

Industrial Services and Solutions Oil & Gas and Petrochemical





#### **ABB Service and Product Guide**

#### Measurement Products USA

- Service
- Actuators and Positioners
- Analytical Instruments
- Device Management, Fieldbus and Wireless
- Flow Measurement
- Force Measurement
- Level Measurement
- Natural Gas Measurement
- Pressure Measurement
- Process Analytics
- Recorders and Controllers
- Temperature Measurement

#### Control Systems

- Services
- 800xA
- Advant OCS with Master SW
- Advant OCS with MOD 300 SW
- Compact 800
- Freelance
- Safety Systems
- SATT
- Symphony DCI System Six
- Symphony Harmony INFI 90
- Symphony Melody
- Symphony Plus

#### Collaborative Production

#### Management

- CPM Applications
- CPM Core

#### Drives, inverters and converters

- Drive Services
- DC Drives
- Drive Options
- Drive PC Tools
- Low voltage AC drives
- Medium Voltage AC Drives
- Solar inverters

#### **Generator Circuit Breakers**

- Flexible Connection Kit
- HEC 7/8
- HECPS-S
- HECS
- HECS-R
- HVR-63

#### **Insulation Components**

- Cast Epoxy
- Generator Insulation Kits

### Medium Voltage Products and

#### **Systems**

- Service
- Circuit Breakers
- Compact Secondary Substations (CSS)
- Contactors
- Distributed Energy Storage
   Modules
- E-Houses (Application Modules)
- Fault Current Limitation & Arc
- Fuses and Cutouts
- Instrument Transformers & Sensors
- OEM Switchgear Kits & Parts
- Reclosers & Sectionalizers
- Smart Voltage Components
- Surge Arresters
- Switches & Disconnectors
- Switchgear and Motor Control
- Vacuum Interrupters & Poles

#### **High Voltage Products**

- Service
- Capacitors and Filters
- Circuit Breakers
- Gas-Insulated Switchgear
- Instrument Transformers
- Surge Arresters
- Switchgear Modules

#### **Transformer Components**

- Bushings
- Composites
- Distribution Components
- Insulation Materials
- Oil Treatment
- Power Components
- Tap Changers

#### Turbocharging

- Service
- Turbochargers

#### Low Voltage Products and

#### **Systems**

- Service
- Cable Distribution Cabinets
- Circuit Breakers
- Connection Devices
- Control Products
- Door Entry Systems
- Enclosed Switches
- Enclosures
- Fusegear
- Low Voltage Systems IEC
- Low Voltage Systems NEMA
- Modular DIN Rail Products
- Power Quality Products
- Software Tools
- Switches

#### Reactors

**Products** 

- Liquid-Filled

#### **Power Electronics**

- Power Electronics Service
- Control Systems
- Energy Storage & Grid Stabilization
- Excitation Systems & Combined Solutions
- Generation
- Grid interconnection
- High Power Rectifiers
- Power Quality
- Sensors
- SYNCHROTACT® Synchronizing

Products

- Traction Converters

#### Transformers

- Service
- Dry-special
- Dry-type
- Liquid-filled

#### Motors and Generators

- Service
- Energy Efficiency
- High Voltage Induction Motors
- IEC DC Motors
- IEC Low Voltage AC MotorsMotors and Generators for
- Explosive Atmospheres
- Servomotors
- Synchronous GeneratorsSynchronous Motors
- SynRM motor and drive package
- Traction motors and generatorsWind Power Generators

#### Mechanical Power Transmission

#### Products

- Bearings
- Conveyor Components
- Couplings
- Gearing
- PT Components

#### Robotics

- Service
- Application Equipment &
- Applications by Industry
- Controllers
- RobotsSoftware Products

Accessories

### Power Protection & Automation

- Protection and Control (Distribution)
- Protection and Control
- (Transmission)

   Relion
- Substation Automation

### Metallurgy Products

- Service
- Application Steel Strips
- Stirrers & Brakes for Steel
- Stirrers for Aluminium Furnaces

### Semiconductors

- \_\_\_\_
- GTO
- IGBT and Diode DiesIGBT and Diode Modules
- IGDI
- IGCT
- Presspack DiodesSilicon Surge Voltage Suppressors
- Thyristor

#### Power Cables and Cable

#### Accessories

- Cable Accessories
- Cable System (36 kV and above)

Industries and utilities > Oil and Gas

As a proven leader in the Oil & Gas and Petrochemical Industry and with continued investment and expansion of new services and solutions. We are uniquely positioned to support your changing requirements based on our industry, process, and technical expertise.

