Wound Rotor Induction Motors
4-12 poles, up to 8000 kW, 11500 HP

ABB – The Preferred Partner

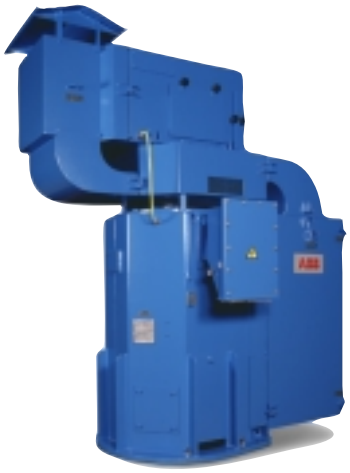
Egypt Cement Corporation, a major cement manufacturer, has chosen ABB wound rotor motors for all key applications in its plants.

Building on over one hundred years of design experience and application expertise, ABB is one of the world's leading manufacturers of high-voltage wound rotor induction motors. Today, our products are widely used within building material industries such as mining and cement, as well as in utilities and water works.

Our unrivaled manufacturing heritage and track record of building close partnerships with our customers offers you a genuine competitive advantage.

At the same time, by continuously developing and incorporating the most advanced design, analysis and manufacturing technologies for all components, we also optimize your operating efficiency and ensure total reliability.

For Heavy-Duty Applications – Reliability by ABB



Vertical mounted air-to-air cooled wound rotor motor, type AMK

ABB´s wound rotor motors are suitable for e.g. the demanding applications as follows

- high starting torque, high inertia - low starting current
- high torque through entire speed range
- suitable for starting at weak network
- adaptable for adjustable speed drives

Horizontal mounted water-to-air cooled wound rotor motor, type AML

Horizontal mounted open ventilated wound rotor motor, type AMK

Power from the Start – Output Range

Standard range

- 140 to 8 500 kW at 50 Hz
- 200 to 11 500 HP at 60 Hz
- voltage range 380 to 11 500 V
- shaft heights: 400, 450, 500, 560, 630 and 710 mm
- horizontal and vertical mounting
- open and totally enclosed enclosures
- standards IEC, BS, ANSI, NEMA, IEEE, VDE, EN…
- machines for cascade

These carefully designed and ruggedly constructed motors with fully braced and vacuum pressure impregnated windings are made for heavy-duty operation. The very high efficiency level of ABB's wound rotor motors is mainly achieved by the effective use of high quality materials, advanced ventilation technology and the most sophisticated computer programs for motor design. This high efficiency level enables considerable energy savings during the life of the motor.

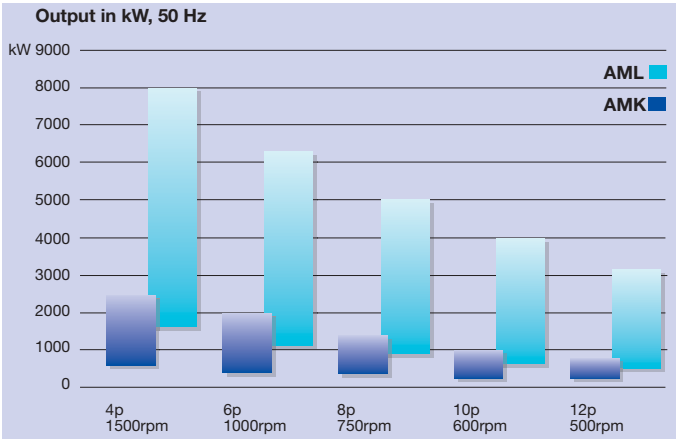
All main functional parts are of modular construction. Mounting, cooling and protection features can vary. This precision design results in

