ABB Services & Products for Metals
Services & Products that add life to your systems and processes
Facts about Global Product Group - Metals
Energy efficiency and productivity

- Over 1300 GPG Metals employees in more than 40 countries
- Over 100 years of process knowledge in metals industry
- ABB supplies the global metals industry in excess of 1 billion $ per year
- Comprehensive automation, instrumentation and electrification product portfolio
- One global sales force, one global operation and one global development team
- Worldwide service organization
Companies are looking at improving the means to produce better rather than how much, trying to improve efficiency and utilization in existing processes, cut losses.

**Reduce total Cost of Ownership**
Companies need to reduce total cost of ownership by combatting operational and maintenance challenges.

**Utilization**
Installed system is either Over/ some times under dimensioned – and does not operate to full capacity resulting in under utilization of equipment.

**Asset Optimization**
Customers have no clue on the amount of data generated by the feedback devices, asset optimization is seldomly used! What to/how to exploit the Data is the common question we hear from most of customers.
Metals Portfolio
Extending existing service scope

- Energy Efficiency and optimization solutions in primary Metals
- SPOC (Single Point of Contact)
- Plant safety Services
- Down Stream optimization services
- Primary Metals
- Hot Rolling Mills Profile & Tube Mills
- Cold Rolling Mills
- Processing Lines
ABB Metals Services
We have scalable services that support your needs

Keep Production Running
Rapid response from trained experts with unique tools and services that pay for themselves in savings or improved productivity.

Maximize System Lifecycle
Minimize downtime and expenses by optimizing equipment lifecycle and utilizing remote enabled services.

Deliver Operational Excellence
Enterprise-wide process safety management, energy efficiency and world-class reliability provide high return on your service investment.

Optimize Process Performance
Improve throughput and yield, reduce energy usage, raw material consumption and cost with tighter, optimized control of your system and equipment.
Optimization Services
Optimization Services - Methodology

- **Diagnose**
  - Measure Process
  - Detailed Scope with defined objectives
  - Forecast Performance
- **Implement**
  - Improve Performance
  - Apply corrective actions
- **Sustain**
  - Maintain Performance
  - Preventative Maintenance

Pro-Active Solutions, not Re-Active

6-Sigma similarities
Why should you use Power NetAnalysis?

- You will benefit!
  - Power Net-Analysis services were developed based on industry needs
  - We can combine our production process knowledge with your need to maximize production benefits
  - We have developed tools and quality standards for making analysis’ and reports
  - Power NetAnalysis is based on our engineering tools
  - Many customers value these services …
Power Net Analysis

Objective

- Understand network disturbances caused by voltage drops
  - Increased wear of electrical equipment
  - Tripping of under-voltage relays
  - Increased standstill times for electrical reasons
  - Production has to be reduced below the rated power of the plant
  - Trouble with the utility company or other consumers on the network.

Harmonics

- process control systems and computers may have errors
- motors and transformers suffer from increased temperatures
- cables and capacitors warm up, can suffer dielectric breakdown
- harmonics can influence ripple control frequencies
- electronic devices synchronising circuits can be disturbed

Scope

- Model of the power supply system
- On site measurement and adaptation of model
- Design of solutions

Deliverables

- Calculation of net responses and suggested solutions
- Actual network conditions and load flow
- Check of power quality, review of guidelines and limits
- Suggestions for optimized network configuration(s)
- Licence proceedings documentation
Sum up

- Increase plant availability by improving power quality
- Decrease maintenance costs by reducing voltage distortions
- Planning a new plant or a revamp utilities often ask you for an experts opinion to avoid net disturbances
- Reduce losses and load on the supply system by decreasing of reactive power consumption
- Reduced reactive power allows you to increase active power consumption and productivity.
Case Story Schwermetall, Germany

- The Need, a more reliable power supply
- ABB offers Power NetAnalysis.
  The order was placed end of 1998
Case Story Schwermetall, Germany