Contact us to learn more about how our services and solutions can help you to:

- Keep production running: Four ways to keep production running (video)
- Maximize system performance: How ABB service extends the lives of automated systems (video)
- Optimize process performance: ABB's three step optimization process (video)
- Deliver operational excellence: Energy efficiency (video)

#### Ask us about Consulting and Asset Centered Services:

- Asset closure and demolition
- Data center equipment services
- Drilling drive design and installation
- Electrification and power distribution services
- Electronic shift management systems
- Energy management services
- Environmental system maintenance and reporting services
- Health, safety and environment quality assurance
- Human factors engineering services
- Industrial water care and minimization
- Maintenance management systems consulting
- Reliability services
- Specialist design services
- Subsea transformers and variable speed drives
- Third party automation services
- Third party spares parts management services

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#### About this document



Scan this QR code, or visit <a href="http://goo.gl/2xFXY">http://goo.gl/2xFXY</a>, to receive a PDF version of this document, which includes hyperlinks to additional ABB.com information.

### Why ABB Solutions are Better

### In-depth industry expertise and support

# Ask about: ABB's ranking as number one in supplier provided services\*

ABB's broad portfolio of services for automation and power provide world-class support, the highest level of competence, and deep understanding of your systems, applications, and processes. ABB services improve equipment productivity, minimize costs throughout the complete lifecycle, and extend the useful equipment life.

### The leader in control systems

# Ask about: ABB's ranking as the number one control system supplier for more than ten years

As the #1 ranked distributed control system provider in the world for over 10 years, ABB lays claim to a broad knowledge base including hardware, software, applications (continuous control, batch, QCS and DCS-based SCADA), project services (project design through project management and startup), and non-contract maintenance services. ABB Leads the market in the following key industries; number one in Oil & Gas, Pulp & Paper, Cement & Glass, Mining & Metals, Continuous Applications; and number two in Electric Power, and Batch Applications\*.

### The gold standard for system evolution

# Ask about: Automation Sentinel, control system lifecycle support and evolution program

No one's evolution program makes it easier and more affordable to evolve a control system. ABB system evolution makes it easy to remain competitive and position production operations for growth.

Evolution programs prepare ABB automation systems for new technology as it becomes available and continuously evolves systems to new levels of control and connectivity. Lifecycle support programs adapt to meet strategic requirements at every stage of a control system lifecycle. No other control system vendor can offer this level of flexibility.

# Optimization services with documented ROI of 10% to 1,000%

Ask about: Optimization Services for Industrial Boilers, Paper Machines, Control Loops, Tuning and System Performance, Alarm/Event Management, Batch Processes, Advanced Process Control.

ABB Optimization Services deliver profitability. They use proven, continuous improvement methodology, special tools, and knowledge of systems and processes, to identify and release valuable improvement opportunities.

ABB optimization engineers are creative and single-minded. They enjoy improving processes, and hold the highest level of expertise in the field.

# World-class best practices for preventive maintenance

#### Ask About: ServicePro

ServicePro provides best preventive maintenance programs for every ABB technology, developed by ABB R&D; and refined by customers and 1,000+ experienced ABB field engineers. Maintenance processes are continuously measured, reported, and tracked then synchronized with the ServicePro database. This process ensures that the latest and best maintenance procedures are available.

The application of these best practices ensures system and process availability are improved, downtime and maintenance cost reduced and automation life extended.

### Cutting-edge service-enabling technology

#### Ask About: ServicePort

ABB ServicePort, a software/hardware device installed on site, enables ABB experts to provide local support through remote-enabled technology. ServicePort allows ABB assistance with system configuration, process optimization, preventive and corrective maintenance, work order tracking, spare parts, diagnostics, improvement implementation, condition monitoring, and allows faster response and more cost effective access to ABB experts.

<sup>\*</sup>Rankings according to ARC's 2010 Distributed Control System Worldwide Outlook Report

#### Proven telecom engineering capabilities

#### **Ask About: Telecommunications**

ABB is a highly qualified telecommunication solutions provider with extensive experience and global capabilities, specializing in turnkey telecom projects for the Oil and Gas industry. For over 25 years we have been in the forefront of developing communication solutions - focusing on efficient, safe and profitable operations for our customers.

