Service support for the oil & gas and chemicals industry

Power and productivity
for a better world™

ABB, a proven leader in oil & gas and chemicals

As a proven leader in the oil & gas and chemicals industries, with continued investment in new services and solutions, ABB is uniquely positioned to support your needs based on our industry, process and technical expertise.

Oil & gas and chemicals service center of excellence: Houston.

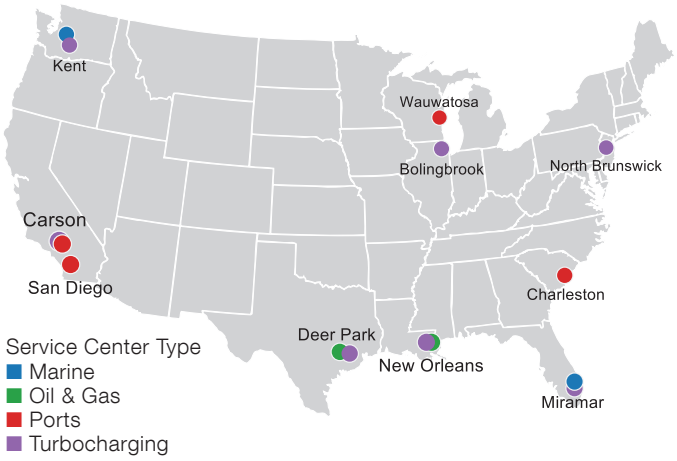
All engineers are put through a rigorous training program which equips them to provide hardware, software and development support for ABB's oil & gas and chemicals customers. ABB engineers can be quickly mobilized to site 24 hours a day, 365 days a year.

The ABB operation covers the following equipment and systems:

- Medium voltage products and systems
- Variable frequency drives and soft starters
- High voltage products
- Measurement products
- Motors and generators
- Power electronics
- Control systems
- Low voltage products and systems
- UPS Systems and Power converters
- Turbochargers

In addition to the support engineers, ABB has a team of consultants that specialize in areas such as life extension, decommissioning, alarm handling, functional safety management and recycling.

ABB has 14 workshops in nine states for oil & gas and chemicals, equipped with cleaning, balancing and repair facilities, consumable stock and fully trained engineers. These workshops, together with the engineers, are well placed to support the local market.



Focusing on the business needs of our customers

Rapid Response

Life Cycle Management

Operational Efficiency

Performance Improvement

Everyday, everywhere onshore or offshore, ABB understands and meets, the challenges of the oil & gas industry

ABB's comprehensive service portfolio is made up of 11 categories:

- Advanced services
- End-of-life services
- Engineering and consulting
- Extensions, upgrades and retrofits
- Installation and commissioning
- Maintenance
- Repairs
- Replacement
- Service agreements
- Spares and consumables
- Training

ABB provides a complete portfolio of world-class services to ensure maximum performance of your equipment.

Our services – from spare parts and repairs to consulting, optimization, and on-site services – help to improve system productivity, minimize cost and extend the useful life of your equipment and systems

What are your needs?

Rapid Response

We guarantee fast and flexible service response to maximize your equipment availability.

Life Cycle Management

We provide you powerful tools and our knowledge base to optimize and extend the life cycle of your equipment.

Operational Efficiency

We optimize the availability and efficiency of your equipment and systems to increase productivity.

Performance Improvement

We are the strategic partner to improve productivity, availability, reliability, cost efficiency and energy efficiency.

Rapid Response

Rapid Response is essential to sustain day to day operations, increase productivity, increase uptime and reduce costs. ABB's service teams are ready to provide you with the appropriate mix of services for your needs. ABB's large and varied suite of support services are specifically designed to maximize your production requirements in normal operating conditions and in critical, emergency situations.

24/7 technical support

ABB is known for good technical competence and system understanding and has engineers trained to assess a failure situation, respond with technical support to analyze the root cause and mobilize resources to remedy the situation. Our service engineers are experienced problem solvers with all necessary certification.

Spare parts

ABB offers spare parts support tailored for your needs. ABB's spare part logistics department is specifically trained in the acquisition and delivery of spare parts services for ABB's customers. In addition to providing a professional parts replacement, warranty and repairs service, the department holds and manages bonded system spares for individual customers and sites.

