



Vertical A.C. Motors Holloshaft[®], High Thrust

- **Horsepower : 3 - 5000**
- **Speeds: 3600 - 400 rpm**
- **Design Voltages: 3 Phase / 460 - 6900 Vac / 50 or 60 Hz**
- **Enclosures : Weather Protected Type I , Weather Protected Type II, Totally Enclosed Fan Cooled, and Hazardous Location**
- **Efficiency Levels: Standard, Energy and Premium Efficiency**

Emerson is a global leader in the manufacturing of Vertical Holloshaft[®] A.C. Motors. Our motors are recognized for their longevity, reliability and ease of use. We offer a variety of options that allow for unique configurations tailored to the specific requirements of our customers, including a comprehensive range of enclosures designed to minimize the effects of adverse external conditions present in turbine, mix flow and propeller pump applications.



Product Overview and Options

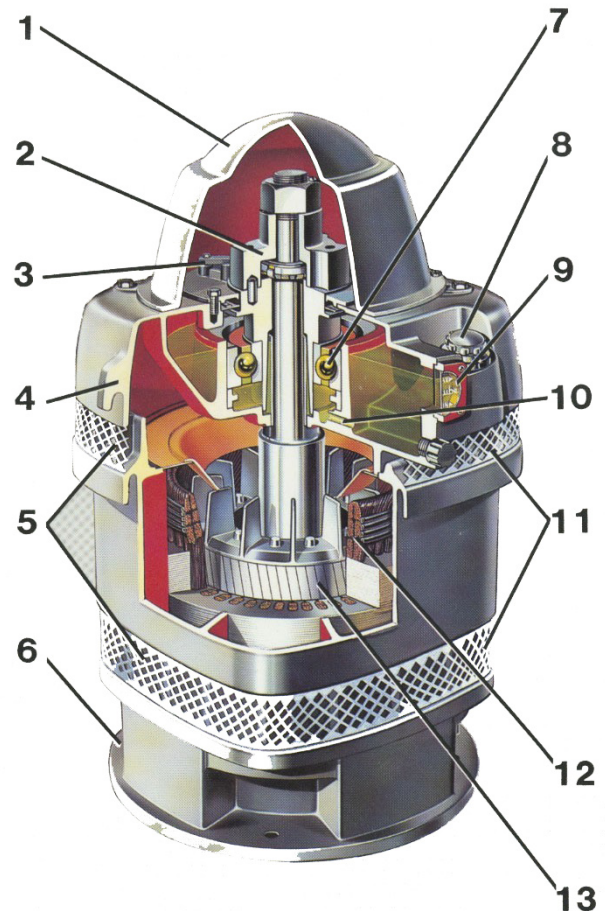
Since 1922, Emerson has developed Vertical Holloshaft® A.C. motors that meet our customers' stringent requirements through the use of high quality facilities, materials and innovative, performance-focused design. This lends to the prominent reputation of our U.S. Motors® brand motors throughout the industry.

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
- Maximum 40° C Ambient, 3,300 Feet Altitude
- Bearing Capacities Among Highest in Industry
- Multiple Bearing Configurations Available - allows for a selection tailored to your needs to maximize bearing life
 - ball
 - spherical roller
 - angular contact
 - plate type

The following diagram shows the typical Holloshaft® construction features:

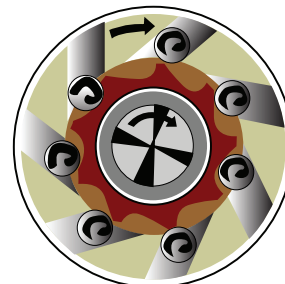
1. **Lightweight Top Cover**
2. **Coupling** is readily accessible
3. **Lockbar** holds shaft during adjustments
4. **Lifting Lugs** positioned for stability
5. **Protected Air Openings** exceed NEMA®† WPI requirements
6. **Precision Machined Mounting Base**, ample clearance for mounting bolt installation
7. **Rugged Bearing** withstands heavy load thrusts
8. **Large Plug** simplifies oil fills
9. **Sight Gauge Window** for quick oil level reading
10. **Meterd Oil Flow** minimizes churning
11. **Dual Air Flow** system for uniform cooling of motor top and bottom
12. **Windings** Protected by new, synthetic materials
13. **Solid Die Cast Rotor** with integral fan blades