Through the years, ABB has built a specialized telecommunications organization dedicated to the needs of the offshore, onshore, LNG and pipeline market segments. We bring a unique level of competence into each new project, and our capabilities within telecom engineering, integration and total project management and execution have been proven in some of the most demanding projects in the industry.

### Reliable and secure electrical power supply

#### Ask About: Power Management System

ABB's Power Management System keeps power flowing to your offshore platform, FPSO, refinery, LNG complex or large petrochemical process facility. The system helps secure a reliable and steady electrical power supply - despite shortages, outages, overloads or fluctuations.

Oil and gas processing plants from the Arctic Ocean to the deserts of Qatar rely on ABB's Power Management System. It helps prevent blackouts and disturbances of operations while it controls energy costs, enhances safety and mitigates both environmental and health impacts.

### Integrated, fully scalable safety systems and services

#### Ask About: Safety Systems

ABB has over 30 years of accumulated experience in designing, implementing and maintaining fault-tolerant, programmable safety systems. Our offering includes certified safety controllers and instrumentation as well as lifecycle services; from facilitation of Safety Integrity Level (SIL) determination to certified implementation capabilities.

Through System 800xA's common operations, engineering, and information environment for Basic Process Control Systems (BPCS) and Safety Instrumented Systems (SIS), ABB provides safety solutions that are easily scalable from a few loops to complete safety systems.

### Design of safe, efficient and effective control room environments

#### Ask About: Control Room Design

The control room is the most important room in an oil and gas facility, yet many are poorly designed. In addition to potentially contributing to operator error, badly-planned control rooms will fail to attract the caliber of operator needed to run today's highly integrated process facilities.

A total control-room environment, focused on operator needs, promotes fast, safe and correct decision making. It gives operators easy access to the information they need through fully interactive displays and allows them to quickly exchange critical information with colleagues. In such an environment, operators stay alert, engaged and proactive at all times, in full control of routine tasks and ready to tackle the unexpected.



### **Advanced Services**

Analyzing and utilizing automation data effectively is paramount to decision-making and response time. ABB process and asset optimization services use a proven, continuous improvement methodology, special tools, and knowledge of the systems and processes in your operation to identify improvement opportunities.

- Asset optimization:
  - Loop Performance Service
  - Optimization Implementation
- Fingerprints Diagnostics:
  - Alarm Management
  - Industrial Boiler 800xA System

Harmony System

- NIDS/HIDS management

User management

- Support creation of a

security organization

- Support security policy

Virus removal

creation

- Loop Performance
- Energy efficiency
- Production optimization
- Power quality and grounding audit
- Microsoft patch management
- Cyber security:
  - Antivirus management
  - System backup/restore management
  - Control system security
  - validation
  - Risk assessment
  - Remote monitoring and operations room
- Operational excellence reliability
  - Service environment
  - Management of underpinning contracts
  - Plant integrity support
  - System ownership support, technical account management
- Criticality classification

## Spare Parts and Repair

ABB's global logistics network is strategically positioned to provide fast parts and repair service throughout the world, 24 hours a day. Our organization uses standardized processes, tools and metrics to ensure that components are delivered efficiently to your site.

- Parts Repair Service
- Parts Refurbishment Service
- Remote Troubleshooting
- Corrective maintenance
- Parts inventory management
  - Parts Fingerprint
  - Inventory Access Program
  - Lease to own spare parts
  - Parts contracts
- Pre-Owned Parts
- Parts Test Service
- **Emergency Parts Service**
- Parts exchange services
- **Business OnLine**
- Parts maintenance, repair, and overhaul (MRO)
- Spare Parts Service
- Preventive Maintenance Kits
- Parts kits
- Extended warranty time



### **Evolution and Retrofit Services**

The ABB lifecycle management model provides the framework used to develop and provide evolutionary services that maximize availability and performance throughout the life of ABB equipment. This model enables ABB to provide optimum support to end-users and a smooth transition to new software and equipment when a product reaches the end of its lifecycle. Most ABB products provide useful service for twenty years or more. Throughout the product lifecycle, we work to provide solutions that expand the functionality and extend the lifecycle of your equipment, while maintaining your core investment.