- Power NetAnalysis suggests installation of dynamic filters
  - Order and commissioning of dynamic compensation in 1999
- Today:
  - Electrical downtimes reduces by 20%
  - Costs for reactive power eliminated @ 6000 $ per month
Costs & Benefits

Example @ Flat rolling mill:

- 7000 h operation per year
- 20KUS$ value added per hour

24 h \cdot 365 = 8760 h

1760 h for planed standstill times like maintenance, roll changes, public holidays...
Costs & Benefits

Example @ Flat rolling mill:
- 7000 h operation per year
- 20KUS$ value added per hour

3 % Standstill times caused by the electrical equipment
- 210 h or 4.2 MUSD losses

20 % network problems
- 42 h or 840K$ losses

Price of PNA for a medium size plant = 50K US$
Life cycle Services
Parts & repair services

Objective
- Reviews effectiveness of parts management and identifies cost saving opportunities and potential risk associated with insufficient stock, over stock, out-of-date inventory, and end-of-lifecycle issues.

Scope
- Spare parts inventory
- Stock condition analysis
- Part status, stocking levels, version management, warranty management
- Parts criticality and historical parts usage reports

Benefits
- Optimal spare part inventory
- Less risk for insufficient stock, out-of-date inventory

Deliverables
- Fingerprint report with recommendations on parts management
# Life cycle services

## Life Cycle Audit

**Highlight equipment:**
- general condition
- criticality
- life cycle status

**Recommendation of appropriate maintenance**

**Recommendations of appropriate migration paths and upgrades**

## Table

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<tr>
<th>Customer reference number</th>
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<th>Product group</th>
<th>Process disturbance</th>
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Cold Rolling Mill Fingerprint
Life cycle audit and process analysis

Objective
- Life cycle audit of mechanics, motors and drives, automation platform, level 2 and technology
- To analyze and identify opportunity for quality, productivity and yield improvements for CRM

Scope
- Interview and discussion with key people
- Collect measured data (mill speed, exit thickness etc) for analysis

Benefits
- Opportunity identification for better life cycle management and increased efficiency

Deliverables
- Fingerprint report with improvement plan and associated estimated ROI
Optimize Process Performance
Metals Life Cycle index- Essar Steel Algoma

**Objective**
- An audit was delivered to Essar Steel in Algoma the objective of the service was to Understand and provide recommendations to address the following:
  - Life cycle status of installed hardware and software
  - Productivity, Quality and yield improvements
  - Optimizing in manpower

**Delivery**
- On site investigation resulting in a report which address key findings of installed hardware and software (Mechanics, Motor & Drives and Automation)
  - in the area of Technology
  - in the area of Personnel
  - regarding Prevention, Emergency and Life cycle strategy

**Major findings**
- Productivity: potential of 20 to 25% *productivity improvement possible*
- Quality and yield: potential of 30% *quality improvement possible*
Profile Mill Fingerprint
Life cycle audit and process analysis

Objective

▪ Detailed audit and advanced data analysis to capture the current health of Drives, Motors, Automation & Process of profile mills

Scope

▪ Interview and discussion with key people

▪ Collect measured data e.g. temperatures, mill schedule, looper control, drives, hot metal detector etc. for further statistical analysis

Benefits

▪ Opportunity identification and improvement plan for better productivity, energy efficiency and quality

Deliverables

▪ Fingerprint report with improvement plan and associated estimated ROI
Arcelor Mittal Contrecoeur East, Montreal, Canada
Upgrade of wire rod mill makes it more efficient

Customer’s requirement
- Old control and drive equipment need update due to spare parts obsolescence and high processor load
- Upgrade must fit the limited budget and available maintenance stop time
- A new platform allowing easier future upgrades

ABB:s supply
- All old MP200 controllers upgraded to AC450 for both the mill and the furnace
- Old HMI systems type MV850, MV830 and MV320 upgraded and integrated to one 800xA system via Sentinel
- Upgrade of all remaining drives not yet upgraded to DCS800 or DCR800

Customer benefits
- Full mill and furnace control
- One common HMI system allowing further future integration and additional functions
- New control platform allowing additional future functions
- Powerful maintenance and trouble shooting tools with iba and Prilog logging systems

“We are very pleased with the overall project. In particular with the smooth startup after such a major change.”

