

Definition of NEMA Ratings

What does NEMA 4 rated mean? In non-hazardous locations, there are several different NEMA ratings for specific enclosure "types", their applications, and the environmental conditions they are designed to protect against, when completely and properly installed. The following provides an overview of the NEMA Types. For complete definitions, descriptions, and test criteria, see theNational

Electrical Manufacturers Association (NEMA) Standards Publication No. 250.

NEMA 1 – Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against falling dirt.

NEMA 2 – Same as NEMA 1 including protection against dripping and light splashing of liquids.

NEMA 3 – Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 3R – Same as NEMA 3 excluding protection against windblown dust.

NEMA 3S – Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust; and in which the external mechanism(s) remain operable when ice laden.

NEMA 4 – Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4X – Same as NEMA 4 including protection against corrosion.

NEMA 5 – Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against settling airborne dust, lint, fibers, and to provide a degree of protection against dripping and light splashing of liquids.

NEMA 6 – Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against hose-directed water and the entry of water during occasional temporary submersion at a limited depth; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 6P – Same as NEMA 6 including protection against the entry of water during prolonged submersion at a limited depth.

NEMA 7 – Enclosures are for indoor use in locations classified as Class I, Groups A, B, C, or D and shall be capable of withstanding the pressures resulting from an internal explosion of specified gases, and contain such an explosion sufficiently that an explosive gas-air mixture existing in the atmosphere from an internal explosion of specified gases, and contain such an explosion sufficiently that an explosive gas-air mixture existing in the atmosphere shall not cause external surfaces to reach temperatures capable of igniting explosive gas-air mixtures in the surrounding atmosphere. Enclosures shall meet explosion, hydro-static, and temperature design tests.

NEMA 9 – Enclosures are intended for indoor use in locations classified as Class II, Groups E, F, or G, and shall be capable of preventing the entrance of dust. Enclosed heat generating devices shall not cause external surfaces to reach temperatures capable of igniting or discoloring dust on the enclosure or igniting dust-air mixtures in the surrounding atmosphere. Enclosures shall meet dust penetration and temperature design tests, and aging of gaskets (if used).

NEMA 12 – Enclosures constructed (without knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint, fibers, and against dripping and light splashing of liquids.

NEMA 12K – Same as NEMA 12 including enclosures constructed with knockouts.

NEMA 13 – Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint, fibers, and against the spraying, splashing, and seepage of water, oil, and non- corrosive coolants.