

Condition and performance control of mine hoist LKAB's Kiruna mine



LKAB Kiruna mine

ABB delivered its first complete mine hoist in 1937. Since then, more than 600 units all over the world have been installed. High speed and heavy loads with high safety and performance, demand advanced technology for drive, control and brake systems. Qualified maintenance personnel and fast access to competence is necessary to maintain high safety, high performance and availability. ABB offers mine hoist services for condition and performance control to maintain the equipment in the “as commissioned” condition.

Luossavaara-Kiirunavaara AB (LKAB) is an international high-tech minerals group, one of the world's leading producers of upgraded iron ore products for the steel industry and a growing supplier of industrial minerals products to other sectors.

Most of the iron ore products are sold to European steelworks. Other important markets are North Africa, the Middle East and Southeast Asia. Industrial minerals are sold mainly in Europe but also to growing markets in Asia and the USA. LKAB has around 3,700 employees, of which about 600 are outside Sweden.

Both LKAB's mines in Kiruna and Malmberget are among the world's most modern, thanks to investments in advanced technology and large-scale production systems.

The production at Kiruna, Sweden's northernmost city, is fully automatic from loading to unloading pocket in the head frame. The yearly output of the plant is 30 million tons of iron ore products.

ABB has a unique capability to engineer, deliver, install and provide after sale service for entire mechanical and electrical mine hoist systems of all types. The global presence means that ABB is always close to its customers.

Scope of supply and customer benefits

The ABB offer for condition and performance control of mine hoists includes

- control of safety related functions
- turning of speed and position control loops
- adjustment of brake control settings as required
- inspection, measurement and analysis of recordings and observations
- reports with recommendations for improvements and actions as applicable

The extent of the service is adapted to each mine hoist with all registrations and analysis of signals made with the Argus, data logger. The work is performed by highly qualified service engineers with long experience.

Scope of supply

Basic services – measurement and control:

- Hoisting speed profiles
- Retardation curves
- Braking curves start/stop/emergency stop
- Testing of safety related functions
- Motor current / normal operation
- List of settings for drive system
- PG/TG control
- Control of friction liners with respect to equal diameters
- Control of rope lengths with respect to load sharing
- Setting of brake valves
- Brake test / emergency stop analysis
- Testing of protections

Optional services – measurement and control:

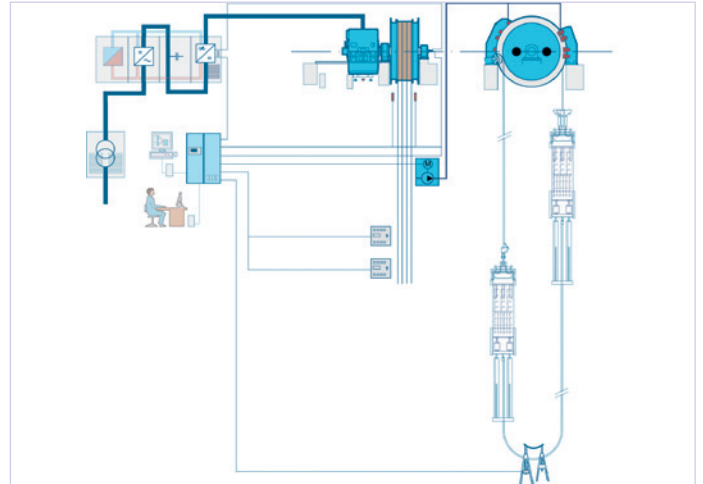
- Performance control of hoist cycle
- Analysis of the fault logger of the drive system
- Control of power- and of control cables
- Backup software
- Control of batteries, balance, unloading and loading
- Control of alignment motor, gearbox and drive drum
- Torque control of foundation bolts
- Connection via modem / internet

Other services for mine hoist:

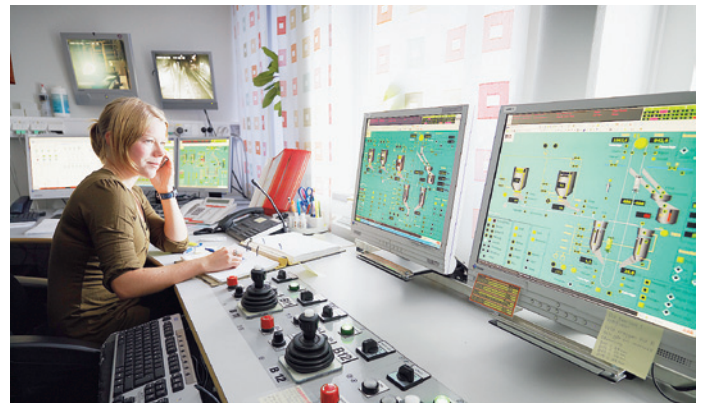
- Phone support, guaranteed response time
- Analysis of AC / DC drives systems
- Inspection and vibration analysis of rotating units
- Thermo graphing
- Pre-booked resources and hours
- Stocking of spare parts

Benefits

- Maintained high safety and high availability
- Secured fast access to competence
- Identification of needs for improvements and upgrades
- Prioritized as a contracted customer



Mine hoist system layout



Mine hoist operator room in head office – 12 production hoists

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ABB's business unit Minerals is represented in the following countries:

Australia, Brazil, Canada, Chile, China, Egypt, Estonia, Germany, Greece, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Norway, Oman, Peru, Poland, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Thailand, USA and Vietnam.

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