Daniel Smith
Project Manager
ArcelorMittal Contrecoeur East
Montreal, Canada
Keep Production Running
Scalable service agreements tailored to your needs

Evolution agreement modernize conventional maintenance
Next-generation service guarantees continuous and longterm development

A next-generation maintenance service was adopted in the maintenance of the process automation system of Ovako’s wire mill in Taalintehdas. In addition to renewing the process automation system, it covers the continuous development and maintenance of the system and a 24/7 maintenance service that utilizes remote connections.

"At its best, remote connections can save us from a shutdown of several hours, as the faults can be located more quickly and corrective action can be started right away," says Reijo Heino, maintenance manager at Ovako’s Taalintehdas mill.
Drives Performance Fingerprint
Drives Dynamics Analysis (DDA)

**Objective**
- Assess drive train performance and identify the causes of poor dynamic performance, determine correct parameters for optimum drive performance and thereby improve productivity and quality

**Scope**
- To analyze both the electrical and the mechanical performance of new and existing drive trains

**Benefits**
- Enhance the drive performance and hence productivity through redesigning and/or tuning of the drive system
- Reduce maintenance requirements and plant downtime

**Deliverables**
- Report with recommend actions to improve the utilization of drive systems, and to give optimal dynamic performance
Maximize System Lifecycle
Several retrofit solutions for all products

Benefits
- Preventive maintenance
- Restore of the original condition
- Extended lifetime
- Reduced engineering cost
- Quick project execution
- No production losses
- Latest technology and functionality

Total investment cost

Product replacement
- Replacement of the old drive with the newest drive product offering

Retrofit
- Update of aging components: electrolytic capacitors, ribbon cables, cooling fans
- Replace old SAFUI inverter module by new ACS800 inverter modules
- Keep old cabinets, existing supply parts and cabling
Sapa Heat Transfer Cold Rolling Mill, Sweden
Restore the damaged equipment in a record time

Customer’s requirement
- Sapa wanted to restore the damaged equipment as soon as possible to ensure delivery of products ordered by its customers.

ABB’s supply
- Removal of burnt materials
- Repair of motors and gearboxes
- Supply of gauges and junctions boxes and operator desks
- Complete electrical installation & commissioning
- Adjustment of control system, etc.

Customer benefits
- Delivery of products ordered by SAPA’s customers in time
- A modern and fully repaired mill with safer operation

“We selected ABB’s for the ability to quickly set up a competent organization since they have gained knowledge of our plant from the Service contract we have with ABB.”

Tobias Jansson
Process Control Tech
SAPA HT Sweden
Maximize system Life Cycle
Crane Retrofits and modernizations

- Restored availability
  - Decreases downtime due to unreliable equipment
  - Minimizes lack of old spare parts
  - Shortens lead time on replacements and/or repairs
  - Decreases cost for replacement parts

- Restored serviceability
  - Minimizes risk of product obsolescence
  - Increases technical support

- Enhancements by new technology
  - Optimizes productivity

We know what is important
- Downtime is critical
- Fast uptime
- Knowledge of old products
- Installation know-how

We have the experience to
- Deal with formalia and regulations
- Do dimensioning with limited input data
Industrial Boiler Fingerprint
Process and control performance audit

Objective
- To conduct process audit to identify opportunities for boiler performance improvement

Scope
- Evaluate boiler operation and control loops
- Conduct dynamic response tests and evaluate disturbance rejection and load change recovery

Benefits
- Continuous performance improvements by evaluation and benchmarking of control performance and boiler efficiency

Deliverables
- Fingerprint report with improvement plan and associated estimated ROI