Enclosures Types

Non-Reverse Backstop Ratchet Design - BALLOMATIC®

- Emerson was the first to create this technology
- Among the finest ratchets available.
- Prevents reverse rotation within 4.5 degrees of rotation
- Has unlimited depth setting
- Can be used in Hazardous Location applications



BALLOMATIC® Backstop Ratchet

Enclosures



WPI 15-4000 HP and
WPII 300-5008 HP

Weather Protected Type I (WPI) Open motors are constructed to minimize the entrance of rain, snow and airborne particles. Our enclosures exceed NEMA®† requirements because Emerson has built in the extra protection needed for rugged outdoor applications. The ventilation system is designed to provide optimum cooling to the thrust bearing and electrical components and is available in all motor sizes.

Weather Protected Type II (WPII) This NEMA®† enclosure offers protection against hostile outdoor atmospheres. The special ventilation system helps minimize the entrance of high velocity air, moisture and airborne particles into the passages of the motor.

This unique design allows Emerson to use standard internal components and adapt special enclosures with minimum delay.

Totally Enclosed Fan Cooled (TEFC) and Hazardous Location

These motors (with our non-sparking, non-reverse ratchet design) are available for severe atmospheres where destructive dusts, vapors and other harmful substances are found. Where Underwriters Laboratories (UL®†) approval is necessary, Emerson Hazardous Location design may be just the answer.

CORRO-DUTY® motors with cast iron construction are available with external corrosion resistant paint and hardware for extremely harsh environments.



TEFC and Hazardous Location 3-700 HP

4 Zone Design

The first to recognize the special application needs of the vertical pump motor, U.S. Motors® brand is responsible for the industry defining design principles that break down into the four functional zones below.

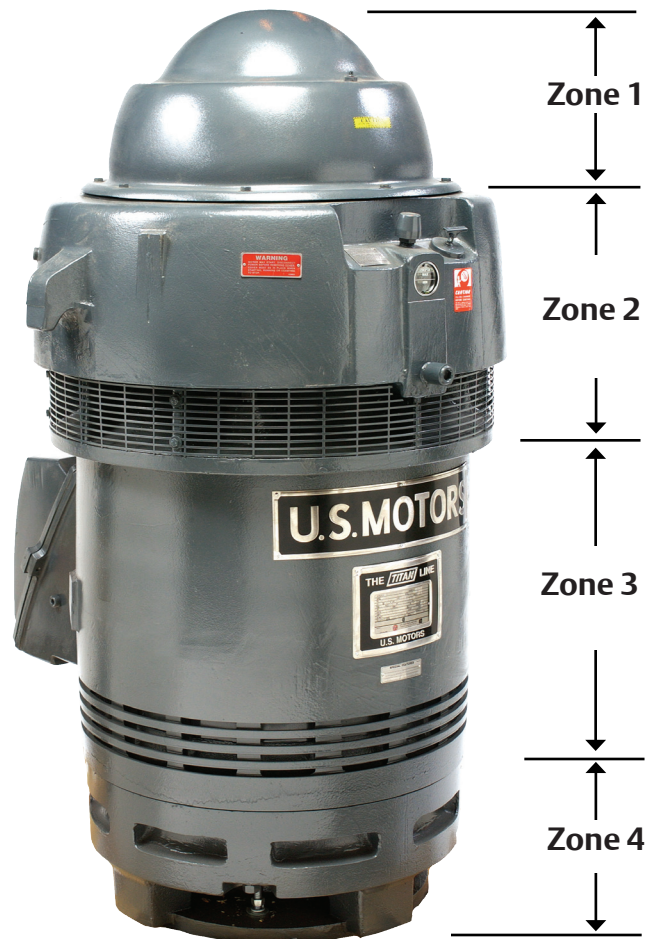
Zone 1. The canopy cap provides simplified access to the coupling, non-reverse ratchet and inspection of the thrust bearing.

Zone 2. This area incorporates a generously sized oil reservoir with the essential elements of the thrust bearings, and the large weather protected air intake provides continuous cooling to the motor and thrust bearing.

Zone 3. The center, or winding section, develops the driving torque and houses the insulation systems.

Zone 4. The mounting base is compact and designed for momentary upthrusts of the pump.

The benefit of this four zone design is a motor which is more easily installed and serviced and which allows operator protection and convenience.



† 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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