

IP and NEMA Ratings

Definition:

The first numeral defines the amount of protection against penetration of solid objects into the housing.

The second numeral defines the amount of protection against liquids penetrating the housing.

Additional information on ratings can be found in the following chart or the 1976 IEC Publication, Classification of Degrees of Protection Provided by Enclosures.

Example: What is IP67?

Complete protection of live parts. Protection against the penetration of dust. Additionally, it will be protected while immersed in water.

Testing Criteria:

1. Test Class: IP67 test

Conditions: 1m head of water over the test piece for a duration of 30 minutes.
Room temperature $\pm 5^{\circ}\text{C}$

Test: Insulation and operation

2. Test Class: IP68 test (Encapsulated products)

Conditions: 1m head of water over the test piece for 24 hours of operation under water, with cyclical activation and deactivation under nominal loading Cycle time 2 hours
Room temperature $\pm 5^{\circ}\text{C}$

Test: Insulation and operation

3. Test Class: IP69K test

Conditions: Protection against ingress of water from jets at a pressure of 1450 psi and at temperatures of up to 80°C . This is the level of pressure and temperature required for thorough cleaning of meat, fish, poultry, and dairy processing lines.