The Fingerprint analysis identifies where control loops and hardware need to be refreshed or repaired and invariably leads to significant reductions in energy bills and associated carbon emissions.
Boiler Fingerprint: Service

- Scope
  - Instrumentation & Actuators
  - Control Configurations
  - Steady State Performance
  - Dynamic Performance
  - Load Tests
  - On-site Tuning and Adjustments
- One Week On-site
- Analysis
- Reporting
Boiler Fingerprint: Value

- Energy Savings
- More Responsive to Process Steam Demands
- Extended Operating Range
- More Reliable
- Improved Safety
Loop Optimization Services
Loop Fingerprint, Loop Scan and Loop Track Services

**Objective**
- To audit and benchmark control performance
- To implement services like loop tuning to improve performance
- To sustain the performance by periodic scanning or continuous tracking of control performance

**Scope**
- To collect control data to analyze current performance
- To identify improvement potential
- To implement and sustain control performance

**Benefits**
- Control performance improvement leads to productivity and quality improvement, energy efficiency, better reliability and safety

**Deliverables**
- Fingerprint report with improvement plan and associated estimated ROI
Cyber Security Fingerprint
Protect control systems against security threats

Objective
- To identify cyber security risks within a plant’s control systems by gathering critical data and comparing them to ABB and industry best practices.

Scope
- Currently designed for ABB System 800xA, Process Portal B, and Conductor NT version 6. Coverage for additional systems will be made available.

Benefits
- Provides a comprehensive view of your site’s cyber security status
- Reduces potential for system and plant disruptions
- Security against computer worms such as Stuxnet that is known to target SCADA systems

Deliverables
- Comprehensive report lists security strengths and weaknesses; risks; recommendations; and action plans
Cyber Security
Stuxnet: The first malware targeting industrial control systems

Virus targets Siemens industrial control systems
By Jim Finkle
BOSTON | Mon Jul 19, 2010 6:57pm EDT
(Reuters) - Hackers have built a computer virus that attacks Siemens AG's widely used industrial control systems, creating malicious software that analysts said can be used for espionage and sabotage.

The German company said the malware is a Trojan worm dubbed Stuxnet that spreads via infected USB thumb drives, exploiting a yet-to-be-patched vulnerability in Microsoft Corp's Windows operating system.

"Just viewing the contents of the USB stick can activate the Trojan," said Siemens spokesman Alexander Machowetz. "Siemens recommends avoiding the use of a USB stick."

Siemens first learned of the problem on July 14, he said.

Stuxnet is among the first to surface that attacks software programs that run Supervisory Control and Data Acquisition, or SCADA, systems. Such systems are used to monitor automated plants -- from food and chemical facilities to power generators.
Remote Support Services
Remote-enabled technical support

Objective
- To enter into service contracts with customers for remote-enabled technical support with guaranteed response time

Scope
- ABB automation system, drives
- Utilize ABB’s secured remote access platform (RAP)
- Centralized support team responding to global customers

Benefits
- Real-time diagnosis and troubleshooting for customers
- Faster response time from ABB

Deliverables
- On-demand 24x7 troubleshooting done remotely
- Periodic audit (fingerprints) performed through remote access

Proven in P&P, Minerals
ABB ServicePort
Secure, remote service delivery platform

- ABB ServicePort is a service delivery platform through which customers and ABB experts can securely access:
  - Diagnostic services
  - Improvement services
  - Performance-sustaining services
- ServicePort lets you subscribe to channels of different high-value services that are most important to you
- If you want to ensure equipment runs well or optimize processes, you can benefit from the latest diagnostic and improvement services — when you want them
- ServicePort can also be a valuable on-site resource for visiting engineers to perform advanced services

Early diagnosis of equipment problems and optimization of maintenance and operation activities are essential.
Customer Case Study
Pulp mill, Arkansas, USA

Customer need
Replacement of knowledge that left the company
Expert support for legacy control system
Fast responses to production issues

ABB’s response
ServicePort for onsite control system support
- Delivers ABB expert resources remotely
- Provides tech support
- Performs non-invasive checks on the operating system
Temporary resident field service engineer