Workshop and factory repairs

Rely on ABB's fast response to emergency situations and planned outages with on-site or factory repairs, partial or complete reconditioning of products or systems. Re-certification and repair of complex equipment is undertaken within ABB factories. Repairs are fully guaranteed and 24 hour work is available to turnaround critical repairs.

Preventive maintenance

ABB's service team offers preventive maintenance services consisting of regular, planned inspections and core healthcare activities which deliver an effective life cycle performance in terms of longevity, quality and reliability.

Commissioning

An investment in the performance of critical equipment cannot be achieved without proper care during installation. Commissioning of equipment by an experienced ABB engineer ensures the best possibility of asset up-time and optimum performance.

Training

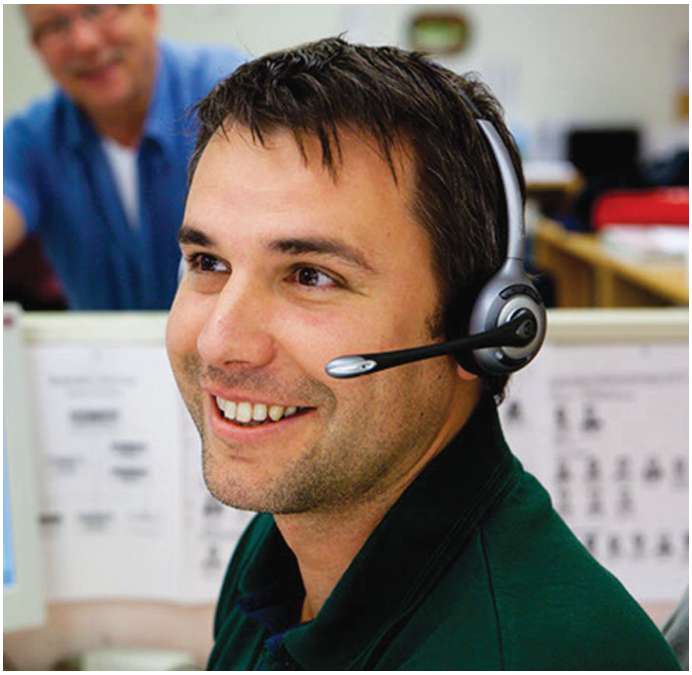
ABB's comprehensive training and continuing education programs ensure that our service professionals have a thorough understanding of your assets and that they have the knowledge, skills and experience to ensure your issues are resolved quickly, correctly and safely.

ABB has classrooms used for delivering training programs for engineers, programmers, maintenance and operations personnel. ABB provides up-to-date technical expertise on all existing and new products, processes and technologies. A wide variety of training services from scheduled classes through to on-site workshops are offered.

Service contracts

A service contract is the most efficient way to manage the life cycle of your assets. It allows priority response times and technical support demands to be specially agreed at the level of availability required. Such timely professional response serves to minimize operation downtime, consistent with the goal of sustained productivity.

Rapid Response



Service management tool

ABB's reliable and convenient service management tool ensures your automation receives the service it needs, thus reducing equipment problems. Based on ABB's best service practices, it provides access to reliable historical information and allows you to automatically schedule and implement service work orders. With our management tool, your automation equipment and processes are serviced efficiently and cost effectively, which helps increase equipment and process reliability and return on investment.

Portal for web based support services

ABB offers a global portal of web based support services for the location and sharing of technical knowledge and information to improve the quality and efficiency of ABB product support and problem resolution. The portal offers the following functions:

(1) An effective and efficient means of keeping up-to-date with all issues pertinent to the ABB equipment installed at site

(2) Access to valuable product operation and maintenance information

(3) Fast, easy around-the-clock access to a knowledge base containing valuable up-to-date hardware and software solutions

ABB Customer Service Center

The ABB Customer Service Center is a support function which will see a step change in the service provided by ABB to its oil & gas and chemicals contract customers. The Service Center's main function is to log and deal with faults, events and inquiries in a timely manner 24/7. Through a single point of contact, Service Center serves as the pathway between our customers and the support provided by our engineers.

24/7 Support Line

We have a dedicated technical staff ready to assist you whether it be a technical query, breakdown, arranging transportation or coordinating an overseas service or parts request.

