of international paint manufacturers. ABB paint process experts are aware of your market and production constraints. ABB has been designing and engineering original solutions for paint and coating production plants for more than 30 years.

Service and expertise for a global solution

With a real knowledge of your business, ABB are the ideal partner able to manage the project from the feasibility study, basic engineering and detail design up to the delivery, start-up and operators training of the turnkey plant. ABB will help you to optimize your project at all levels, whatever its size and specific requirements.

Technology portfolio

Using its process expertise and experience in paint and coating production, ABB has developed innovative and optimized solutions for the key paint production phases: powder handling, transfer and pigging, metering and dosing, dispersing and mixing, filtration, cleaning in place, production management and scheduling. ABB has extensive experience in integrating technologies developed by reliable partners for grinding, tinting, filling and palletizing.

Process control/automation

Based on specific referenced paint software developed for this market, ABB designs and implements the plant automation from the definition of specifications to the start-up of the unit. ABB team is composed of paint process experts and automation engineers bringing solutions and anticipating your needs in terms of computer management of formula, recipes, traceability, scheduling, etc.

ABB offer a global solution supported by:

- a project management focused organization,
- process specialists,
- efficient engineering and design departments,
- innovative products and technologies,
- worldwide sales and service network,
- the ABB global structure.



Innovative and dedicated technologies

— 01 In-Line dispersing unit with control system

— 02 Conical bottoms of dual-shaft dispersers with finished product transfer through pigged lines

— 03 Series of Clean-In-Place Delicel™

Optimised production performance

With innovative and dedicated solutions, ABB design and install customized units to meet your needs:

- streamline your production process
- design modular workshops
- implement in-line systems

ABB has developed mixing and dispersing units specially to meet the paint and coating manufacturing requirements:

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Delicel™: dual-shaft conical disperser

- wide product range (high solid content, viscosity)
- high dispersing fineness
- high pumping rate of viscous products
- excellent productivity
- batch size flexibility
- integrated cleaning devices

In-line dispersing unit

- high process flexibility
- high quality dispersion
- automated process with embedded control system
- compact and skidded unit
- compliance with HSE standards
- cost savings

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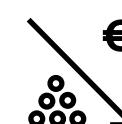


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Meet and increase production capacity

- Shorter and improved cycle times
- Controlled accuracy & repeatability
- Increase throughput



Reduced raw materials consumption

- High dosing accuracy to meet right first time requirement
- Reduced inventory and need for storage tanks

Manpower savings

- Automated dosing, mixing and cleaning
- Reduced need for manual intervention and analysis



Increased energy efficiency

- Reduced power consumption thanks to well dimensioned motors equipped with frequency inverters and integrated control.

Piggable transfer lines at every process steps

ABB propose the pigging technology at every process step for the transfer of liquid raw materials, semi-finished products from disperser to let-down tanks and finished products to filling units.



Greener and safer manufacturing units

- 01 Powder silos
- 02 Top of powder silos fed through pneumatic transport pipes
- 03 Piggable collector to precisely dose liquid materials through massflowmeters
- 04 Pig used for multiple product transfers through one line

Powder handling
Implementation of dosing, handling and pneumatic transfer solutions to drastically reduce dust, improve accuracy and save manpower when handling powders, such as:

- titanium dioxide
- calcium carbonate
- talc
- silica, aerosil,
- barium sulphate,
- etc.

Clean-In-Place (CIP) solutions
As part of an optimised plant design, ABB has developed innovative cleaning in place systems dedicated to the paint and coating industry.

In-line filter with integrated cleaning system:

- efficient filtration with limited pressure drop
- automatic declogging and self-cleaning sequence
- optimised cleaning time
- low product losses





High-efficiency cleaning system for dispersers:

- high and medium pressure systems
- automatic and repeatable cleaning
- controlled consumption and recycling of cleaning media



Pipe pigging
Thanks to the development of its components (multi-way valves, manifold, etc), the pipe pigging technology has become a real process tool flexibilising the whole production unit:

- no product cross-contamination
- minimal waste generation
- robust design and low maintenance
- attractive payback
- easy layout and modularity

-  **Safe process and workplaces**
 - Automated systems
 - Closed circuits
 - Dust reduction
 - Reduced VOC exposure
-  **Reduced material losses**
 - Accurate dosing
 - Elimination of dosing errors
 - No cross-contamination
-  **Increased flexibility**
 - Fast production changes
 - Better equipment allocation
 - De-bottlenecking
-  **Optimized cleaning and better effluent management**
 - Cleanliness
 - Reduction of effluents and cleaning products
 - Recycling of raw materials and cleaning products