Customer Benefit
Replaces lost expertise
Solves tech support issues immediately
Identifies problems before they occur
Provides diagnostics to troubleshoot disturbances
Delivers ABB Optimization Solutions
Reduces costs
Need-identification-to-resolution within 45 days

Site: Pulp Mill, AR, USA
Unit: Pulp Mill
Issues:
- Customer lost an important engineer
- INFI 90 system required upgrade
- Self-maintenance no longer possible
Agreement:
1-yr agreement + resident engineer
Software Solutions, Energy Efficiency Solutions, Metallurgy products
Energy efficiency

**Objective**

- To make redundant non efficient equipment for example valves in case of a pump application and reduce the power required based on the flow.
- 60-65% of the electrical energy is consumed by motors, for each 1 usd spent to purchase a motor 100 usd is spend to run it through out its entire life cycle. Today only 5% of these motors are controlled by variable drives, we see a possibility of retrofitting at least 30% with these drives.
- Process equipment runs at partial loads resulting in high energy bills

**Scope**

- Replacing all throttle valves for Pumps with variable speed drives, initial low investment but increases Total cost of ownership of the output immediately go to waste.
- On an average almost 20% of energy consumed by motors are waste because of throttling mechanism.

**Benefit**

- Energy savings
- Reduced equipment wear and Longer life time of equipment
- Soft start and stop reduce waste and save raw material
- Noise reduction
- Improve efficiency

**Deliverables**

- Energy audit
Case Study – Metals Industry

- A Taiwanese steel company had used a mechanical return (bypass) valve, controlled by an external PID controller, to regulate the pressure of the water being fed to the descaling pumps of the hot rolling mill. By retrofitting ABB AC drives to the fixed speed booster pump motors, energy and water costs could be reduced considerably.

  - Energy saving: about 2,930,000 kWh
  - Reduction of CO₂ emissions: about 1,465,000 kg

- Other benefits:
  - Reduced water costs (savings of about 65,000 tons of water/year)
  - Reduced maintenance cost
  - Improved product quality
The blast furnace blower of SSAB Oxelösund’s plant in Sweden had been powered by steam turbines. By replacing the steam turbine with ABB’s ACS 6000 energy savings were reduced and availability increased.

- Estimated energy savings: about 16 GWh / year
- Payback on investment period: 2 years
- Other benefits:
  - Reduced maintenance cost
  - Increased lifetime of equipment
Deliver Operational Excellence
Case study: Industrial Energy Efficiency

Challenge
- Develop energy efficiency program for key areas at this integrated steel mill

Results
- 53 energy saving opportunities identified
- Total savings value €8.5M - €10.3M / year
- 3 wins saving €120K/year, payback <1year
- 4 projects fully developed
- Each with savings > €1M/year; payback of ~1 year
- ABB installed new variable speed drives on a number of boiler fans with savings of €3M p.a
- Asset life expectancy extended 10 years
- A roadmap for improvement

“We are very pleased with the results as ABB have defined very clearly where energy can be saved and how to achieve it. The work is really appreciated. It is better than just an audit.”

J VAN LISHOUT
Byproduct Gas Energy Fingerprint
Optimal Gas Energy Utilization

Objective
- Audit for evaluating effectiveness of management and utilization of energy-rich byproduct gases (blast furnace gas, coke oven gas etc.)

Scope
- Review current gas management practices and examination of scope for further improvements
- Identification of appropriate optimization solutions for realizing the improvements
- Estimation of the economic benefits from the implementation of the solution

Benefits
- Identification of energy savings opportunities

Deliverables
- Fingerprint report with improvement plan and associated estimated ROI
  Tested with plant data but not sold
Adaptive Dimension Models (ADM)  
Profile Mill Setup Optimization

**Objective**
- Model-based solutions for optimization of profile mill production

**Scope**
- Mill setup optimization for profile mills
- Optimization of production speed, interstand tension, groove utilization, roll load sharing and energy consumption

**Benefits**
- Improved mill utilization
- Reduced set up time following size and grade change

**Deliverables**
- Optimal mill setup parameters (roll gap, mill speed, groove factor) for different product grades and size

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Shui Wing Steel Ltd., Hong Kong SAR, China  
Mass Flow Control makes the mill more profitable

Customer’s requirement
- Increase mill yield
- Reduce the rolling tolerance
- Payback less than one year

ABB’s main supply
- MFC, Mass Flow Control;
- U-gauge, Gateway, Ugtool;
- Operator and control software package.