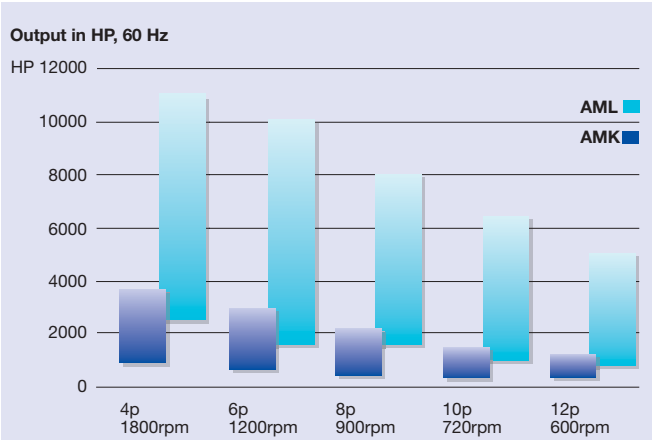
- short delivery times
- competitive pricing
- easy mounting and maintenance
- efficient servicing
- high durability and reliability

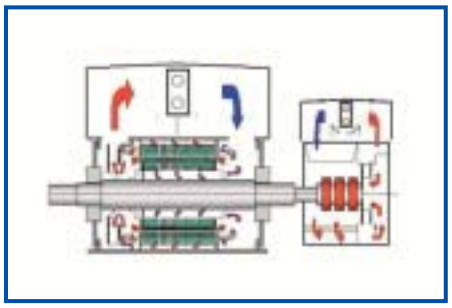
Complete protection and efficient cooling

Many cooling methods are available. Efficient cooling of the motors is achieved by optimal utilization of active materials, high quality insulation, and high efficiency cooling fans.

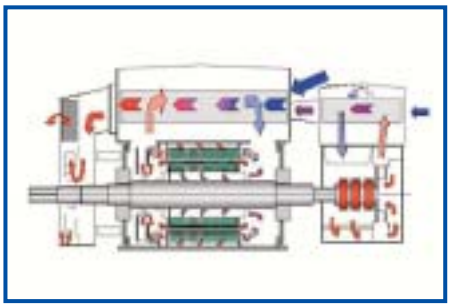
ABB's wound rotor motors are available in totally enclosed and open ventilated models. Totally enclosed models are provided with a built on air-to-water or air-to-air heat exchanger.



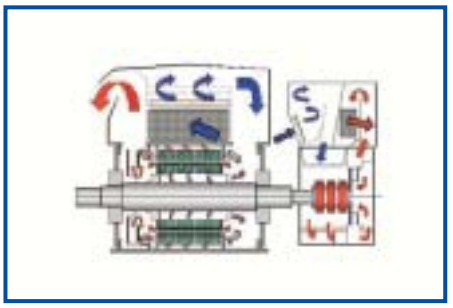




Air-to-water cooled motor.
IP55, IC81W/TEWAC



Air-to-air cooled motor.
IP55, IC611/TEAAC



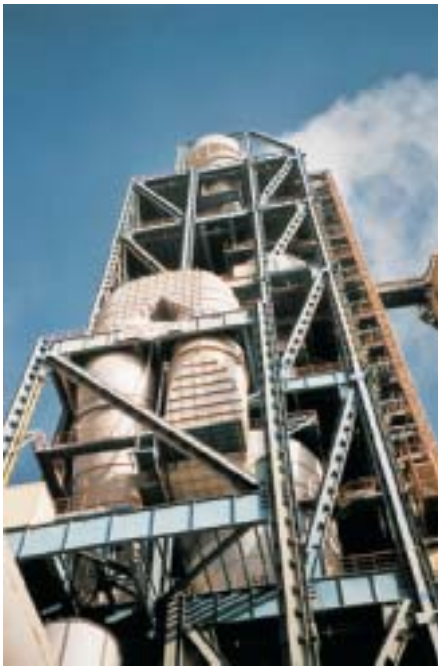
Weather protected motor.
IPW24, IC01/WPII

The internal air circulation is provided by a shaft mounted fan or a separate blower. In air-to-air cooled motors, the external cooling air is circulated by a shaft mounted fan or a separate blower. The standard versions are always selfventilated.