ABB's network of global service centres are strategically located where there is a concentration of oil & gas and chemicals activities. These centres operate 24/7 and have comprehensive access to technical archives to offer the best level of technical support.

Life Cycle Management

Extending the usable life of your existing assets simply makes good fiscal sense. By relying on proven, familiar systems and processes, you gain increased confidence in capital expenditure plans, increase the reliability of assets, reduce dislocation and downtime associated with installing new equipment and the training needed to learn and operate it.

Life Cycle strategy

Determining what it costs to operate and maintain your equipment effectively is paramount to deciding how long to keep it, how much to invest in and when its time to upgrade. ABB's experts can help ensure the longevity of your equipment by providing comprehensive life cycle prediction and planning services. They can help you build a life cycle strategy to manage system updates, plan for system obsolescence and justify costly equipment upgrades.

Extensions, upgrades and retrofits

ABB extensions, upgrades and retrofits solutions help overcome issues associated with obsolescence, performance and regulatory standards. Upgrading existing systems and equipment with the most modern components will optimize technical and operational performance, extend remaining lifetime, and - compared to the cost of full renewal - are a very economical choice.

Life Cycle Management Model (LCMM)

Supporting the life cycle audit is a life cycle management model (LCMM). It identifies four-phases comprising "active", "classic", "limited" and "obsolete".

During the "active" and "classic" phase, the complete life cycle services are available while during the "limited" stage the equipment is no longer available for purchase. Spare parts, maintenance and repair services are available as long as materials can be obtained. In the "obsolete" phase, the equipment is not available.

Failures and subsequent plant downtime can be avoided by proactively managing your assets. Migration to current technology can often be phased to suit customer needs and budgets.

Circuit breaker evolution

ABB continues to provide maintenance and support for both ABB and third party equipment. Due to recent market feedback, ABB has developed an innovative 'onefit' solution which allows the replacement of single breakers within a main switchboard without the need to isolate the complete switchboard, thus minimizing the disruption to existing operations.

Life Cycle Management

Remote Diagnostic Services (RDS)

ABB's remote enabled services deliver maintenance, technical support and expertize to automation, electrical and propulsion systems globally. Control systems are subject to change based on environmental conditions, system upgrades, operator input and numerous other factors. Through a secure connection from the customer's network to ABB, RDS monitors system operations and changes, and addresses any technical incidents as quickly as possible. In turn, this improves the availability and safety of operations and reduces the need for on-site visits.

Intelligent monitoring and diagnostic system

ABB's medium voltage drives are available with an intelligent monitoring and diagnostics system, which allows secure access to the drive from any location in the world. It supports monitoring, configuration and diagnostics of ABB drives independent of the implemented control method, thus also enabling the connection of existent installations. Long-term monitoring functions deliver important information on equipment status, tasks needed and possible performance improvements.

ABB Remote Access Platform (RAP)

ABB's RAP provides remote access to on-site automation systems. This service enables ABB to actively participate in ongoing system monitoring and process optimization. It facilitates diagnostic data retrieval, corrective actions, remote engineerings commissioning and advanced services such as active tuning and optimization work, all to be done safe and secure from a remote facility.

Condition monitoring

ABB's range of condition monitoring solutions brings predictability to maintenance. ABB balances the cost of maintenance with the risk of failure. Through condition monitoring, customers have more flexibility to schedule maintenance work based on the actual condition of the equipment.

i) Life Expectancy Analysis Program (LEAP) for high voltage machines

This analysis program provides precise information on the remaining lifetime of the stator windings of a high voltage machine with a high degree of confidence. Having access to this data significantly reduces the risk of shutdowns caused by unforeseen failures. In addition, standard preventive maintenance can be planned around a vessel docking rather than rigidly sticking to the manufacturer's preventive maintenance guidelines.

ii) Condition monitoring for potential failure detection

ABB offers a condition monitoring service for large machines that can detect potential failure well in advance. The service can spot trouble with bearings, rotor winding defects, imbalances, internal misalignments and voltage abnormalities, providing an early-warning to plant engineers, thereby saving considerable costly downtime.

iii) Status inspection of large motors or generators

A miniature robot fitted with five cameras can crawl in the air gap between the stator and rotor of large motors or generators to visually inspect their status, thereby reducing downtime, inspection costs and the need to withdraw the rotor.

iv) Intelligent transformer monitoring system (TEC)

On-line monitor helps oil filled transformers users to increase performance, reduce failure risks and cut maintenance costs. TEC is safe, reliable, easy to use and cost effective. It is also intelligent; using standard sensors and transformer knowledge, TEC performs a complete evaluation of the operating conditions, both current and historical. It can simulate different service conditions and forecast their impact on the transformer life.