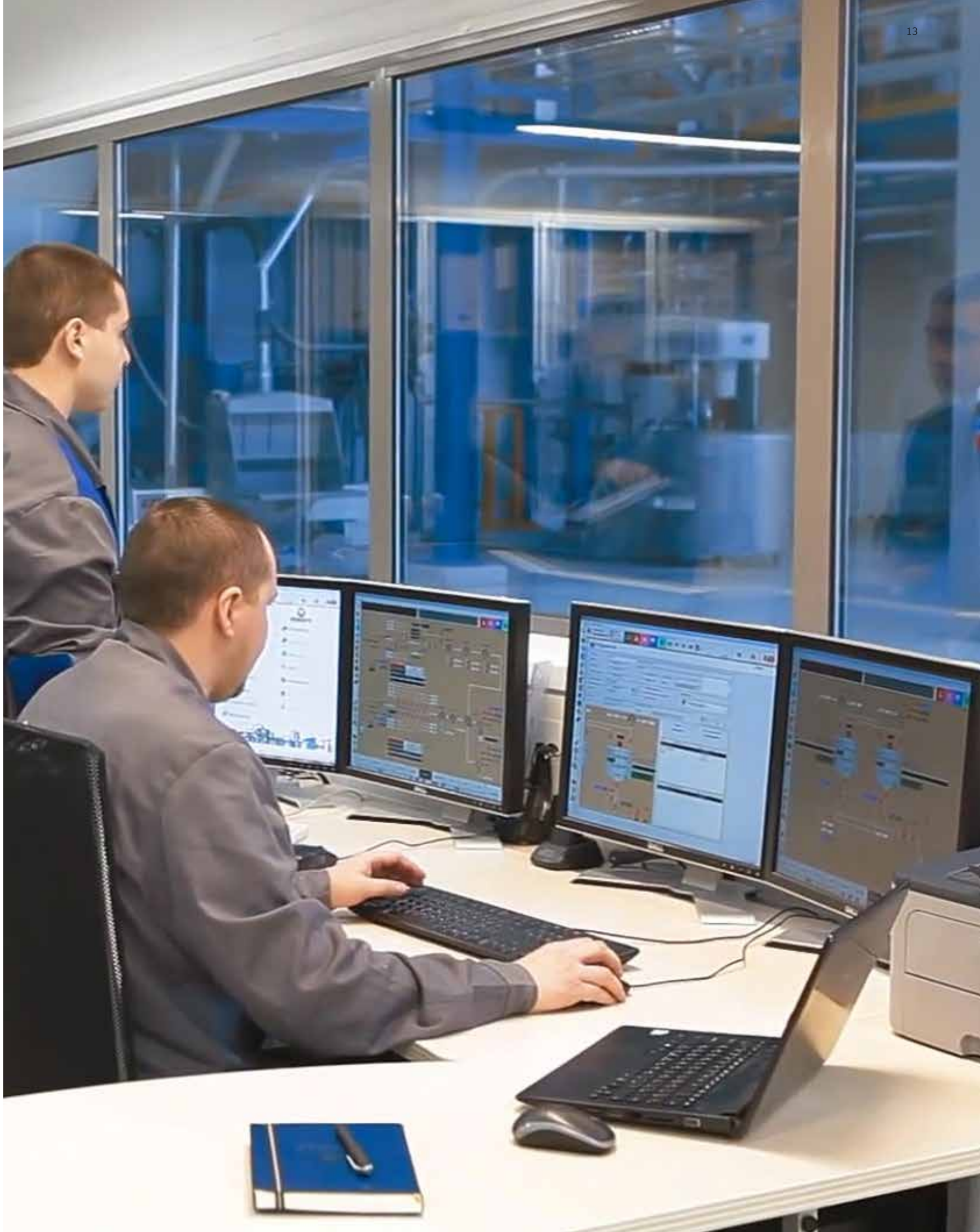


Your process under control

ABB paint process experts and automation engineers have developed Paintcel™, a powerful control system for batch production monitoring and management which perfectly fits the requirements of paint manufacturers.

Paintcel™ ensures the entire management of raw materials, product formulation, sub-recipes and recipes, inventories, production and cleaning sequences. Parameter setting enables Paintcel™ to optimize the production. Paintcel™ is a plant-wide control system integrating sub-systems such as PLCs, controllers, MMIs. It has no limits in communicating with other systems such as lab or business systems (ERP).

The scheduling function of Paintcel™ enables the management of individual unit operations. It integrates the minimisation of effluent generation, management of resources, equipment occupancy rate and packaging units.



Fully automated plants

—
01 Paintcel™ screens
with data base
and synoptics

—
02 Filling lines inter-
faced with Paintcel™
control system

Paintcel™ is a powerful control system for batch or in-line production monitoring and management which perfectly fits the requirements of paint and coatings manufacturers. Paintcel™ ensures the entire management of raw materials, product formulation, sub-recipes and recipes, resources, inventories, production batches and cleaning sequences. Parameter setting enables Paintcel™ to optimize the production.