In weather protected motors, the cooling air is drawn through the motor by a shaft mounted fan. Protection is provided by a weatherproof cover which also serves as a silencer.

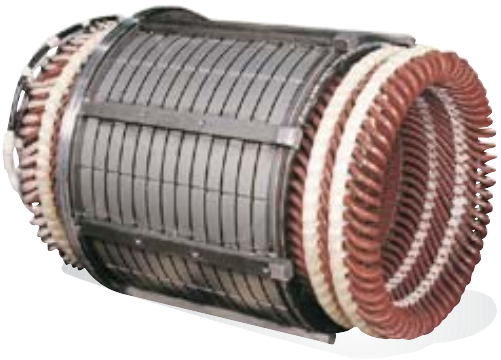
Uniform and efficient cooling of the stator is ensured by radial air ducts in the stator core and spacers between the coil ends. Stator frame construction is designed to facilitate efficient cooling air flow.

Slip ring units with permanent contact slip ring brushes are equipped with a similar heat exchanger or protective cover as that of the motor. A shaft mounted fan circulates cooling air through the slip ring unit, filter, and upper cover. This cooling system is isolated from that of the motor, thus providing easy maintenance and inspection.



Top-Class Components – Complete Quality

ABB's wound rotor motors have maximum availability in any drive application. The motors have modular construction and a wide range of accessories.



Rigid frame

The construction ensures compact and adaptable design at a low weight and low vibration level in all operating conditions and throughout its entire speed range.

Stator package

The stator core is a stack of thin, electrical sheet-steel laminations insulated by a heat-resistant inorganic resin. The radial cooling ducts ensure uniform and efficient cooling. The stator core forms a solid block that retains its rigidity throughout the long lifetime of the machine. The complete stator is vacuum-pressure impregnated.

Rotor construction

Depending on the size of the motor, a cylindrical or spider shaft is used. The rotor core is shrunk onto the shaft. Rotor coils are tightly fitted into the slots to minimize vibration. A rigid bandage is used to support the coil ends against centrifugal forces.

Rugged bearing assemblies

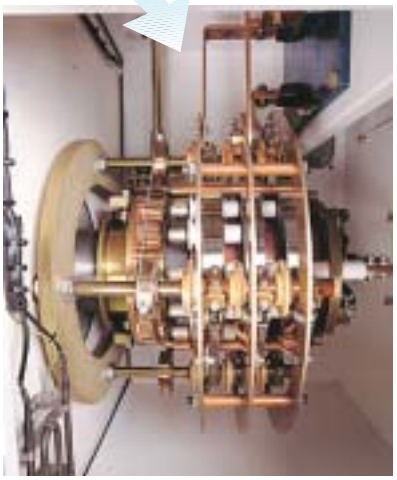
The bearings are designed for reliable, continuous operation and ease of maintenance. Depending on the size of the motor, either anti-friction bearings with a calculated lifetime of over 100,000 hours or spherical, seated self-aligning sleeve bearings are available.

Advanced slip ring unit

Wound rotor motors can be supplied with:

- permanent contact brushes, or
- brush-lifting gear.

In both cases, the slip rings are enclosed in a housing, at the N-end, separate from the motor housing. This arrangement provides for easy access and maintenance. It keeps carbon dust out of the motor and offers the possibility of having different enclosures and cooling methods for the slip ring housing.



Slip rings with permanent contact brushes

The slip rings are manufactured from highly corrosion-resistant Cu-Sn-Ni alloy, and they are helical grooved as standard.

Slip rings with brush-lifting gear

The slip rings are manufactured from stainless steel and have a smooth, non-grooved surface. After the motor has achieved full speed, the brush-lifting and slip ring short-circuiting gear (BLG) first short-circuits the rotor winding and then raises the brushes from the slip rings.