

E - Letter July 2008

Enclosure Ratings

Enclosure specifications are written in a variety of ways:

- The traditional ODP, DTWP and TENV type descriptions
- IP rating system such as IP 23 or IP 53.
- NEMA enclosure system such as NEMA 2, 4 or 7.
- Application descriptions such as Marine, Jacking Rig, Washdown, etc.
- General categories such as Hazardous Use or Severe Duty.

Watch out for a conflicting combination of styles such as a drip-proof IP 54.

Stearns considers the mounting as part of the overall enclosure. The brake rating is determined by testing the brake while mounted to a closed and gasketed surface. A gasketed and closed mount surface is required to meet NEMA 4 and IP 53 or higher ratings.

Enclosure Rating:

Stearns IP and NEMA ratings are established by test on a brake sample using the method detailed by the standard. The enclosure rating should be considered along with the enclosure material description and any options available for the brake.



Based on sample testing, Stearns may assign similar ratings to variations of a brake series. Check the enclosure description before selection.

As an example: sheet metal, cast aluminum, cast iron and stainless steel enclosures will perform differently over time depending on the end use. Each can be gasketed to meet the test standard, yet options such as release locations and the enclosure openings, material & construction are selection factors.



Shown: A 1-056-900 cast stainless enclosure is rated NEMA 4x and IP56 and a 1-056-000 brake with a white epoxy finish on a drawn steel enclosure is rated NEMA 4x and IP 54.

Fan Mount:

Water can migrate along key shafts, openings such as the mounting thru holes, housing nuts as well as any NPT openings in the brake. A gasketed IP 53 or higher enclosure should be mounted against a closed and gasketed surface or a surface that doesn't pool water against the brake.

Vertical Mount:

An IP 23 brake is shown vertically above the motor mounted in an unheated but covered building. Liquids will not gather on the sheet metal enclosure, a standard brake was used. If the same brake were used outside, a cast iron or cast aluminum housing would be used and possibly an under-cover or side release.

A hazardous rated 1-082-300 series brake is shown vertically below mounted on a fan cover. In an exposed environment, liquids can gather and migrate along the shaft and keyway. This site was later modified to include a shaft seal and dust slinger to meet the UL and IP rating needed.

Consult the catalog and work with Stearns to identify and select the options for demanding applications.



Severe Duty Enclosure:

The brakes pictures shown below have been used in earlier e-letters. The specifier selected a closed and gasketed brake mounting with a cast enclosure. The encoder is gasketed and a painted finish applied. In both cases, a smart and proper system selection for the intended environmental protection needed at this site.



In summary:

Consider enclosure material and construction as well as the specification rating. Add options such as a side or under-cover release for IP 54 & higher vertical mount. IP 53 and higher fan mounts should plan drainage methods to prevent pooling against the brake.

Your suggestions and comments are encouraged. Your own stories, pictures and experiences most welcome.

Stearns®: Reliable brakes through design, manufacture and support.