

High Voltage Modular Induction Motors 2 to 24 poles, up to 15 kV and 23 MW

Motors that deliver value



Av. Pte. Perón 5983 - B1650JF
San Martín - Bs. As. - Argentina

Tel.: (54-11) 4750-7830
Fax: (54-11) 4716-1308
bzbelectromec@ecotechnic.com.ar
www.ecotechnic.com.ar
www.bzb.com.ar



ABB is the world's leading supplier of high voltage induction motors and variable speed drives. These motors are used in a wide range of applications in virtually all industries including oil and gas, power generation, marine, pulp and paper, cement, mining, metals and water treatment. ABB's high voltage motors have earned an excellent reputation for performance and reliability.



ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impacts. The ABB Group of companies operates in around 100 countries and employs about 108,000 people.

Modern solutions backed by years of experience

The modular approach to your challenges



This brochure offers you an introduction to the company's range of high voltage induction motors. There is a comprehensive choice of motors ranging up to 15 kV and 23 MW, 50 and 60 Hz.

These motors comply with all widely used standards including IEC, European and NEMA specifications.

ABB's class-leading range of high voltage motors are built around a modular platform. The simplicity of this concept allows them to be perfectly engineered according to each individual customer requirement and application. Quality of design and manufacturing are also important factors in the superior performance of ABB products.

The high efficiency of these motors, together with a range of advanced ventilation technologies, results in considerable energy savings over the life of the motor.

The built-in advantage

ABB has been developing and manufacturing electrical equipment for more than 100 years. This experience and our track record of building close partnerships with our customers offer you a genuine competitive advantage. By continuously developing and incorporating the most advanced designs, analysis and manufacturing technologies for all components, we optimize your operating efficiency and maximize overall reliability.

▲ **Motors ranging up to 15 kV and 23 MW, 50 and 60 Hz, 2 to 24 poles and variable speeds.**

Understanding your needs. Realizing your goals.

Demanding industries require the ultimate in performance



Application know-how

ABB has unique experience in providing power equipment, automation and control systems for industry's many complex processes and, as a result, we have the expertise and information to provide the best solution for each application. In many cases, the history of an industrial application and the development of an ABB technology have run parallel: we have grown together, in partnership. That is not surprising: to be an innovative, reliable partner, we have to know your business as well as our own.

And innovation also brings interesting new success stories: sometimes existing applications in one industry can be adapted to provide revolutionary new applications for another industry.

Ultimate performance

From the first contact, through specification, manufacture, delivery and installation to long-term maintenance and service, you will enjoy the same highly professional ABB approach. Backed by global resources and local presence we have the know-how and the people to provide total support through the entire lifetime of your ABB products.

As an ABB customer, you also benefit from our comprehensive research and development programs, which offer the latest advances in motor and drive technology. State-of-the-art computer programs have been used in the design of these motors in order to ensure the optimum performance of each motor. The same design software also furnishes our customers with rapid, accurate quotations, outline drawings and performance data.

▲ ABB's innovative technology and customer applications have often grown in parallel: above, from left to right, oil and petro-chemicals, metals, marine, water treatment, pulp and paper.



Lower costs. For life.

Today motor selection is not based only on the purchase price. It is the Life Cycle Cost (LCC) that is evaluated: the total cost of investment, maintenance, downtime, energy and all other significant factors. ABB's motors achieve excellent LCC ratings through careful attention to all aspects of design. The outcome for customers is simple: motors that are more reliable and more economical.



▲ **Metropolitan Waterworks, Thailand**
Supplying tap water to 12 million people in the Bangkok was an expensive business with energy losses of almost 30 % through outdated technology. ABB's solution allows pumps to run at maximum efficiency under all flow conditions, reducing energy losses and saving almost USD 10,000 per month.



