



FLAMEPROOF EEXD
MOTOR RANGE

ATB MORLEY
Technology in Motion

TECHNICAL FEATURES

Morley motors are designed and manufactured at the Morley head office and main factory in Leeds in England, making use of proven electrical design software and modern design tools including computer aided drawing and finite element analysis techniques.

Construction Frames are very robust yet permit the possibility for customisation. All motors are manufactured from fabricated steel including the feet or flange, the terminal box and bearing housings. All mounting arrangements can be accommodated.

Cooling Air-cooled machines incorporate shaft mounted steel fans designed for energy efficiency and low noise, cast iron or steel fan covers and ribbed frames. Water jacket cooled machines have two concentric steel barrels and a labyrinth to pass water over the stator frame.

Location Machines are available for use in a zone 1 hazardous area for gas groups IIA and IIB. The range is complemented by Morley's Hi Spec range designed for use in non-hazardous, safe areas and 'non sparking' for use in a zone 2 hazardous area with protection type "n" (ExN) to BS5000.

Cores Produced from laminated, insulated, high grade, low loss silicon steel. Stator cores are secured between laser cut steel plates. Rotor cores fit against a shaft shoulder at the non-drive end, are keyed with a full-length key and secured by a multi-tab washer and locking nut at the drive end. This ensures that both the stator and rotor cores are very rigidly supported.

Windings Low voltage motors incorporate wire windings insulated with a high-grade polyester covering. High voltage motors have rectangular copper strip pre-formed coils that are vacuum pressure impregnated in a class H polyester resin. High-grade proven insulation systems provide a high overload capacity and the ability to pass IEEE water immersion tests.

Rotors The Morley Barlok® pinned copper bar rotor system employs rolled steel pins that are inserted below the rotor bar in order to overcome problems associated with more conventional methods of rotor construction. The system was specifically developed for long or repetitive starting duty cycles. Barlok® overcomes bar joint stress and radial vibration problems increasing reliability, life expectancy and permissible starting frequency. Morley are not aware of a single rotor bar failure since the introduction of Morley Barlok® in 1980.

Bearings All motors incorporate high quality widely available metric grease lubricated rolling element bearings. Long bearing design lives and generous re-lubrication intervals help to reduce maintenance and down time. Grease nipples allow re-greasing while running and pressure grease relief facilities ensure bearings cannot be over greased. One of the most common causes of bearing problems is inadequate bearing sealing. Morley utilise the highest quality and most effective brass seals available.

Terminals Standard terminal boxes are top mounted fabricated steel, non-fault rated and air insulated. Gland plates can be provided blank or fitted with a variety of glands and adapters to suit customer's requirements and local regulations.

Protection Enclosure protection is available up to IP56 and protective surface treatments have been carefully selected to offer effective protection in all environments.



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Flameproof EEXD Motor Range

The Morley Electric Motors Ltd 'Hi Spec' flameproof range is made up of water jacket cooled and air-cooled induction motors specifically designed for the more arduous hazardous atmosphere applications. The range is certified flameproof EExd for use in a zone 1 hazardous area and for gas groups IIA and IIB.

Hi Spec is not an ordinary mass produced motor but a high specification machine that incorporates the highly successful and supremely reliable Barlok® pinned copper bar rotor construction. What Morley offer, is a specifically engineered reliable drive solution working with customers to match the requirements of the driven equipment and drive train. The unmistakably robust build specification of a Morley motor is evidence that the motors are built to last in the harshest environments.

✓ EXPERIENCED

Established in 1897 the company can demonstrate comprehensive reference lists detailing numerous high profile global installations. Customers include packagers, original equipment manufacturers and end users. The company's product range and experience embraces most duties, applications and environments.

✓ PROFESSIONAL

Morley is ISO9001:2000 and EECS approved, and is a strong, focused and expanding organisation that prides itself on its design expertise, technical innovation and having the flexibility to understand and react to customers needs.

✓ LOCAL

A network of overseas offices and service and repair companies offering local consultation and product support demonstrates the company's commitment to extending an already strong international position.

If you want performance and proven reliability that exceeds your expectations, increased availability and therefore higher productivity, longer product life and peace of mind, then take control by installing a Morley motor.

Most industrial applications use air-cooled motors, however, water jacket cooled motors are also available, and by virtue of an internal water labyrinth they offer an extremely efficient cooling system, and many additional benefits over air-cooled motors that make them ideal for the petro-chemical and oil and gas industries.

PRODUCT BENEFITS

- Outputs up to 1100kW, supplies up to 6600 Volts
- Extra heavy duty construction to safeguard against impact and mechanical shock
- Barlok® pinned copper bar rotor construction
- Sealed, VPI stator winding system
- High quality, proven bearing and bearing seal arrangements
- Extremely efficient
- Low noise, vibration and maintenance
- Flexibility and customisation to match specific drive requirements and dimensional restrictions. Fabricated frames enable retrofit interchangeability with existing installed machines supplied by others meaning skids, base plates and cable routings need not be disturbed
- Comprehensive in house on load testing on 50Hz, 60Hz or variable frequency
- Flameproof variable speed / inverter compatible machines



ADDITIONAL BENEFITS OF WATER COOLED MOTORS OVER AIR-COOLED MOTORS

- Higher efficiencies. Water jacket cooled motors do not require fans and so fan losses are eliminated.
- Lower noise - typically 10dB(A) lower than an air cooled motor
- Compact construction – much smaller than an air-cooled equivalent
- Heat dissipation into the coolant not the surrounding atmosphere
- Cooling is not affected by environmental contamination as air cooled motors can be
- Outer frame surfaces remain cold to the touch, therefore not affecting the surrounding ambient conditions and maintaining operator safety
- Variable speed compatibility, constant cooling even at very low speeds and on constant torque
- Nickel, stainless steel or ceramic water passage coatings are available to reduce corrosion
- Water cooled shafts are available for very heavy duty cycles
- Water cooled endplates are available to assist with heat dissipation around the bearings
- All machines are bi directional even at 3600 revs/min



DUTIES AND APPLICATIONS

Because the motors are specifically electrically and mechanically designed for customers variable load and duty requirements they can be made suitable for almost any industrial application. Typical applications include pumps, fans, compressors, and conveyors.

STANDARDS

Motor ranges are designed and constructed in accordance with IEC standards and are based on continuous operation (S1 duty according to IEC) although other duty cycles can be accommodated.

RANGE

A wide range of standard outputs, speeds and enclosures is available. The following table provides details of the basic range but many other special options are available such as slower speeds, dual speed or dual voltage, 60Hz supplies, variable frequency machines etc.

SUPPLY (VOLTS, 50Hz)	SPEED (POLES)	POWER OUTPUT (kW)	POWER OUTPUT (HP)
Up to 1100	2	100 – 750	134 – 1000
Up to 1100	4 - 8	100 – 1100	134 – 1475
Up to 3300	2	100 – 750	134 – 1000
Up to 3300	4 - 8	100 – 1100	134 – 1475
Up to 6600	2	200 – 750	267 – 1000
Up to 6600	4 - 8	200 – 1100	267 – 1475

