

Horizontal Titan[®] Line A.C. Motors

Open Drip Proof and Weather Protected Type I Enclosures

Emerson designed its heavy-duty line of U.S. Motors[®] brand Titan[®] motors for use in locations where minimal airborne contaminants are present. These Open Dripproof (ODP) and Weather Protected Type I (WPI) motors have a highly efficient cooling method and provide the most economical power available. Titan[®] motors with ODP or WPI enclosures are best suited for long-lasting use with pumps, compressors, fans, blowers and conveyors.

- **150 - 4000 Horsepower**
- **449 - 9600 Frames**
- **460, 575, 2300, 4000, 4160 and 6600 Volts at 60 Hertz**
- **380, 400, 415, 3300, 6000 and 6900 Volts at 50 Hertz**
- **Standard High Efficient and Premium Efficient Models**
- **Anti-Friction or Sleeve Bearings**



Product Overview

Emerson's team of engineers has applied more than 100 years of motor expertise and the Motor Technology Center's cutting-edge laboratories to design and test the U.S. Motors® brand Titan® motors with Open Drip Proof and Weather Protected Type I enclosures.

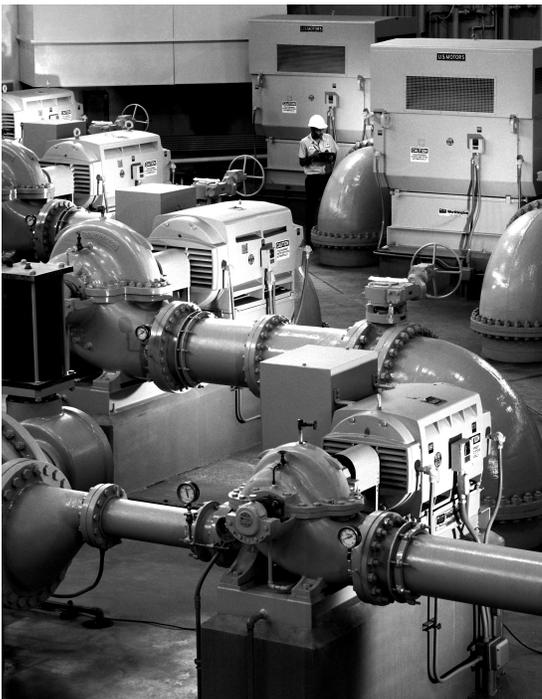
Electrical & Mechanical Features

To help ensure motor reliability, long life and superior performance, Emerson's Titan® motors are built with many protective features, including corrosion-resistant paint and at least one coating of VPI, using 100 percent solid epoxy resin, on the windings.

Many more features make the U.S. Motors® brand Titan® motors with ODP or WPI enclosures the dependable choice.

- 1.15 Service Factor
- Class B temperature rise at 1.0 Service Factor by resistance
- Class F insulation system
- Regreasable ball bearings
- Zinc-plated hardware
- Dowel pin holes (on 5000 and 5800 frame sizes)

All U.S. Motors® brand Titan® motors with ODP and WPI enclosures are rated to operate in 40 degrees C ambient temperatures and at maximum altitudes of 3300 feet above sea level.



Warranty

Emerson provides the following warranties for its Titan® motors with ODP and WPI enclosures

- *Standard efficient* - 12 months from date of installation, maximum 18 months from manufacturing date
- *Premium Efficient* - 24 months from date of installation, maximum 30 months from manufacturing date
- *Titan II motors* - 24 months from the date of installation, maximum 30 months from manufacturing date
- *Inverter Duty* - 36 months from date of installation, maximum 42 months from manufacturing date