- Automation Sentinel
- System Extensions for System 800xA
- Control System Evolution Services
- 800xA Lifecycle Simulator
- Software upgrades
  - Software Graphic Conversion Service for Harmony
  - Software Graphic Conversion Service for Advant OCS with MOD300
  - REUSE OGP Library
  - Software license maintenance, software upgrade agreement
- Software management
- Retrofits
- Hardware upgrades
- Parts Kits

### **Engineering and Consulting**

ABB offers consulting services to identify key potential for improvement in the areas of industrial asset management, production processes and operations' infrastructure. Our highly qualified experts have an in-depth knowledge of the needs as well as best practices in the Oil, Gas and Petrochemical industry, whether you have a single or a comprehensive technical/organizational issue.

- Green machine
- Polymer recovery solution
- Wellsite WetMeter package
- Installation and commissioning
- Engineering services
  - Engineering configuration
  - Engineering planning and specifications
  - Lifecycle Analysis
  - Site Audit
  - Site Survey
- Industrial Energy Efficiency
- Energy efficiency improvements
- Maintenance management systems consulting
- Operational excellence
  - Reliability Fingerprint
- Telecommunications
- Environmental Consulting
- Safety
- Advanced process control
- Automation systems
- Control system manufacturing
- Engineering, design and drafting
- Health, safety and environment quality assurance
- Integrity management pRIME
- Operational improvement
- Reliability and plant performance improvement
- Project management, EPCI delivery for EICT
- Validation Consulting
- Application engineering



### Remote and Technical Support

The rapid advancement of automation and information technology in the oil and gas industry requires a high level of expertise in maintaining and managing resources. ABB also understands the importance of ensuring security and optimization at all times. The ABB Service Environment has been developed specifically to meet these challenges.

- Service Environment for oil and gas
- Remote troubleshooting
- Technical Telephone Support: SupportLine
- Wireless remote diagnostic solution for analytical instruments
- Remote Access Link Connectivity
- Drive Monitor: Remote enabled service for MV Drives
- ServicePort Service Delivery Device
- Remote condition monitoring

### Maintenance and Field Services

Effective predictive, preventive and corrective maintenance practices maximize the performance of your automation and production equipment. ABB service personnel are trained in the latest diagnostic, repair and maintenance practices to ensure high value for your maintenance investment. Maintenance solutions such as condition monitoring help to predict equipment failure and prevent costly downtime.

- Power quality and grounding audit
- Remote condition monitoring
- Life Expectancy Analysis Program for motors
- Resident engineer program
- Resident field service engineer for analytical instruments
- ServicePro 3.0 Service Management System
- Predictive maintenance
- Preventive Maintenance
- Maintenance Contracts
- Mid-Life Refurbishment
- MACHsense-P condition monitoring for motors
- Inspection and diagnostics
- Diagnostics and Condition Assessments
- ABB Full Service®
- Service agreements
- End-of life services
  - Disposal and recycling
  - Resale
  - SF6 reclaim and recycling



### **Training**

A skilled and efficient workforce is a plant's most valuable asset. We help to increase workforce knowledge, providing more productive response to system and process challenges. Our training programs for engineers, programmers, maintenance, and operations personnel provide comprehensive and upto-date technical expertise for existing and new products, processes, and technology advances. Training is available onsite at ABB training facilities or locally at your plant site.

- ABB University
- Discount programs
- Coaching services
- Classroom training
- On-site training
- E-Learning
- Authorization process training (expert FSE)
- Maintenance and Operator Training

### Installation and Commissioning

ABB service engineers, who understand your process and system, deliver expert on-site Installation and Commissioning services for ABB products and systems. Services range from self-maintenance support to consulting, support and full project management and complete outsourcing solutions.

- Field Services
- Meter Proving Services



### Main Automation Contractor/ Main Electrical Vendor

Manufacturers and plant operators are turning to automation and electrical product developers to provide industrial solutions that meet the technical and execution requirements of their complex facilities. This approach requires product developers to shift from an equipment supplier to a role in which they are providing engineered solutions. ABB defines this role as a Main Automation Contractor (MAC) or Main Electrical Vendor (MEV).

