

September 2008



Vertical A.C. Motors

Solid Shaft, High Thrust Oil, Gas & Refining Applications

Emerson has designed its U.S. Motors® Vertical Solid Shaft - High Thrust Motors for reliable use in typical applications within the oil, gas, refining and other harsh process industries.

These motors are carefully designed and built to the high Emerson standards utilizing proper materials and manufacturing processes to ensure reliability and long life. Emerson™ vertical motors meet the customer's specifications for use on vertical API®† 610 Process turbine applications such as booster, transfer, pipeline, chemical process and in refinery water treatment facilities.

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- **Horsepower : 3 - 5000**
- **Speeds: 3600 - 400 rpm**
- **Design Voltages: 3 Phase / 200 - 6900 Vac / 50 or 60 Hz**
- **Enclosures : Weather Protected Type I, Weather Protected Type II, Totally Enclosed Fan Cooled, and Hazardous Location**
- **Frame Sizes: 182 - 9608**



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Product Overview and Options

Emerson's team of engineers utilize nearly 100 years of vertical motor design experience and resources from our advanced Motor Technology Laboratories and our adept manufacturing facilities to ensure solid shaft high-thrust motors have the features that oil, gas and refining customers require.

Product Features:

- Class F Insulation, Class B Rise At Full Load
- 1.15 Service Factor
-typical for WPI & WPII enclosures
- 1.00 Service Factor – typical for TEFC
& Hazardous Location enclosures

Options:

- Specific Ambient Temperatures
- API 610 Tolerances

Upgrades:

Inverter Duty – Premium efficiency and our insulation system features are combined to provide performance and reliability on sine wave or pulse-width modified variable frequency drive inverter power. Emerson's Inverter Grade[®] insulation system provides superior pulse endurance to withstand waveform stresses produced by pulse width modulated drives.

- Pulse Resistant Magnetic Wire
- Additional Lacing on End turns

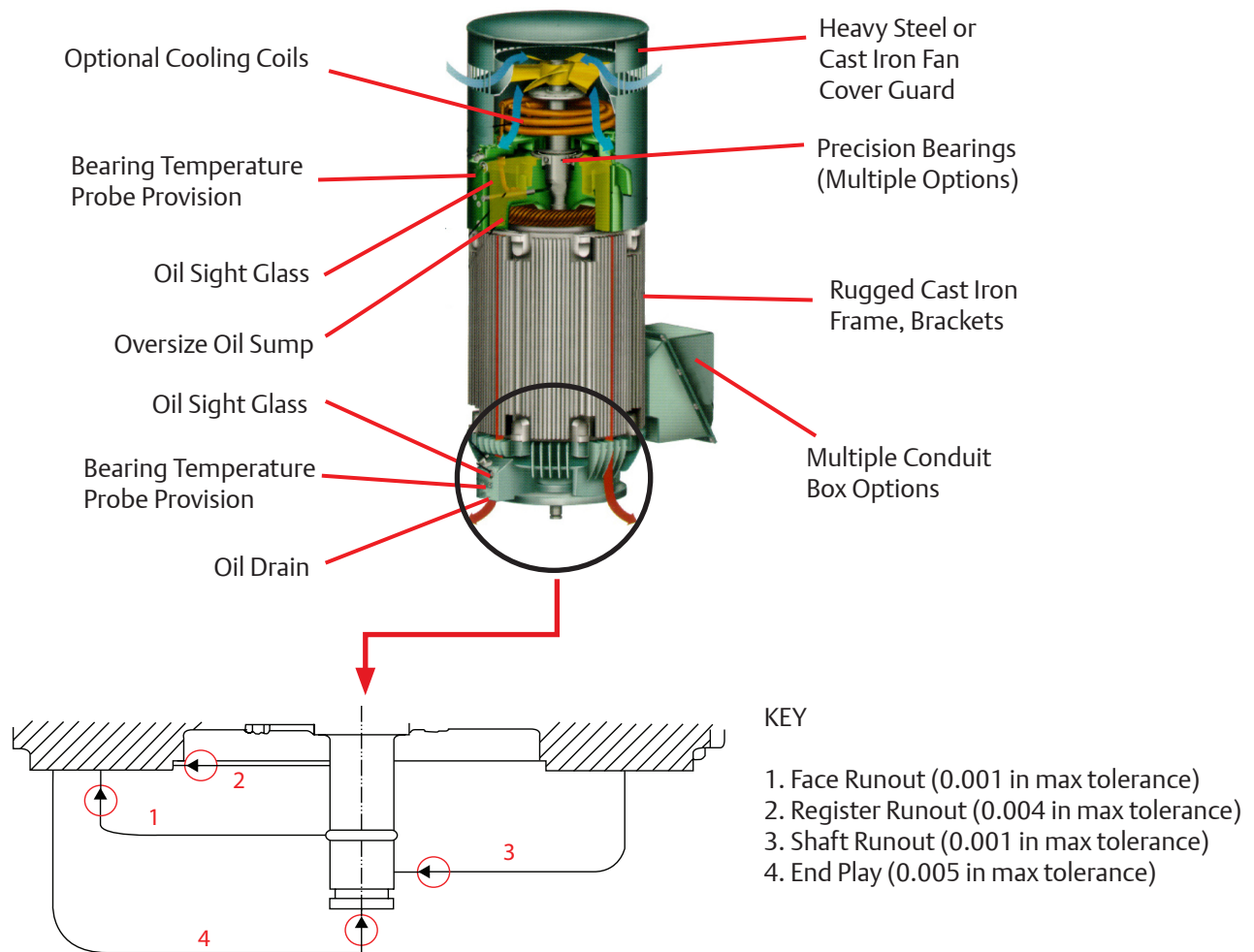
36-month limited warranty from the date of installation or 42 months from the date of manufacture, whichever comes first.*

