



The National Electrical Manufacturers Association ([NEMA](#)) is a US Manufacturers Organisation that actively promotes standardized product specifications for electrical apparatus.

[NEMA](#) performance criteria and test methods are used by Underwriters' Laboratories as guidelines for investigation and listing of electrical enclosures. Approximate IP equivalents in parentheses.

NEMA

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| 1 | Indoor use primarily to provide a degree of protection against contact with the enclosed equipment and against a limited amount of falling dirt. (IP30) |
| 2 | Indoor use to provide a degree of protection against limited amounts of falling water and dirt. (IP31) |
| 3 | Outdoor use to provide a degree of protection against windblown dust, rain, and sleet; undamaged by the formation of ice on the enclosure. (IP64) |
| 3R | Outdoor use to provide a degree of protection against falling rain and sleet: undamaged by the formation of ice on the enclosure. (IP32) |
| 3S | Outdoor use to provide a degree of protection against windblown dust, rain and sleet; external mechanisms remain operable while ice laden. |
| 4 | Indoor or outdoor use to provide a degree of protection against splashing water, windblown dust and rain, hose directed water; undamaged by the formation of ice on the enclosure. (IP66) |
| 4X | Indoor or outdoor use to provide a degree of protection against splashing water, windblown dust and rain, hose directed water; undamaged by the formation of ice on the enclosure, resists corrosion. (IP66) |
| 6 | Indoor or outdoor use to provide a degree of protection against the entry of water during temporary submersion at a limited depth; undamaged by the formation of ice on the enclosure. |
| 6P | Indoor and outdoor use to provide a degree of protection against the entry of water during prolonged submersion at a limited depth. |
| 11 | Indoor use to provide by oil immersion a degree of protection of the enclosed equipment against the corrosive effects of corrosive liquids and gases. |
| 12, 12K | Indoor use to provide a degree of protection against dust, falling dirt and dripping noncorrosive liquids. (IP65) |
| 13 | Indoor use to provide a degree of protection against dust and spraying of water, oil and non-corrosive coolants. (IP65) |