Asset Life Extension/Late Life Operation

ABB provides proven expertize and methodologies to help you analyze, optimize and extend the life of all your existing equipment and plant infrastructure. We help you to reduce plant failures, plan future expenditure and justify operating assets for longer, often for 20 years beyond their original design life.

Operational Efficiency

ABB offers services to uncover issues that limit current system performance, help you implement time and money-saving improvements and extend the life of your assets.

The services are delivered by ABB experts who have vast technical knowledge, enjoy improving processes and hold the highest level of expertise in the field. They use proven, continuous improvement methodology, special tools and knowledge of systems and processes, to identify and release valuable improvement opportunities.

ABB offers a number of services which address the following:

Cyber security

The ABB Cyber Security Monitoring Service identifies, classifies and helps prioritize opportunities to improve the security of your control system. This service collects system data for comparison against industry best practices and standards to detect weaknesses within your system's defense.

This pinpoints areas that require action and helps protect your control system by ensuring it has multiple layers of security.

Reports from this service provide detailed recommendations to reduce cyber security vulnerabilities and help to develop a focused and sustainable strategy for control system security.

Loop Optimization

ABB Loop Optimization includes a series of platform-independent, non-invasive services that can be applied to any automated process. A three step methodology—diagnose, implement, and sustain—is applied to the task of control system auditing and tuning. The diagnostic phase includes benchmarking existing performance to provide a basis for evaluating and identifying improvement opportunities. The resulting implementation plan identifies corrective activities for performance improvement and associated financial benefits. Once improvements have been achieved, sustaining services, delivered on-site or remotely, provide the means to maintain and continue process improvements.

Flow Assurance

ABB's Flow Assurance range of products covers all aspects of slug management and suppression, from stabilizing multi-phase flow in wells and production flow lines to mitigating the remaining slugs and transients in the downstream surge volumes, whilst minimizing the pipeline inlet pressure. It is a non-intrusive approach to handling oscillations in oil and gas production systems that enable substantial increases in production, reduced variations and improved regularity and predictability, leading to reduced off-spec production and environmental impact.

Operational Efficiency

Complying with regulations

The critical job of complying with ever increasing regulation is time consuming and places a burden on existing resources. ABB provides services to help you monitor new regulations, comply with existing ones, sustain operations and ensure that you maintain your license to operate.

Remote-enabled service delivery platform

ABB's secure remote-enabled service delivery platform called ServicePort™ allows users to view, scan and track key performance indicators (KPIs) to ensure maximum performance of equipment and processes, resulting in higher operational efficiency.

ABB senior service engineers use ServicePort's built-in retractable user interface to analyze key performance indicators on customer equipment and processes. ServicePort takes the expertize ABB has built over decades of equipment and process support, and distils these practices into automatic, remote-enabled tools that provide high levels of services efficiently, expeditiously and globally. Deployed at customer locations, ServicePort provides customers and ABB service experts, local or remote access to views of KPIs and diagnostic data. By automatically collecting, analyzing and monitoring specific KPIs, ServicePort helps users make more informed decisions, resulting in improved availability, process efficiency and product quality, while reducing risk, raw material and energy costs. ServicePort gets to the heart of a matter quickly through secure, remote-enabled connection to ABB experts, who can help users identify issues and improvements at anytime, anywhere in the world.

Performance service channels

ServicePort™ runs multiple channels that enable the delivery of performance services. These channels provide a way to visualize equipment and/or process performance. Through periodic or continuous analysis of KPI's, issues are identified, classified and prioritized based on severity, process area, criticality and/or financial impact.