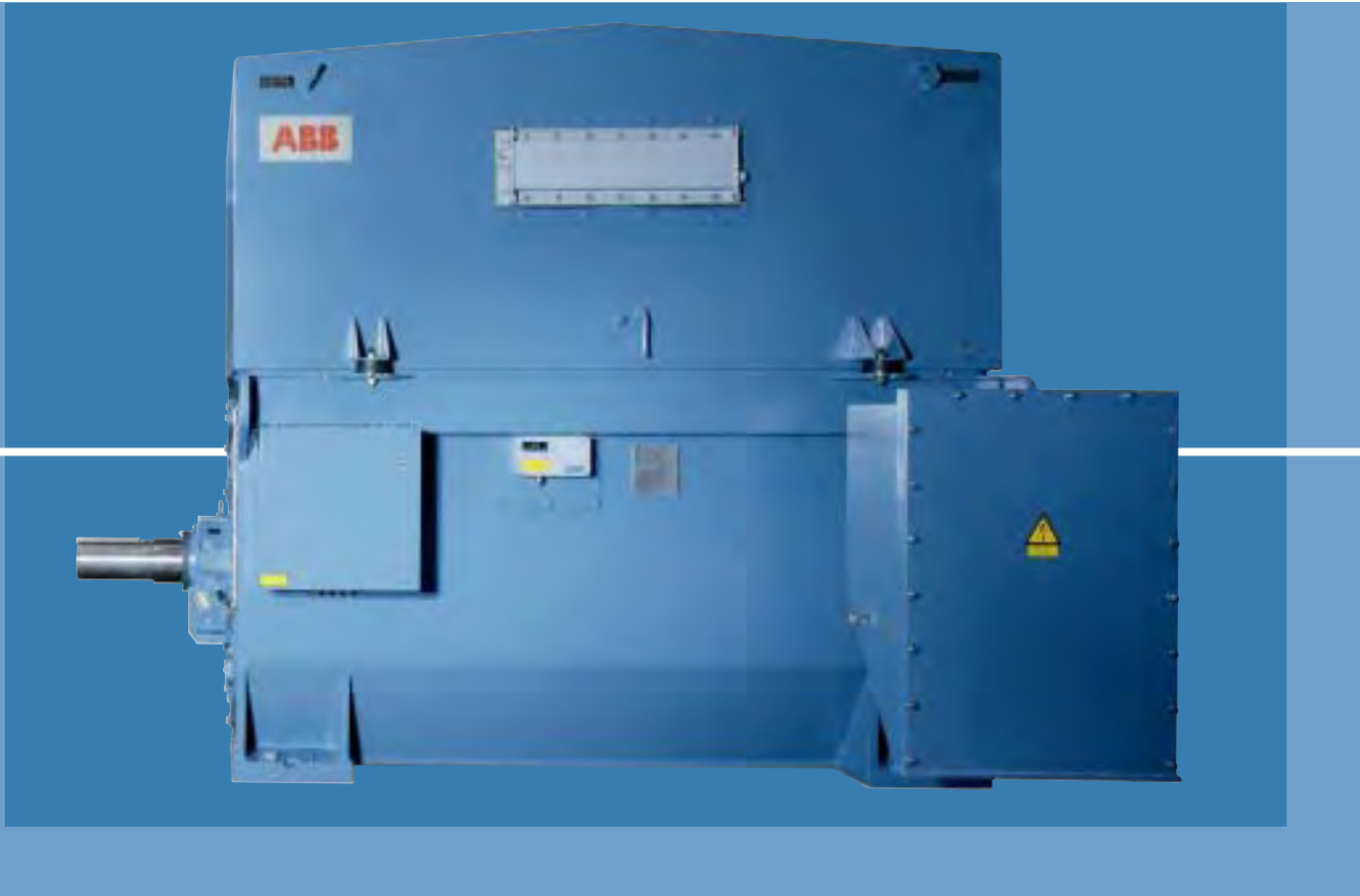
▲ **Meyer Werft Shipyard, Germany**
Advanced ship thruster design can make a big difference to the maneuverability of large cruise vessels in small and crowded ports. Meyer Werft yard ordered ABB motors to power the thrusters of four new cruise ships ordered by RCI. Motor reliability was a key factor behind the order, together with ABB's ability to supply a complete package of electrical equipment for the ships.

Low environmental impact

ABB has high standards for environmental management in the production and use of its products. Legal obligations become more demanding every year but ABB's policy is to be at the forefront of development – not to wait for legislation. Environmental Product Declarations (EPDs) provide customers with an objective way of assessing the environmental impact over the entire lifetime of a product.

A motor for all applications ...

