

APPLICATION NOTE

## Low voltage motors for HVAC

Getting energy savings and reliability with fans, blowers and pumps



As an OEM working with the HVAC (Heating, Ventilation and Air Conditioning) sector, you want to be sure the components you use will enhance the reliability and value of your products, both for now and long into the future. To make your job easier, the ABB team is now specifically targeted to allow HVAC OEMs straightforward access to our deep industry knowledge regarding higher energy efficiency and reliability.

### High energy efficiency and low cost of ownership

HVAC OEMs today are being pushed by international standards and Ecodesign Directives, as well as by market demands, to achieve increasingly higher total system efficiencies. ABB's low voltage motors meet the EU's Ecodesign Energy Directive 2009/125/EC and also help customers comply with Ecodesign Regulation 327/2011 for Fans. As an example, new high efficiency Backward Curved Fans or Axial Fans with airfoil blades and guide vanes are supported by ABB's High, Premium or Super-Premium Efficiency motors. This helps your systems operate reliably and efficiently while, at the same time, reducing energy costs in the traditionally energy intensive cooling and heating processes.

### State-of-the-art technologies to stand out

With a broad and diverse range of motor technologies, including induction or synchronous, Totally-Enclosed Air-Cooled or custom-tailored designs, ABB can develop the best customer fit to make your solutions stand out from your competitors. With ABB's HVAC team you always have a knowledgeable partner with which to discuss all different motor solutions to best optimize your process.

### Reliability in demanding conditions

With a very long track record based on experience from millions of installed HVAC units, reliability is one of ABB's strongest advantages. We only use high-quality materials and components, and thoroughly test every motor before it leaves the factory. To see for yourself, customers are welcome to visit our factories and inspect every aspect of our manufacturing process.

### Our services do not stop at sales

Via our targeted HVAC team, and an extensive global service network which provides local delivery anywhere, we make it easy for you to reach us at every stage of your product's life cycle. This is important no matter whether you are a local/regional player, a growing export oriented company or an established multinational. To further boost the competitiveness of your products, we offer predefined maintenance and preventive diagnosis programs for all lifetime phases of our motors.



Induction motor



Synchronous reluctance motor



Tailored condenser motor

### Wide range of motors for the HVAC industry

Designed according to individual customer requirements for use in the HVAC industries, these certified motors can be connected direct-on-line or fed via variable speed drives. ABB has industry specific solutions for all the main HVAC applications:

- Air handling units
- Agricultural fans
- Energy recovery ventilators
- High pressure blowers
- Smoke ventilation fans
- Bag house fans
- Kiln exhaust fans
- Cooling tower fans
- Jet fans and much more...

### Superior reliability with robust design make your products different from the competitors

- Modification variants adapted especially for HVAC applications
- Motor enclosures can be chosen in aluminum or cast iron depending on application and customer needs
- Motor frame and terminal boxes tested to fulfil ingress protection requirements
- High altitude and special ambient temperature requirements
- Flexible positioning of main and auxiliary terminal boxes
- Low vibration levels in all operating conditions
- Motor finished with corrosion class C3M paint. C4 or C5 available as option.
- Dimensioning always includes safe margins: magnetic flux is far from saturation, current density is well below maximum allowed by requirements.
- Excellent HVAC application specific know-how and technical expertise to fulfill the most demanding conditions.

### Induction motors

Induction motors are the workhorses of the industry due to their versatility, reliability and simplicity.

- General performance
  - Power: 0.09 to 355 kW
  - Frame sizes: 56 to 355
  - Efficiency classes IE2, IE3
  - Direct-on-line and with converters.
- Process performance motors
  - Power: 0.25 to 1000 kW
  - Frame sizes: 71 to 450
  - Complete range of enclosures and cooling arrangements
  - Efficiency classes IE2, IE3 and IE4
- Special motors
  - Power: 0.25 to 1000 kW
  - Frame sizes: 71 to 450
  - Complete range of enclosures and cooling arrangements.

### Synchronous motors

Synchronous motors are typically preferred when high reliability, Super premium efficiency, precise motor control even at very low speeds, and optimized compact machines are required. ABB offers two technologies: permanent magnet motors and synchronous reluctance motors (with or without magnets).

- Synchronous motors
  - Power: 1.1 to 2500 kW
  - Frame sizes: 90 to 560
  - Efficiency classes IE2, IE3 and up to IE5
  - Direct-on-line and with converters.

### Get in touch!

When it comes to selecting motors for HVAC fans, blowers and pumps, ABB's industry know-how can be a key competitive advantage in meeting your goals. No project is too large or too small for us. The HVAC team at ABB looks forward to discussing the best combination of motors with your systems to increase energy efficiency and reliability, while setting your products apart from your competitors.

For more information, please contact your local ABB representative or visit:

[abb.com/motors-generators](http://abb.com/motors-generators)

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