#### Advantages of this approach include:

- Complete project deliveries
- Single point of contact
- Best-in-class product portfolio

#### **Products and Solutions:**

#### FEED Stage

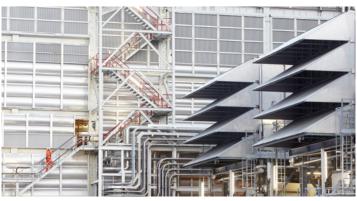
- Cost Estimate
- Scope of Work
- Schedule and Reporting
- SystemArchitecture
- FunctionalSpecifications
- Third-partyInterfaceRequirements

#### Detailed Engineering

- Detail Design
- Procurement
- Manufacturing
- FactoryAcceptance Tests(FATs)

#### Site Completions

- Installation and Power-up Support
- Training
- Commissioning/ Start-up Support
- Documentation



### Gas Processing

Our solutions allow real-time access to gas processing operations and performance with minimum cost of investment, operation and maintenance.

#### **Products and Solutions:**

- Advanced Control & Optimization
- Control Systems
- Generators, Motors, Drives & Power Electronics
- Oil & Gas Measurement
- SCADAvantage
- Analyzers & Analytical Solutions
- Electrical/ Integrated Project Solutions
- Instrumentation
- Safety Systems
- Telecommunications
- Control Room Design
- Power Management Systems





### Liquified Natural Gas

ABB provides total automation, electrification and telecommunication solutions that ensure safe, environmentally friendly and profitable LNG operations.

#### **Products & Solutions:**

- Advanced Control & Optimization
- Control Systems
- Generators, Motors, Drives & Power Electronics
- Oil & Gas Measurement
- Analyzers & Analytical Solutions
- Electrical/ Integrated Project Solutions
- Instrumentation
- Safety Systems
- Telecommunications
- Control Room Design
- All Electric Compressor Drive Systems
- Power Management Systems

### **Onshore Production**

We have worldwide engineering centers located in over 40 countries with over 4,500 dedicated engineers and project managers. We understand the needs of your industry and use our global technology resources to meet them.

#### **Products and Solutions:**

- Control Systems
- Generators, Motors, Drives & Power Electronics
- Remote Measurement, Custody Transfer, RTUs, BTU
   Analyzers
- SCADAvantage
- Analyzers and Analytical Solutions
- Electrical/Integrated Project Solutions
- Instrumentation
- Telecommunication
- Control Room Design
- Power Management Systems





### Refining

ABB offers a full spectrum of services to the refining industry, including a fully integrated package of advanced refining process technologies – solutions for blending components, reformulated fuels, hydroprocessing and bottoms upgrading.

#### **Products & Solutions:**

- Advanced Control & Optimization
- Control Systems
- Generators, Motors, Drives & Power Electronics
- Oil & Gas Measurement
- Analyzers and Analytical Solutions
- Electrical/ Integrated Project Solutions
- Instrumentation
- Safety Systems
- Telecommunications
- Control Room Design
- Power Management Systems

### **Terminal Automation**

Our terminal solutions allow real-time access to terminal operations and performance with minimum cost of investment, operation and maintenance.

#### **Products & Solutions:**

- Control Systems
- Enhanced Terminal Automation
- Generators, Motors, Drives & Power Electronics
- Oil & Gas Measurement
- Analyzers & Analytical Solutions
- Electrification
- Instrumentation
- Safety Systems
- Telecommunications
- Control Room Design
- Power Management Systems





### Gas Distribution

ABB is a leading provider of products & solutions for the gas distribution segment. We have extensive experience, provide global capabilities, and specialize in turnkey projects. ABB focuses on efficient, safe and profitable operations for our customers.

#### **Products & Solutions:**

- Control Systems
- Generators, Motors, Drives & Power Electronics
- Remote Measurement, Custody Transfer, RTUs, BTU
   Analyzers
- Analyzers & Analytical Solutions
- Electrical/Integrated Project Solutions
- Instrumentation
- SCADAvantage
- Telecommunications

### **Integrated Operation**

According to Statoil ASA, one of our main customers, Integrated Operations is a whole new approach to solving the challenges of having personnel, suppliers and systems offshore, onshore and in different countries. Furthermore, Integrated Operations involves using real-time data and new technology to remove the divides between disciplines, professional groups and companies.

