Product Data Sheet

Horizontal TITAN® Line A.C. Motors

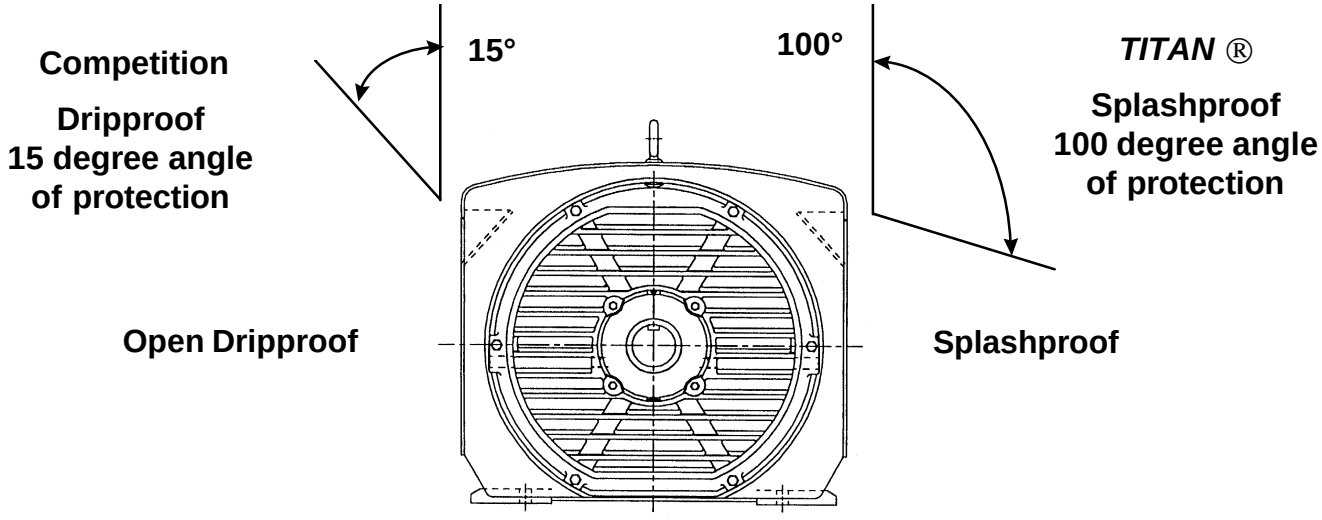
Open Dripproof and Weather Protected Type I Enclosures

- **200 through 4000 Horsepower**
- **50 and 60 Hertz**
- **5000 Frame through 9600 Frame**
- **High Efficiency or Premium Efficiency**
- **Antifriction or Sleeve Bearings**

Product Overview

Large horsepower motors in Open Dripproof (ODP) enclosures are found in many industrial applications where airborne contaminants are held to a minimum. Under these conditions, the ODP enclosure provides sufficient component protection while allowing the motor to exhaust internal heat developed under load. Here we are able to balance first initial cost, component protection and product reliability. Under these conditions the user benefits from a cost efficient product and the peace of mind that comes with knowing that the product is properly applied.

While an ODP enclosure provides the most basic form of protection, the splashproof enclosure takes it one step further. Splashproof provides greater protection from splashing liquids and falling debris due to a change in its ventilation scheme as shown below.