Corro-Duty Motors[®] - Extra features for harsh environments.

- Cast-Iron Construction
- Internal and External Corrosion
Resistant Treatments



API 610 Option



Emerson is proud to offer products that meet the stringent requirements for motors used with API 610 pumps in Petrochemical Industries. The API 610 option is available on 400 frame sizes and larger on both open and enclosed motor types.

API 610 Requirements Include Specific:

- Thrust Bearing Location
- Shaft Runout
- Face Runout
- Register Runout
- End Play with Minimum L-10 Bearing life of at least 25,000 hours

Enclosures and Warranty Information

Enclosures

Weather Protected Type I (WPI) enclosures are constructed to minimize the entrance of rain, snow and airborne contaminants found in outdoor applications while providing cooling to the thrust bearing and electrical components.

Weather Protected Type II (WP II) enclosures are constructed for hostile outdoor atmospheres. The WP II ventilation circuit is arranged with a minimum of three abrupt changes in airflow direction of at least 90° each. This results in an area of reduced velocity in the air intake that reduces the chances of high velocity air, moisture and airborne particles reaching the cooling passages of the motor.

Totally Enclosed Fan Cooled (TEFC) enclosures prevent the free exchange of air between the outside and inside of the motor, but are not airtight. Each TEFC motor is cooled by a fan that is integral with the motor, but external to the enclosing parts. Suitable to be installed in Division 2 areas.

TEFC Hazardous Location enclosures are built to contain explosions inside the motor casing as well as to prevent ignition outside the motor by containing sparks, flashing and explosions. Suitable to be installed in Division 2 areas.

Efficiency Types & Warranty Information

Standard Efficient – 12-month limited warranty from the date of installation or 18 months from the date of manufacture, whichever comes first.*

Energy Efficient – 24-month limited warranty from the date of installation or 30 months from the date of manufacture, whichever comes first.*

Premium Efficient – including Inverter Duty - 36-month limited warranty from the date of installation or 42 months from the date of manufacture, whichever comes first.*

† All non-Emerson Electric Co. marks shown within this document are properties of their respective owners.

* For details, refer to: <http://www.usmotors.com/FL600/LimitedWarranty.pdf>

Emerson, a global leader in the design and manufacture of electrical motors, provides a complete line of general and special purpose electric motors from 1/200 through 5,000 horsepower. Brands such as Emerson®, U.S. Motors® and Hurst® allow Emerson to support a wide variety of applications including commercial and industrial, appliance, hermetic, automotive, and HVAC. Emerson (NYSE:EMR), based in St. Louis, is a global leader in bringing technology and engineering together to provide innovative solutions to customers through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses.



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