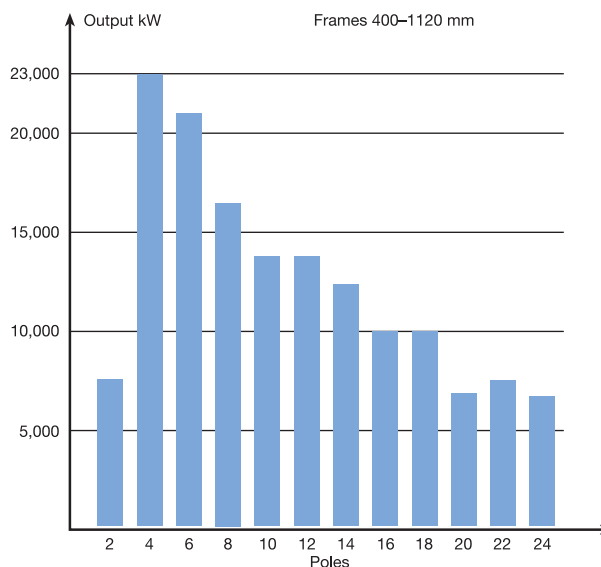
Providing the best motor for each application requires flexibility and the best components. Inside, you can take a closer look at our highly developed components. And remember: the modular design means that it is your requirements that determine how the motor is configured.



Modular design

Using a modular design-and-build principle, ABB's field-proven motors are designed and constructed using a series of "building blocks" with a complete range of enclosures and cooling arrangements. They can be configured for a wide range of applications, including compressors, pumps, fans, blowers, conveyors, mills, crushers, refiners and ship thrusters.

Examples of output at 50 Hz



... and for the future

Keeping users competitive



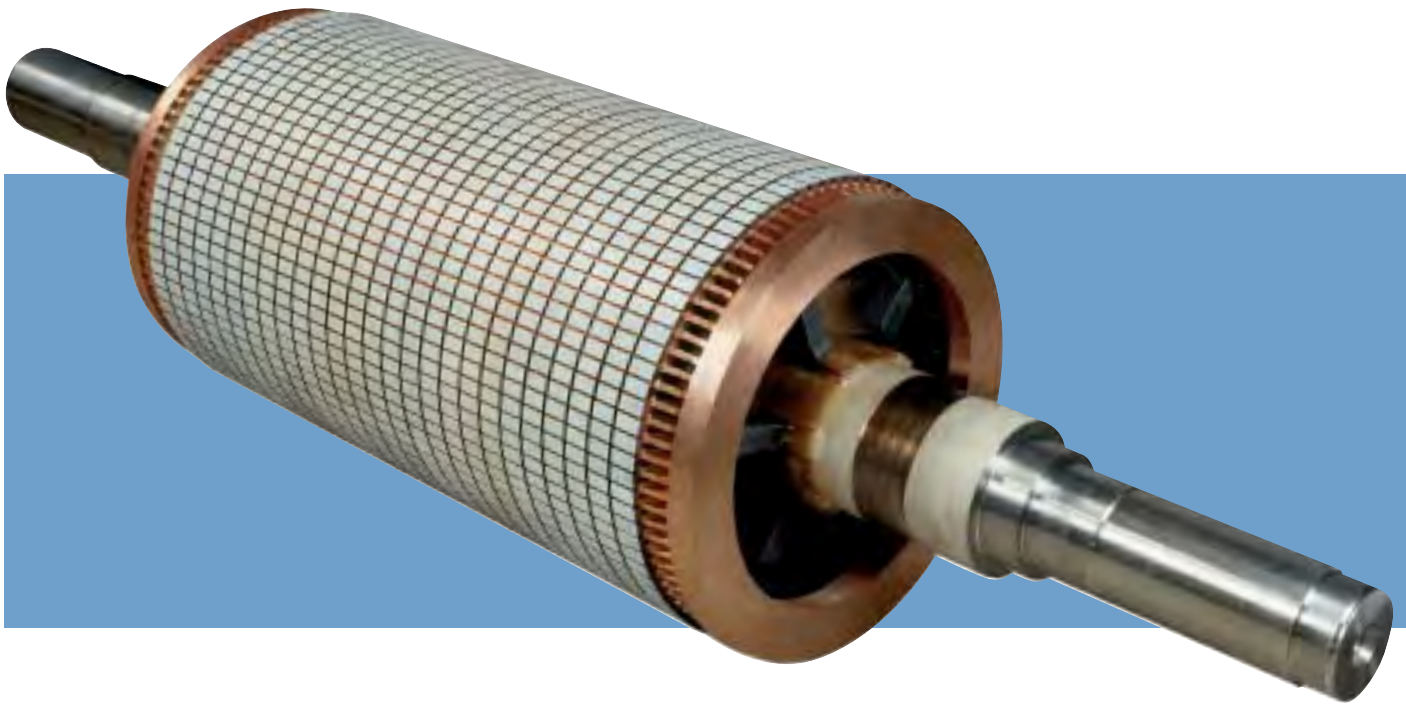
Staying ahead

Our research and development program ensures that our motors utilize the latest technology and materials to provide improved performance and reliability. We endeavor to introduce each improvement resulting from innovation, new materials or new manufacturing methods quickly so that the benefit is passed to our customers as soon as possible. The close proximity of our research, design and manufacturing facilities enable us to do this very effectively. ABB is committed to maintaining this technological edge.