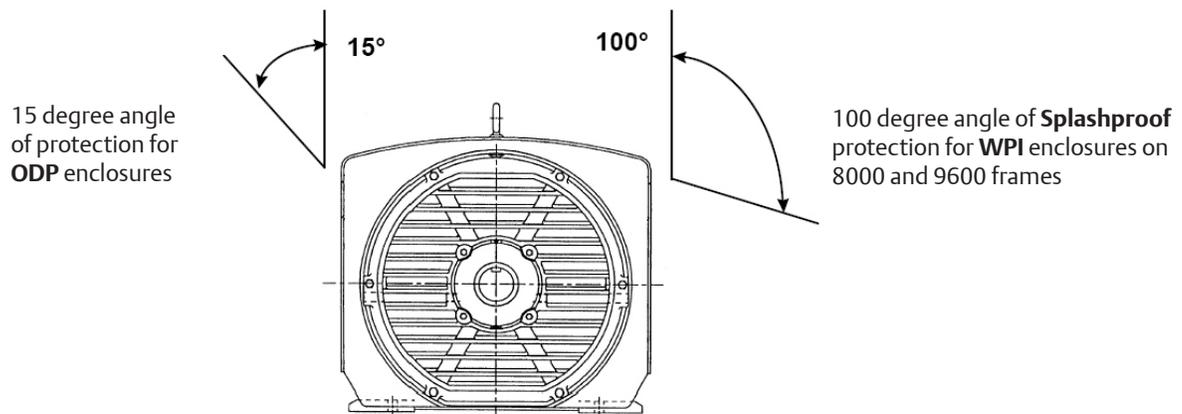
Product Features

Even with the heaviest of loads, Open Dripproof and Weather Protected Type I motors are kept economical and efficient by their cooling method. Ventilating openings direct the passage of external cooling air over and around the windings, allowing internal heat developed under load to be exhausted into the air.

Enclosure Types

Tuned to minimize vibration while maximizing ventilation, each U.S. Motors® brand Titan® motor with ODP or WPI enclosures is constructed from heavy fabricated steel with cast-iron end brackets. Emerson's strict attention to such standards makes these motors dependable and long lasting.

Open Dripproof (ODP) Enclosures come standard on all Titan® motors with 449 through 6800 frame sizes. ODP enclosures protect the motor from drops of liquid or solid particles that strike or enter the enclosures from overhead or at any angle up to 15 degrees from overhead.



Weather Protected Type I (WPI) Enclosures work best in indoor or relatively clean outdoor applications. These enclosures come standard on all Titan® horizontal motors in 8000 and 9600 frame sizes and are available as an option on 5000 through 6800 frame-sized motors. These WPI motors feature carbon-steel mesh screens on the ventilation passages that minimize the entrance of rain, snow and airborne contaminants and prevent a ¾ inch-diameter cylindrical rod from entering the electric or rotating motor parts.

U.S. Motors® brand Titan® motors with Weather Protected Type I enclosures on 8000 and 9600 frames meet Splashproof requirements. Splashproof provides an additional level of protection that prevents drips, falling debris and splashes falling overhead and from up to 100 degrees from overhead from entering the motor.

- By drawing cooling air into the ventilation circuit from below, Splashproof features also prevent overhead environmental contaminants from entering the motor through the cooling air.
- U.S Motors® WPI enclosures comply with NEMA® MG1-1.25.8.1.

Options and Accessories

With many options available, Emerson can deliver a U.S. Motors brand Titan® motor with an Open Dripproof or Weather Protected Type I enclosure to match your needs and ensure protection of your investment.

Many Custom-Designed Choices Available:

- Weather Protected Type I enclosures on 5000 through 6800 frame motors
- F1 or F2 mounting positions
- Separately ventilated or blower-ventilated splashproof enclosures
- Designs for high altitude and high or low ambient temperatures
- Copper bar rotor
- Premium Everseal® that meets the NEMA's® definition of sealed windings
- Winding protection options include RTDs, thermostats, thermocouples and thermistors
- Inverter Duty to meet NEMA® MG 1, Part 31
- Special balance to reduce system vibration and increase motor lifespan
- Stainless-steel screens for WPI enclosures
- Stainless-steel hardware
- Provision for dowelling of feet (6800 to 9600 frame sizes)
- Vertical jack screws
- Space heaters
- C face or D flange (5000 frames only)

Bearing Options:

- Sleeve-bearings that are spherically seated for self-alignment with a horizontally split case
- Proximity probes for sleeve bearings
- Roller bearings
- Inpro/Seal® and VBXX® ball bearings
- Shaft slinger
- RTDs and thermocouples
- Vibration detectors

Conduit Box Options:

- Oversized main conduit box
- Grounding lug in main conduit box
- Lead positioning gasket
- Surge capacitors, lightning arrestors and current transformers
- NEMA Type II conduit box with standoff insulators with copper buss bar lead connectors

Testing and Inspections

Emerson conducts a short commercial test on each ODP and WPI motor. This test checks no-load current and power, locked-rotor current (at reduced voltage), winding resistance, high potential and vibration. Other testing options include:

- Complete initial test consisting of a full-load heat run and assessments of percent slip, no-load and full-load current, locked-rotor current and torque, breakdown torque (calculated), winding resistance, high potential, vibration, efficiency and power factor at 100 percent, 75 percent and 50 percent of full load
- Calibration test consisting of complete initial test assessments with performance curves based on test data
- Vibration test, sound test, spray test, and polarization index test are all available testing options

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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