

# UL & NEMA RATINGS

Underwriters Laboratories

National Electric Manufacturer's Association

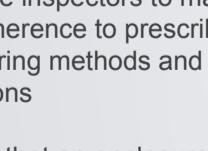
## for enclosures

Source: [www.nema.org](http://www.nema.org)  
njsullivan.com



Non-Hazardous Locations													
Protection Against	Indoor						Indoor/outdoor						
	1	2	5	12	12K	13	3	3S	3R	4	4X	6	6P
INCIDENTAL CONTACT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FALLING DIRT	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CIRCULATING DUST				✓	✓	✓				✓	✓	✓	✓
SETTLING AIRBORNE DUST		✓	✓	✓	✓	✓				✓	✓	✓	✓
WINDBLOWN DUST									✓	✓	✓	✓	✓
LIGHT SPLASH		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HOSEDOWN & SPLASH										✓	✓	✓	✓
TEMPORARY SUBMERSION												✓	✓
PROLONGED SUBMERSION													✓
RAIN, SNOW & SLEET							✓	✓	✓	✓	✓	✓	✓
ICE LANDED								✓					
OIL & COOLANT SEEPAGE			✓	✓	✓	✓							
OIL & COOLANT SPLASH						✓							
CORROSION											✓	✓	✓
IEC 60529 Cross-Reference	IP 20	IP 22	IP 53	IP 54		IP 55	IP 24	IP 66	IP 67	IP 68			

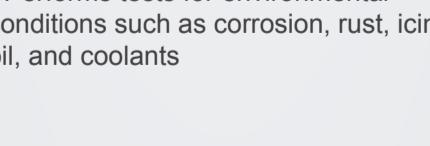
**Note:** The UL/NEMA enclosure type numbers meet or exceed the test requirements for the associated IEC Classification; for this reason the chart above cannot be used to convert from IEC Classifications to UL/NEMA enclosure type numbers.



Underwriters Laboratories  
[www.ul.com](http://www.ul.com)

Safety Consulting and Certification Company

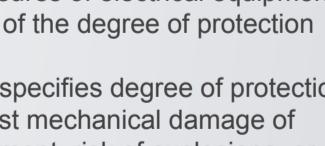
- Requires compliance testing of electrical enclosures by qualified evaluators independent of the manufacturer
- Sends site inspectors to manufacturers to ensure adherence to prescribed manufacturing methods and materials specifications
- Specifies that an enclosure fails the water-tight test if even a single drop of water enters the enclosure



National Electrical Manufacturers Association  
[www.nema.org](http://www.nema.org)

The most prevalent in the USA

- Not requires independent testing
- Leaves compliance up to the manufacturer
- Performs tests for environmental conditions such as corrosion, rust, icing, oil, and coolants



International Electrotechnical Commission  
[www.iec.ch](http://www.iec.ch)

The most prevalent in the world

- Requires testing for compliance by qualified evaluators independent of the manufacturer
- Provides a system for specifying the enclosures of electrical equipment on the basis of the degree of protection
- Not specifies degree of protection against mechanical damage of equipment, risk of explosions, or conditions such as moisture (produced, for example, by condensation), corrosive vapors, fungus, or vermin

The tests and evaluations for other characteristics are not identical between the standards, so the IEC Enclosure Classification Designations cannot be exactly equated with UL/NEMA Enclosure Type Numbers.