ABB Ability - New Technologies in Underground Mining
The future of mining – bringing equipment, systems and people together
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Boilerplate and Message to the market
Underground mining and hoisting

Boilerplate
ABB is a market leader in underground mining and hoisting. Our offerings cover complete mine hoisting systems of all types, including mechanical and electrical parts, mine automation and electrification products, and solutions for underground mining applications. Backed by more than 130 years of innovation and process knowledge, we are writing the future of mining together with our customers for digitalization, safety, energy efficiency and productivity.

Message
From mine to market, we shift the center of gravity towards mine optimization and digitalization.
• ABB is a market leader as a complete mine hoisting system provider – both mechanical and electrical.
• We accelerate the development and deployment of digital solutions for mining customers.
• To help mining customers towards a new digital world, ABB is backed by the following arguments:
  • Skilled and motivated employees
  • More than 130 years of innovation and process knowledge
  • Continuous investment in R&D
  • Strict quality control both for ABB and our suppliers according to the rules and regulations of different mining countries
  • Embedded HSE (Health, Safety, Environment) in our systems and products
  • Worldwide service network
## Overview of our offerings

Underground mining and hoisting

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<td>Grounding resistor</td>
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<td>Containerized underground sub stations</td>
<td>Process automation actuators / sensors</td>
<td>Hoist Monitor</td>
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ABB underground mining and hoisting

Our offerings

• Mining hoisting systems

• Mine automation

ABB Ability™ MineOptimize – Digital transformation

• Mine electrification

• UGM service
Complete mine hoisting systems
All types of hoists and shaft equipment

To all your needs

• Design and manufacture of complete mine hoists since 1937
• Over 700 mine hoists to more than 30 countries
• Only global supplier of complete mine hoist systems
• All types of hoists:
  • Friction type hoists (Koepe)
  • Drum type hoists: double drum hoists, single drum hoists and Blair multi rope hoists
  • Stage hoists
• Electrical equipment
• Mechanical equipment
• Shaft equipment:
  • Skips, cages & rope attachments
  • Loading & unloading systems
  • Head sheaves and deflection sheaves
  • Mine shaft layouts and guide systems
Mine automation
ABB Ability™ MineOptimize

Our portfolio

- Mobile fleet management
- Production face analytics
- Automated scheduling
- Execution manager
- Analytics
- Mine remote control station
- Mine ventilation control
- Coal flow control

Bring equipment, systems and people together
Mine electrification
Smart power and Ex-proof VFD drive

- Smart power – Underground power distribution
  - All needed equipment in typical mine electrical MV/LV substation located inside movable container
  - Basic set-up for transformer power ratings up to 1,25 MVA based on standard seaworthy container sizes
  - Connectivity to other substations and mine control system to enable remote control, monitoring from control room and communication between substations
  - Uniform container solution for earth surface installations and if transportation to underground is by truck
  - Integration of electrical substations to mine control system – one uniform system to control both process and power distribution
- Ex-proof VFD drive for underground coal mine
  - ABB ACS2000(Ex) technology
  - Suitable for >98% humidity, 40°C and other harsh environment underground.
# Underground mining service

Our service product portfolio map

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<th>Service portfolio</th>
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- **Installation & commissioning**
  - Electrical supervision & installation
  - Mechanical supervision & installation
  - Electrical commissioning
  - Mechanical commissioning

- **Spares & consumables**
  - Hoist spare parts on demand
  - Hoist spare part kits
  - Hoist emergency spare parts

- **Training**
  - Classroom training
  - On site training
  - On site trouble shooting and repairs

- **Advanced services**
  - Hoist Performance Monitoring Service
  - Hoist Performance Fingerprint

- **Repairs**
  - Technical support via remote connection
  - Hoist support inbox
  - Control system upgrade

- **Extension, upgrades & retrofits**
  - Hoist hydraulic station upgrade
  - Hoist brake system upgrade
  - Electrical & mechanical investigations

- **Engineering & consulting**
  - Electrical hardware & software design
  - Mechanical design & calculations
  - Mechanical inspections

- **Maintenance**
  - Electrical inspections
  - Lifecycle assessment
  - 24/7 support
  - Motor & gearbox upgrade
  - Gravity winding
  - Pony drive
Mine hoist care
Global competence, local presence

Products and solutions

Control system
- Upgrade of hoist monitor to AHM800M
- Upgrade of MP200 to AC800M or AC450, etc.
- Upgrade of HMI system, ex Master view to 800xA

Motors & drives
- Drive upgrade ex. Tyrak to DCS800 or ACS600 to ACS800
- Motor upgrade
- Repair of motors and drives

Brake systems
- Upgrade from pneumatic to hydraulic brakes
- Upgrade of non-ABB hoist with ABB brake system
- Grinding of hoist brake disc, etc.

Mechanical equipment
- Upgrade of skips, cages, loading/unloading stations
- Head rope changes
- Mechanical extension as gravity winding and pony drive, etc.
Digital transformation
Underground mining and hoisting

- Isolated operations
- Connected operations
- Integrated operations
- Remote operations
- Autonomous operations

Service & execution system
Connectivity & COC center
On-site automation
Power

Connectivity
On-board sensors & servers
Connected machinery

Remote Diagnostics & digital twin
Prescriptive maintenance & analytics
Remote operation
Remote supervision

Remote diagnostics & digital twin
Prescriptive maintenance & analytics
Remote operation
Remote supervision

System 800xA
ABB Ability
COC Center

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Digital transformation
ABB Ability™ Collaborative Operations Center
ABB in underground mining and hoisting

Worldwide presence

- Västerås, SE
- Johannesburg, ZA
- Montreal, CA
- Shanghai, CN
- Brisbane, AU
- Katowice, PL

= Center of Expertise UGM, Collaborative Operations Center
= Mining center