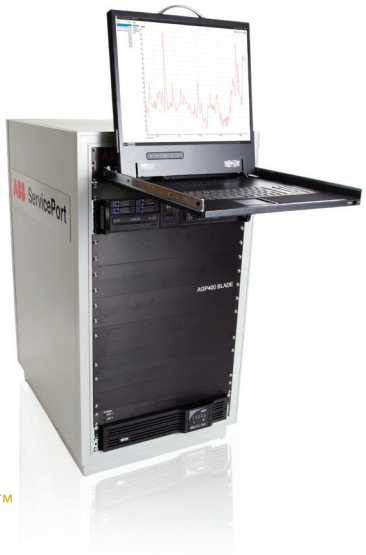
Performance service channels fall under three main categories:

Equipment Performance Services monitor utilization and performance of ABB manufactured products, such as control systems, motors, drives, instruments and analyzers.

Process Performance Services diagnose and improve production processes.

Industry Performance Services diagnose and improve equipment or processes specific to a certain industry.

Each performance channel offers a package of software tools that gathers, stores and analyzes system or process data within ServicePort™.



ABB's ServicePort™

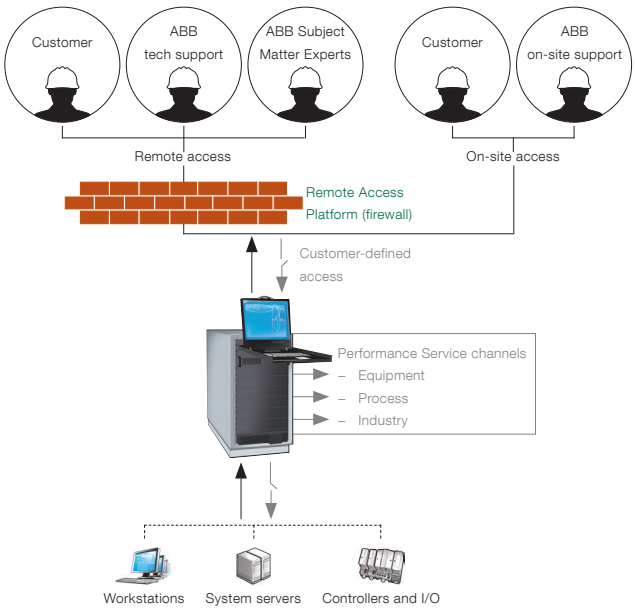


ABB ServicePort links ABB Advanced Services with your equipment and processes via on-site visits or remote connection. You control access to the data collected and stored within ServicePort, as well as to the control network via ServicePort.

Performance Improvement

ABB can be your long-term strategic partner providing the knowledge and experience needed to drive organizational improvements.

ABB provides consulting expertise to help your organization create a culture of continuous improvement and operational excellence. Whether you are looking for programs to improve safety, use energy more wisely or improve plant reliability, we can provide seasoned expertize, practical tools and proven methodologies to help you achieve strategic business change.

Safety

ABB shares every organization's commitment to making employee, plant and process safety the top priority. We can help assess risks using studies or audits such as HAZOP, PHA, SIL, human factors assessments or our proprietary Process Hazard Review. Based on the results, we can help develop and implement ongoing safety programs that reduce safety risks while minimizing process disruptions.

Increasing energy efficiency and reducing costs

With energy costs continually increasing it makes sound fiscal sense to ensure that your operations are as efficient as possible. However, a surprising number of companies don't have an energy plan. Our experts can analyze your energy needs and usage, and help you identify and prioritize thermal and electrical energy efficiency improvements across your entire plant or business. We then work with you to develop and implement a comprehensive energy efficiency program.

Alarm Management

Alarm systems are often the back stop for controlling process safety incidents, but are often not effective due to alarm flooding or inadequate response to alarms. Effective alarm management requires prioritization of alarms, management of nuisance alarms, monitoring alarm system effectiveness, correct operator training and response and human factors in the control room.

ABB has vast experience of helping operators to improve their performance in all of these areas.

Sea-going vessels availability and safety

ABB provides a comprehensive motion monitoring, forecasting and decision-support toolkit which improves availability and safety of sea-going vessels during weather-sensitive operations.

Ship performance benchmarking

ABB also offers a range of products designed to take an iterative approach to ship performance benchmarking that consists of onboard modules for energy monitoring and optimization and office tools for fleet-wide data analysis. They look at the vessel as a whole, instead of providing separate decision support tools for different problem areas.