Customer benefits
- Simple installation during normal production
- Open system, Easy to integrate into an existing automation system
- Improved yield
- Tighter tolerances
- Improved performance
- Payback within one year

"The ABB, MFC & U-gauge configuration is helping us to increase our yield and reduce the rolling tolerance when rolling single and welded billets. The system is also giving valuable online information to our operators. We expect a payback on the investment in less than one year."

Mr Erik Raftsjö  
Senior Engineer  
Shui Wing Steel Ltd.
Objective

- Optimal production scheduling of heats in a melt shop (MSO) and slabs (rolling programs) in rolling mill (HSO) to increase the productivity

Scope

- Optimal grouping and sequencing of heats to maximize caster throughput
- Optimal building of rolling mill programs and sequencing to maximize throughput from rolling mill

Benefits

- Higher throughput by reducing makespan time
- Increased due-date reliability

Deliverables

- Stand-alone production planning tool customized to customer’s plant
Optimize Process Performance
Optimization solutions

Melt shop Scheduling Optimization (MSO)

- Shortens waiting times inside the process = less heat/energy losses
- Optimize the production by handing units that only can only in parallel in a limited way = Increased productivity
- Determines equipment bottlenecks in a plant by simulated runs based on plant data
**Objective**

- Process monitoring and reporting tool – can be used for energy management, lab data management and production data management

**Scope**

- Visualization, reporting and trending of relevant plant and lab signals. Interfaces available or can be developed for lab instruments for automatic or manual data logging
- Automatic calculation of process and energy KPIs

**Benefits**

- Production tracking, production planning
- Energy and emissions monitoring for compliance
- Consolidated reports and analysis tools to enable management decision making

**Deliverables**

- CPM solution deployed at customer site
Code Conversion from AMPL (AC70, MP200, AC400, etc.) to AC 800 with minimum impact on production

Objective

- Safe and efficient application evolution from MP200/x, AC70/80 and AC110/410/450 etc. based systems to System 800xA solutions.
- Automatic methods for controller application conversion to AC 800 and reuse installed I/O.

Benefits

- Short production stops and a fast production ramp up, often without any need for commissioning. Thus lowering the total project costs.
- Reuse of the existing application software, ensuring that your well-proven functionality in the existing system will be retained after the upgrade

Scope and deliverables

- Converted AMPL code ready for commissioning.
- Required hardware and software for system 800xA (reusing most of the I/Os)
Asset Optimization
Improving Plant Performance

Objective

- Reduce plant maintenance costs
  - By common understanding of maintenance strategies
  - Real time measurement of asset performance
  - One common view of asset performance
  - Seamless information exchange between operations and maintenance

Benefits

- Detect early warnings and prevent equipment failure with a complete range of condition monitoring
- Empower your maintenance users with the Maintenance Workplace
- Reduce time to repair with seamless integration to CMMS
- One common system platform for plant optimization
- Unique industry know-how and wide engineering, service and consulting offering

Scope and deliverables

- Asset optimization as a software service combining 800 xA software with service
800xA - The Power of Integration

Key areas for Asset Optimization

**Understanding condition monitoring of connected devices and equipment**
Instrumentation, HV/MV/LV electro systems, vibrations, IT and process equipment