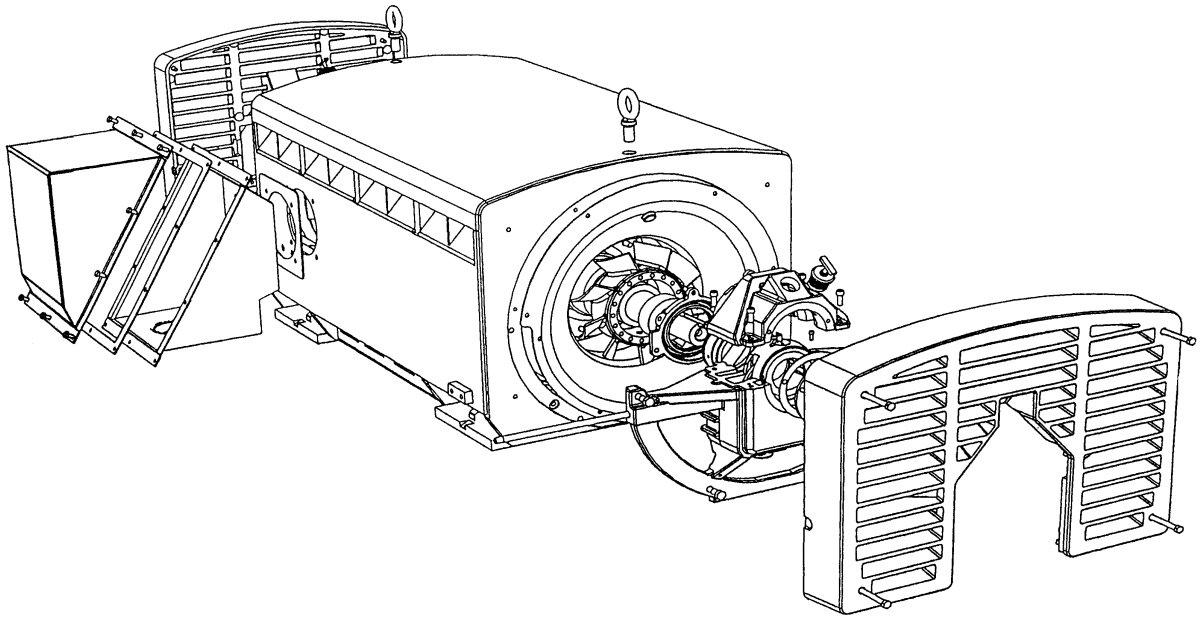


Angle of component protection from falling liquids according to NEMA definitions for enclosure type shown

5000, 5800 and 6800 frame motors feature splashproof frame construction with ODP brackets. This design excludes a greater number of environmental contaminants from entering into the electrical package. Motors designed with splashproof enclosure draw cooling air into the ventilation circuit from below the horizontal plane, excluding a greater number of airborne contaminants. This feature provides additional protection to the internal components at no additional cost period. Splashproof is the base standard enclosure for all Titan® horizontal motors in the 8000 and 9600 frame sizes.

Product Overview

U.S. Electrical Motors splashproof design utilizes cast iron and heavy fabricated steel construction to form a rigid mechanical package which directs all torsional forces developed under load straight to the mounting bolts. The USEM TITAN® product is designed with the most advanced tools available such as solids modeling, finite element analysis and FMEA techniques. The goal is to minimize internal stresses and develop optimum ventilation circuits within the motor, producing a cool running motor with low vibration levels.



Solids model of sleeve bearing Splashproof motor

Since vibration and heat are major causes of motor failure, the end result is a dependable motor with superior life.

Typically, ODP, splashproof and WPI horizontal motors are designed with double end ventilation. This design draws air into the motor through each end bracket and discharges it through openings in the side of the frame. Care should be exercised when these are directly connected to a fan or blower as a potential conflict exists between the air stream of the driven equipment and the cooling requirements of the motor. This can cause the motor to overheat.

Summary

When a higher degree of protection is required, U.S. Electrical Motors offers a Weather Protected Type I motor enclosure. The WPI enclosure is defined by NEMA MG1-1.25.8.1 as an open machine with the ventilation passages constructed to minimize the entrance of rain or airborne particles and to prevent the passage of a cylindrical rod ¾ inch in diameter into the electric and rotating components of the motor. Our Weather Protected Type I motors include screened ventilation openings comprised of a carbon steel mesh with optional ¼ inch stainless steel mesh upon request. The WPI enclosure is the standard offering on all USEM horizontal motors in frames 8000 and larger. With respect to IEC standards, this enclosure most closely resembles IPW23.

Weather Protected Type I motors are designed for use in a wide variety of applications in many industries such as pulp and paper, petrochemical, waste water and electric utilities. The numerous amount of accessories and modifications that are available for these products allows for each TITAN® line Weather Protected Type I motor to be specifically designed for each requirement. And their flexibility allows for their use on compressors, fans, blowers, pumps and other equipment. Special sealed insulation treatments can often become a bridge between this enclosure and the next level of protection by shielding the windings from environmental contaminants.

Both the Open Dripproof and Weather Protected Type I TITAN® line motors are designed with many additional protective features as part of the standard product. Every ODP and WPI motor winding is protected by at least one cycle of Vacuum Pressure Impregnation using 100% solids epoxy resin. The rotor and shaft are also coated with a protective epoxy paint from bearing journal to bearing journal. All TITAN® motors are supplied with zinc plated hardware and a corrosion resistant paint that is capable of withstanding a 250 hour salt spray test.

For more information on U.S. Motor's line of TITAN® motors, contact your USEM Sales representative or visit us at **www.usmotors.com**.

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