◀ An 11 kV vertical motor for marine vessel bow thruster application: rating 3,400 kW at 714 rpm.

Performance and reliability start here



The Rotor

The key to long life for the rotor lies in ensuring very low vibration levels. This is achieved through robust construction and careful balancing of each completed unit.

Rotor shaft material is selected according to the duty and the ambient conditions. The spider beam welds and subsequent stress relieving are performed according to rigorous norms and subjected to stringent inspection.

Squirrel cages are made from copper, copper alloy or aluminum dependent upon the loading and individual customer requirements. Swaged rotor bars provide additional stiffness enabling the motors to withstand long periods of heavy use.



◀ Rotors are dynamically balanced at full operating speed.

▶ Aluminum bars and end rings are used to ensure optimal starting characteristics.





The Stator

The stator core is welded and machined to form a compact unit. Radial air ducts ensure uniform and efficient cooling. The stator core forms a solid block that retains its rigidity throughout the life of the motor. The complete stator is vacuum-pressure impregnated.



◀ Easy-to-connect terminal boxes

All terminal boxes are designed to facilitate cable connection and shorten installation time. Boxes can be mounted on either side of the motor and are provided with a pressure relief device as an added safety feature.



◀ Micadur® Compact Industry insulation system

ABB's world renowned insulation system gives reliability and long life. The windings and connections are insulated with Mica-based tape. When the windings are in place the whole stator is impregnated in the vacuum pressure impregnation (VPI) process. Class F is standard.



◀ Coil locking

Well developed and proven methods for locking coils into slots and bracing coil ends ensure long term reliability.



The Frame

The compact, rigid, welded frame construction is designed to reduce overall weight, provide high lateral and torsional stability and ensure low vibration levels in all operating conditions and over the whole speed range.

The Bearings

The bearings are designed for reliable, continuous operation and ease of maintenance. Depending on the power and speed of the motor the right choice of bearing is made. Anti-friction bearings with a predicted service life of over 100,000 hours can be specified. ABB also offers spherically seated, self-aligning sleeve bearings. For greater radial load capacity, cylindrical roller bearings can be used at the drive end with a deep-groove ball bearing at the non-drive end. All bearings feature a sealing system that prevents dust penetration.





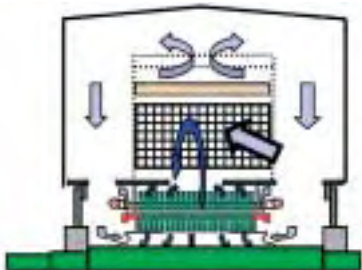
The Cooling System

Efficient cooling has to be achieved in all industrial ambient conditions. Therefore ABB includes a range of alternative cooling systems.

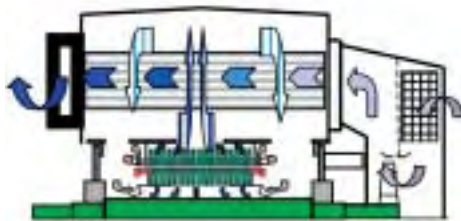
Open ventilated versions can be weather protected. Totally enclosed versions can be fitted with built-on coolers; air-to-air or air-to-water cooling.

Uniform, efficient internal cooling is assured on large 2-pole motors and all motors having four or more poles by rotor air ducts and radial air ducts in the stator. In smaller 2-pole motors this is achieved by axial cooling holes in the rotor together with stator pre-slots and surface cooling of the cores.

