

Nema Classifications

NEMA CLASSIFICATIONS OF PROTECTION

The National Electrical Manufacturers Association (NEMA) is a US Manufacturers Organisation which actively promotes standardized product specification:

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 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 submerge 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 non-corrosive liquids. (IP65)
13:	Indoor use to provide a degree of protection against dust and spraying of water, oil and non-corrosive coolants. (IP65)

s for electrical apparatus.