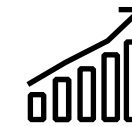
Paintcel™ can be extended to encompass the control and supervision of all the operations within the plant, from raw material reception and storage to product dispatch (blending, intermediate storage, transfers, filling and warehouse). It is a plant-wide control system integrating sub-systems such as graphics, workshop capa-

bilities, warehouse management, advanced schedule features. It has no limits in communicating with other systems such as lab or business systems (ERP).

Paintcel™ is able to be integrated with the majority of PLCs or controllers. With Paintcel™ you will achieve the total process control and plant scheduling software integration of your production system.

Enhanced productivity

- Produce on-spec with more process flexibility
- Real-time monitoring and tuning
- Management of KPIs



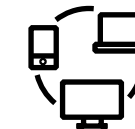
Recipe management and complete traceability

- Safe product changes
- Repeatability of recipes
- Record of lab results
- Prevent from cross-contaminations



Optimised equipment availability and resources

- Management of equipment and tank status
- Safe startups and shutdowns
- Management of assets with predictive maintenance



High connectivity control system

- Integrated and scalable architecture
- Interfaceability with ERP, lab, warehouse, ... systems
- Reports and analytics

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Performance Improvement

We know how to provide world class services anywhere, anytime when you need assistance to improve the reliability, availability, maintainability, productivity and safety of your equipment and production processes.

Our service portfolio includes engineering and consulting, maintenance, advanced services and IT tools, extensions, upgrades and retrofits, training as well as service agreements.

Thanks to dedicated specialists, you get fast issue resolution and local support at the right time.



Your performance is our concern

— 01 3-D model review conducted with the customer to ensure that the plant comply with project requirements

— 02 Let-down tanks served by pigged lines

— 03 Storage tanks in Atex area with operator terminal

Our process team will:

- evaluate your process
- analyse (with you) how to get the best return on investment
- bring you operational ideas and techniques for your plant
- optimize the operation and investment global cost, while reducing operating maintenance
- design a flexible and evolving production plant
- design equipment matching your real needs
- analyze cost benefit
- offer quality and reliable solutions
- propose unit simulation and trials
- offer complete structured service from audit-expertise to staff training
- anticipate your requirements and create innovative solutions

— We will evaluate your needs and the requirements to reach sustainable development. We help you to prepare the future.

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Based on our process engineering expertise and experience, ABB design and develop innovative solutions, especially dedicated to the paint and coating industry:

- original solutions and systems cleaning
- solutions for production organisation
- new designs of modular workshops, in-line systems, etc.

Our engineers will study how to optimize and improve your production performances:

- quality at the right price
- just in time distribution manufacturing
- direct savings on your paint production
- reactivity of your production

Our concern for health and environment protection leads us to develop original solutions to:

- reduce effluent generation
- reduce volatile organic compounds (VOC)
- optimize the cleaning and recycling
- implement safe processes and working conditions
- work in closed systems



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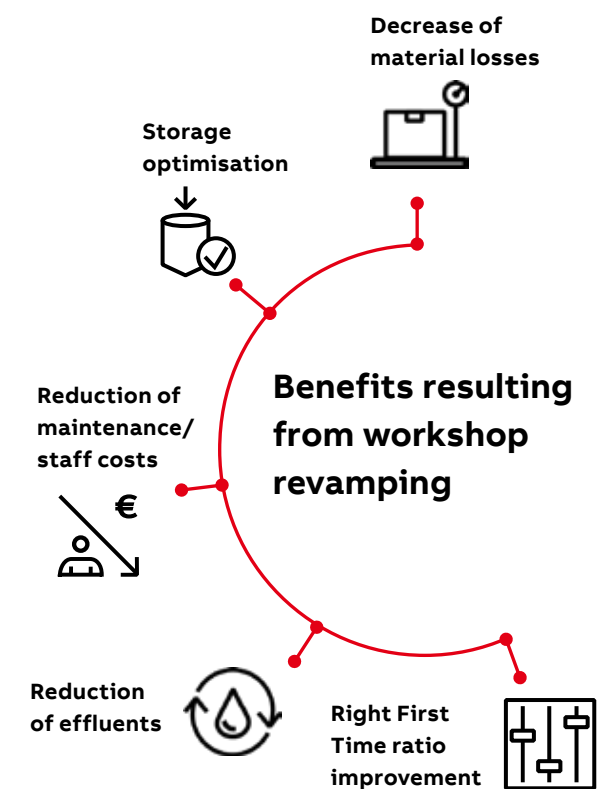


ABB will find the right solutions to reduce adjustments, increase production and ensure product consistency:

- full recipe management with complete traceability
- optimization of equipment use: dispersers, letdown tanks, grinding mills, filling and palletising lines, etc.

From consulting to life-cycle management

ABB offer a full range of dedicated services to reach an optimized operational paint plant.

Design and validation

- basic engineering
- tests of solutions
- process improvements
- plant simulation

Project execution

- detailed studies
- procurement and construction
- site activities
- commissioning and start-up

Completion and evolution

- educational services
- maintenance
- plant evolution and revamping



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