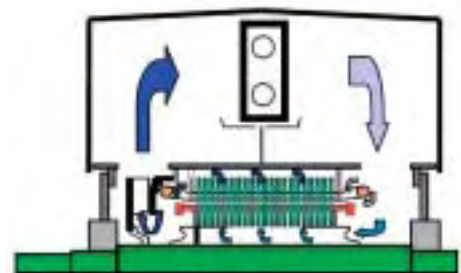
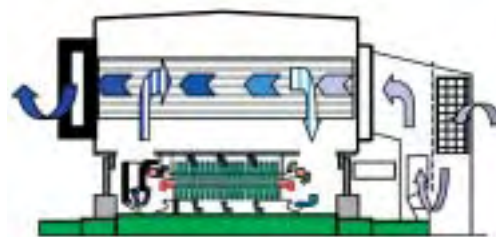
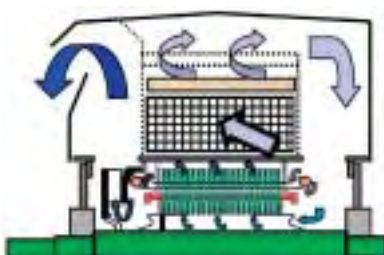
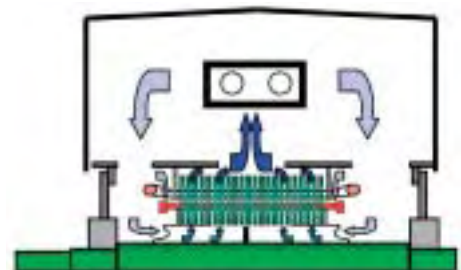
▼ Weather protected.



▼ Air-to-air cooling.



▼ Air-to-water cooling.



Putting the customer first

Understand. Develop. Deliver. And Support.



Organized for support

Our customers include OEMs of 'standardized' machines as well as development establishments requiring one-off specials. The combination of ABB's experience in supplying high voltage induction motors, the breadth of the product range and ABB's advanced information systems allow us to find the optimum solution every time; and to find it quickly.

ABB's systems support customers at every stage from a rapid proposal service, through order tracking to testing, after sales service and the provision of spare parts. Most of this information is directly available to customers via the Internet.

Quality products, thoroughly tested

ABB's motors are produced in some of the most modern manufacturing facilities in Europe.

Quality and performance testing of each motor is something that begins during the manufacturing process and continues right the way through final assembly. Documented quality test results are passed to the customer upon completion. These quality evaluation steps are all part of a routine test program but further optional tests can be undertaken for evaluating special characteristics.

Painting

Painting techniques are varied to suit individual applications and environments.

▲ For many motors customers can witness performance tests via the Internet.



▲ By introducing solvent free painting suitable to industrial environments, ABB is showing the way to other motor manufacturers.

Variable speed drives

Making technology work for you



ABB offers a range of low and medium voltage drives. They are based on modern frequency converters that significantly reduce power losses and permit more frequent starts.

Converters provide rapid, accurate and stepless control from zero to full speed through ABB's patented Direct Torque Control technology (DTC) and are easy to adapt to any industrial process. By reducing or eliminating high starting current and torque they extend the life of the motor and the driven machine.

ABB's variable speed controllers are also suitable for retrofitting to existing motors.



▲ ABB's variable speed drives are compact and efficient.

We are always there for you

World-wide customer support



No matter where you are based in the world, ABB will focus on your requirements from the first contact, through manufacturing to delivery and whenever you need help. We aim to create long-term working relationships that are mutually beneficial. Through those relationships we strive to make our customers more competitive.

ABB has earned a global reputation for expertise in maintenance, offering professional industrial maintenance services via state-of-the-art technological know-how and the support of over 10,000 committed professionals in more than

50 countries. All services are provided by factory-trained personnel located in the growing service net, and are backed and supported directly by the factory.

We pride ourselves that ABB service stands for quality, flexibility and local presence.

As you would expect from ABB, comprehensive product and service information can be found on our web pages and support is available via the Internet.

Motors and Generators for every application

ABB produces one of the world's most comprehensive ranges of motors and generators. We supply the manufacturers of series built machines and the users of highly specialized and demanding industrial applications.



Our range runs from a 0.09 kW standard motor to a 70 MVA generator. It encompasses high and low voltage motors and generators, induction and synchronous, AC and DC.

These motors and generators are designed for all industrial applications and consequently a complete range of options and auxiliary equipment is available.

ABB motors and generators meet all widely used standards and are approved for use in hazardous areas. Protection classes include flameproof, non-sparking, increased safety, dust ignition protection and pressurized.

ABB is at the forefront of innovation, development and new applications. Typically we are the world's leading manufacturer of generators for wind turbines; also ABB designed and developed Motorformer – Very High Voltage motors with revolutionary cable technology.

▲ Our product range runs from 0.09 kW to 70 MVA.

