

# Process Performance Motors for the Mining Industry



AM014 EN RevA 2006



Application notes

Leading companies in the mining industry stay ahead by constantly seeking to increase productivity, minimize downtime and enhance safety in their production and processing plants. ABB has innovative products, solutions and services that can help to achieve these goals.

## **What can ABB offer the mining industry?**

The machinery and equipment used in mining production and processing has to provide reliable operation in hot and humid environments, withstand extremely harsh conditions, and fulfill tough mechanical requirements.

ABB supplies motors, drives and systems that meet these challenges. ABB's technology leadership, combined with its extensive experience of working with customers in the mining industry worldwide, produce reliable solutions that are tailor-made for the industry.

Designed for seamless integration into plant systems, ABB's products and systems can play a major part in maximizing overall plant performance.

## **What motors can ABB offer for mining applications?**

ABB's low and high voltage induction motors are designed for rapid torque variation, load cycling and fast alternation.

ABB supplies products and systems for a wide range of mining applications. In all these applications ABB motors typically operate

- centrifuges
- conveyors
- coal dumpers
- crushers
- fans
- hydraulic pumps
- screens
- sizers
- slurry pumps.

The ABB logo consists of the letters 'A', 'B', and 'B' in a bold, red, sans-serif font. The letters are slightly shadowed, giving them a three-dimensional appearance as if they are floating or attached to a surface.



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### What is ABB's process performance motor?

ABB's process performance motors range is based on a standard motor design with many add-on options available. The motors can therefore be easily engineered to match the various mining specifications.

### What are the main features?

#### Low voltage motors

- IEC sizes 71 to 450
- aluminum and cast iron frames
- output up to 1000 kW
- voltage 220...690 V
- frequency 50 and 60 Hz
- ambient temperature up to +70°C

#### High voltage motors

- IEC sizes 315 to 400
- cast iron frame
- voltage 2300...6600 V
- frequency 50 and 60 Hz
- ambient temperature up to +70°C

The process performance motors are designed with great flexibility, so they can be tailored for any application or ambient conditions. Features like the high protection class, and the use of thermistors in the motors, mean that the standard units themselves meet the tough requirements for reliable operation in the mining industry. Options like reinforced construction and higher protection class can be easily added. The motors' generous thermal margin increases their momentary overload capacity and extends their lifespan.

Their high efficiency (EFF1/MEPS 2006) means the process performance motors can be optimized for minimized energy consumption and highest productivity.

The process performance motors are given a tough and durable surface treatment, enabling them to withstand the harsh environmental conditions typically found in mining

production and processing plants.

The motors also have sound environmental and sustainability credentials. From the design stage onwards, special attention is paid to environmental compatibility in terms of materials, manufacturing, and recycling. High operational efficiency supports efforts to reduce CO<sub>2</sub> emissions.

### What about compatibility with frequency converters?

ABB's process performance motors are designed for converter operation. In the low voltage motors the standard winding insulation level is sufficient for voltages up to 500V, and motors for higher voltages are supplied with reinforced winding insulation. The larger motors are equipped with insulated bearings to avoid bearing currents. The motors can be fitted with an external cooling kit to provide 100% torque at low speed in constant torque applications, as well as an encoder or other additional equipment as required.

### What are the main benefits for customers?

The flexible design and wide choice of available options ensure that the process performance motors can be optimized for nearly all customer requirements and supplied with short delivery times. The robust, durable motors provide highly reliable operation with low running costs while requiring minimal maintenance.

### What is ABB's total motor offering?

ABB offers several comprehensive ranges of AC motors and generators. We manufacture a full range of low and high voltage induction motors. Our in-depth knowledge of virtually every type of industrial process ensures we always supply the optimum solution for our customer's needs.