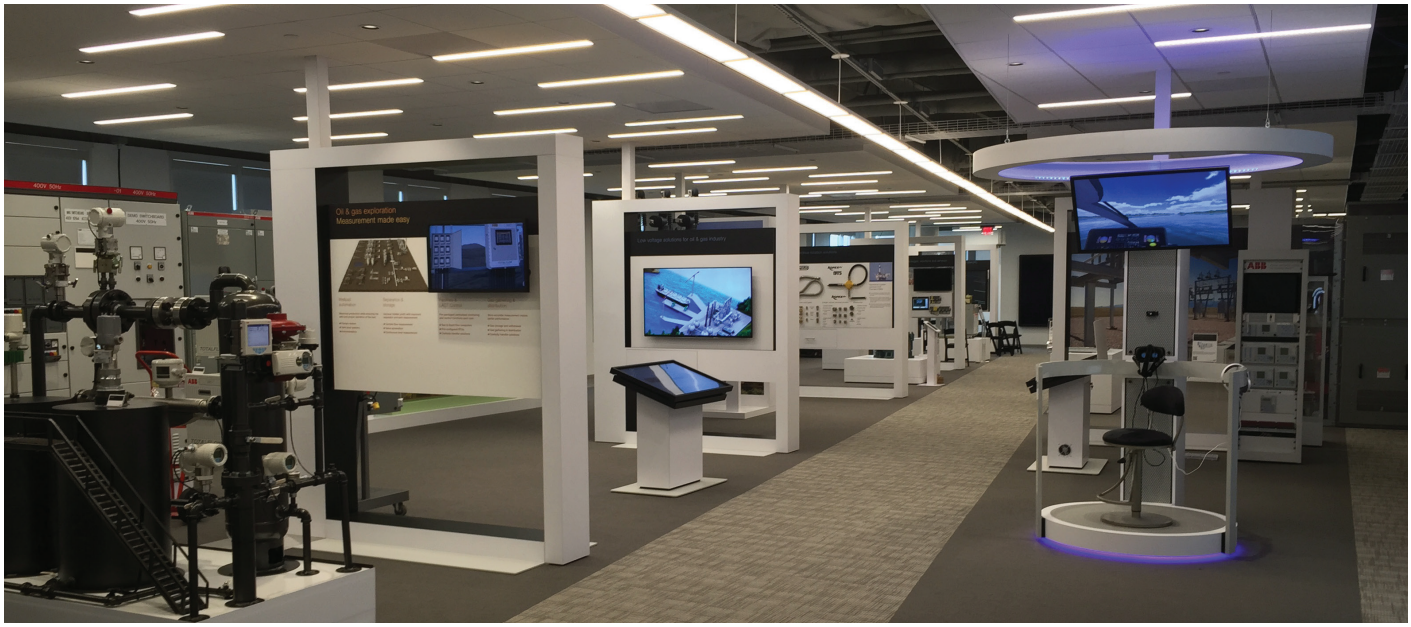
Motion compensation system

ABB's motion compensation system is a versatile, portable and low cost motion compensation system that can be installed on new or existing marine and offshore applications. The company behind the innovation is offering to integrate the system within any existing or new winch or crane control system.

Turbocharger upgrades

Upgrading your turbocharger is a very low-risk operation with benefits ranging from reduced fuel consumption, reduced emissions, to increased speed margin, improved containment and reduced or prevented de-rating depending on the application.

ABB University



Training to fit your needs

We understand the importance of delivering high quality training to provide knowledge for the field. We support the development of the skills required now and in the future to operate, maintain and extend the life of your products and systems.

Training is offered at our training centers, locally at your plant site, and even online. ABB also provides a needs analysis to simplify the process of identifying training requirements when not sure what training meets your needs. We offer training for ABB products, processes and applications, general technology as well as training contracts and training assessment programs. We also cover business processes of development, manufacture, sell and deliver projects and products.

People and leadership competencies are very important, so we do focus as well on personal development training of social competencies including languages and cultures.

For more information on course content, location and availability, see http://new.abb.com/service/training/abb-university/united-states.

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