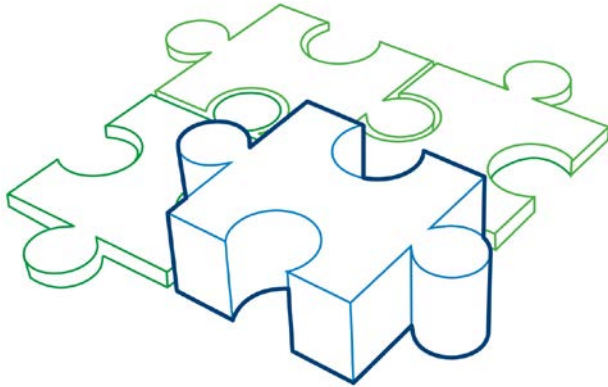


Engineering Customization



Tailored solutions for your application needs

Engineering Customization service delivers specific design solutions for your drives and automation applications. Scalable options range from engineering design studies to full turnkey delivery. Engineering Customization provides you with a broad array of options for retrofits, upgrades or modernizing of existing equipment.

Value to customer

- Proactively addresses critical plant operations to ensure maximum productivity and efficiency.
- ABB's global application engineering centers ensure local delivery of optimized designs and solutions to meet specific application and operational business requirements.

Service includes

The Engineering Customization service is delivered in the following phases:

- Clarification of specific application needs and business objective with ABB experts, including:
 - Current solution design drawings
 - Current application issues, operational risks and challenges
 - Explanation of proposed engineering solution approach
- Design phase, where ABB experts design the application & business solution:
 - Functional Design Specification (FDS) to provide clear method on application solution approach.
 - General arrangement electrical drawings, scope of works as required by the customer need.
 - Commercial proposal, specific to the customer's needs.
- Engineering & Delivery phase
 - Project plan with detailed milestones according to agreement with customer
 - Delivery of drawings, documentation, and testing (FAT & SAT) as appropriate.
 - Solution delivery, installation and commissioning (scalable based on scope)



Engineering Customization

Typical examples for ABB's Engineering Customization service:

- Retrofits, upgrades & modernization of drives and automation control system applications like:
 - Control upgrade service for installed aging or legacy ABB drive systems
 - Hardware upgrade services for installed aging or legacy ABB drive systems
 - Non-ABB drive system conversions or replacements (case-by-case review)
- New application-specific packaged technology solutions for various industry, marine and transportation requirements
 - Electric marine winch solutions (e.g. ROV recovery)
 - Test bench & dynamometer solutions (automotive, renewables, aerospace, marine)
 - Crane solutions (port & harbor cranes, industrial tower crane solutions)
 - Complete drive & control system modernization to meet new requirements or improve OEE.
 - Productivity application improvement solutions for both ABB drive systems and non-ABB drives & automation (case-by-case review)
 - Industry-specific application retrofits, upgrades and modernizations or replacements within the marine, pulp & paper, metals & mining, chemical, and oil & gas sectors.

Service does not include

- Hardware and software needed to implement the solution. These are available as part of retrofit, upgrade or modernization packages, unless part of the agreed scope. These can cover ABB drives and drives systems or non-ABB equipment, as required to meet the needs of the specific application.
- Installation and commissioning services, unless specifically agreed within the scope of the solution.
- Remote interrogation and support, unless specifically agreed within the scope of the solution.
- Integration into existing systems and Internet, unless specifically agreed within the scope of the solution.

Scope of supply coverage

- ABB drives & drive systems
- Non-ABB installed base by individual qualification (application, technology, etc.)

Customer responsibilities

- Provide required technical and commercial information (business drivers, goals, and objectives) on the current solution along with site access (as appropriate).

Other Terms

- According to the agreement between ABB and the customer