Statoil ASA claims that some of the benefits of Integrated Operations are as follows:

- Improved HSE
- More efficient drilling operations
- Better placement of wells
- Production optimization
- Increased recovery
- Better reservoir and production control
- Better monitoring of equipment and more efficient maintenance
- Better resource exploitation
- Increased regularity (uptime)

#### **Products & Solutions:**

- Asset Management & Condition Monitoring
- Information & Alarm Management Applications
- Operation & Collaboration Centers
- Flow Assistance & Production Optimization
- I.T. Topology & Infrastructure
- Performance Solutions & Services





### Offshore Production

Focusing on the needs and challenges of our customers, ABB provides innovative electric power, automation and telecommunication solutions to the offshore Oil and Gas industry.

#### **Products & Solutions:**

- Advanced Control & Optimization
- Control Systems
- Generators, Motors, Drives & Power Electronics
- Oil & Gas Measurement
- Analyzers & Analytical Solutions
- Electrical/Integrated Project Solutions
- Instrumentation
- SCADAvantage
- Safety Systems
- Telecommunications

## **Pipelines**

Our experience as a turn-key supplier includes compressor stations, pumping stations, block valve stations, scraper stations, metering stations, pressure reduction facilities among others.

#### **Products & Solutions:**

- Control Systems
- Generators, Motors, Drives & Power Electronics
- Remote Measurement, Custody Transfer, RTUs, BTU
   Analyzers
- Analyzers & Analytical Solutions
- Electrical/ Integrated Project Solutions
- Instrumentation
- SCADAvantage
- Telecommunications

#### → 1 800 HELP 365

(1 800 4357 365)

Outside USA/Canada: +1 440 585 7804

#### **Telephone menu options**

#### 1 Robotics:

Paint, Powertrain, Body-in-White, Flexpicker, Press Automation, Weld.

- 1 Technical Support or Field Service
- 2 Parts
- 4 Training
- 5 General Inquiries

#### 2 Process Control and

#### Network Management Systems:

Process Control Systems: Decathlno, Industrial IT System 800xA, Advant/ MOD 300, Symphony Harmony/INFI 90,Symphony DCI/DCI System Six. Network Management Systems: EMS/ SCADA, DMS, BMS.

Service for Control Systems

- 1 Field Service
- 2 Parts
- 3 Technical Support
- 4 Training

# 3 Instrumentation and Process Analytics:

Service for Measurement Products

- 1 Field Service
- 2 Parts
- 3 Technical Support
- 4 Training

#### 4 Drives, Motors:

Field Service, Parts, Tech Support, Training.

Service for drives, inverters and converters

#### 5 Quality Control Systems (QCS):

Quality Control Systems: Advant/ Master, Accuray, 1180,1190, ULMA, Measurex.

- 1 Field Service
- 2 Parts
- 3 Technical Support
- 4 Training

#### 6 Low Voltage Products and Systems

(≤480V): Circuit & Motor protection, Electronic Controls, PLCs, Panel Switches, Capacitors, Relays, Soft s. Brands Include: SSAC, Entrelec, SACE. Service for Low Voltage Products and Systems

#### **7 Power Products** (>600V-800kV):

Medium and High Voltage Products:
Transformers, Relays, Switchgear,
Breakers, Capacitors, Switches.
Brands Include: ASEA, Westinghouse,
BBC, ITE, BerMac.
Service for Medium Voltage Products
and Systems

Service for High Voltage Products Service for Transformers

#### 8 Substation Automation:

PCM, Combiflex, IED, Protection Relays, Microscada, RTU Controls.

# 9 Power Generation and Water Utilities:

Field Service, Parts, Tech Support, Training.

#### 0 ABB Help Desk (General Assistance):

- 1 SupportLine
- 2 Subscriptions
- 3 New Products
- 4 Account Support
- 0 Speak to Representative

#### E-mail

#### Field Service:

USServiceRequest@us.abb.com

#### Parts and Repair:

PartServices@us.abb.com

#### Technical Support:

AutomationSupportLine@us.abb.com

#### ABB University:

ABBuniversity@us.abb.com

#### Help Desk:

ABB.HelpDesk@us.abb.com

#### Web

#### **General Services:**

www.abb.com/service

#### Parts and Repair:

http://online.abb.com

#### **On-line Product Support:**

http://SolutionsBank.abb.com

#### **ABB University:**

www.abb.com/abbuniversity

#### Other service links and contacts

#### **Motors and Generators**

sales.us@baldor.com

#### **Power Electronics**

Daniel Peters: 262 785 3440

#### Turbocharging

Tel (24/7): 281 930 8383

#### **Metallurgy Products**