

## NEMA AND UL CLASSIFICATION

### NEMA CLASSIFICATIONS OF PROTECTION

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

- 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 noncorrosive coolants. (IP65)**