**Device integration using fieldbus technologies**
Profibus&HART, Wireless HART, FF, IEC61850

**Maintenance Workplace**
Configuration, monitoring and root cause analysis tools

**AM SDK**
Custom built Asset monitors

**CMMS integration**
ONE single maintenance workflow from real time condition monitoring to CMMS

**Calibration integration**
Device calibration administration

**Device integration using fieldbus technologies**
Profibus&HART, Wireless HART, FF, IEC61850

Understanding condition monitoring of connected devices and equipment
Instrumentation, HV/MV/LV electro systems, vibrations, IT and process equipment
All tools to improve plant and process performance
Optimization and not system integration

- One common system platform
- Direct access to all process and equipment data
- No time consuming system integration
- Complete scope of condition monitoring
- Plant performance in real-time
- Tailored workplaces for different users
Service Agreements
Packaged Services

Objective

- Service contracts lasting at least one year that generate guaranteed annual revenues
- Tailored to meet the customer needs with regards to number of objects, type of service per object and service level per object

Scope

- Depends on customer requirements. Typically includes periodic maintenance, troubleshooting, remote support, advances services etc.

Benefits

- Reduced total maintenance cost
- Access to ABB’s expertise with guaranteed and faster response resulting in less downtime, equipment reliability
- One service agreement per customer reduces the complexity for both ABB and customer
Metallurgy Products - Electromagnetic stirring for improved quality, productivity and energy saving

Markets served
- Steelmaking
- Casting
- Aluminium
- Treatment lines
- Solar silicon
- Other metals

Organization
- Part of ABB AB
- 80 people
- Main center in Västerås, Sweden

Key deliverables
- Electromagnetic stirrers
- Electromagnetic brakes
- EM Stablizers
Our Electromagnetic Products

1. EMS for EAF and ladle furnaces
2. EMS for Slab casters
3. EMS for billet and blooms
4. AL-EMS for furnaces
5. EM-Stabilizer for galvanizing lines

Cost saving solutions for melt shops and casters
Reliable electromagnetic products for better quality & productivity
ABB Metallurgy – Electromagnetic stirring for improved quality, productivity and energy saving

References

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Total 1574
Summary

Typical expected results with EAF EMS

- Productivity  + 5%
- Electric energy  - 5%
- Yield  + 0.5% to 1%
- Less Alloy and Oxygen consumption
- Improved Safety and Process stability
Force Measurement

- Providing measurement solutions for Rolling Mill & Process Line applications in the Metals, Paper, Textiles and Converting Industries
Force Measurement

Unique Sensor Technologies

Pressductor® Technology

Pulsed Eddy Current Technology
Objective

- To perform safety risk assessment as per EU legislation for existing and new machinery with end-customer or machine builder

Scope

- Hazard identification and risk assessment
- Propose technical safety measures and safety solutions

Benefits

- Safe and hazard-less work environment
- Compliance to EU directives on safety

Deliverables

- Report with assessment of current safety performance level and recommended measures and solutions to improve safety levels
Deliver Operational Excellence
Process Safety Management

- Rigorous approach
- PHAs and health checks
- Regulatory compliance

- Specify optimum solutions
- Confirm residual risks are tolerable
- Prioritize actions

- Program management
- Training
- Regular assessments
Deliver Operational Excellence
Case study: Plant Safety

The AC800M-HI High Integrity SIL2 Safety Controller and its associated safety I/O round off the company’s safety portfolio.

Customer’s requirement
- The demand for state-of-the-art machine safety solutions, living up to the latest EU Machinery Directive
- Cutting-edge digital technology in new AC- and DC-drives

ABB:s supply
- 1 x AC800M HI “safety-PLC” with PPA operator stations
- 5 x ACS800 AC-drives
- 14 x DCS800 DC-drives
- Installation supervision and commissioning

Customer benefits
- Higher operator safety in the production line
- Improved accuracy and less need for maintenance for the drive systems
- Approval for production by a Norwegian “Competent body”

’It was from the very beginning a good cooperation with ABB and a well performed project. We are very satisfied”

Helge Eriksen
System Engineer at Hydro Aluminium A/S