Cross-Reference (Approximate) NEMA, UL, CSA, vs. IEC Enclosure Type

(Cannot be used to convert IEC Classifications to NEMA Type Numbers)

Enclosure Rating	IP20	IP22	IP55	IP64	IP65	IP66	IP67
Type 1	•						
Type 3				•			
Type 3R 3RX		•					
Type 4						•	
Type 4X						•	
Type 6							•
Type 12, 12K			•				
Type 13					•		

IEC 60529 has no equivalents to NEMA enclosure Types 7, 8, 9, 10, or 11.
• Indicates compliance.

Enclosure Type Rating vs. IP Rating

Electrical enclosures are rated by type (NEMA 250 / UL 50), and/or IP rated (IEC 60529) based on the degree of protection provided.
Type ratings and IP ratings have only the following in common:

1. A degree of protection for persons from hazardous components inside the enclosure
2. A degree of protection for equipment inside the enclosure from ingress of solid foreign objects, including dust
3. A degree of protection for equipment inside the enclosure from ingress of water

NEMA 250 and UL 50 type rating documentation defines additional requirements that a type-rated enclosure must meet. These include:

- Mechanical impact on enclosure walls
- Gasket aging and oil resistance
- Corrosion resistance
- Door and cover latching requirements
- Sheet metal gauge construction requirements (UL 50 only)

Electrical enclosures that carry only an IP rating have not been designed to the additional type-rating requirements. Therefore, a type rating cannot be assigned to an enclosure that has been only IP-rated.

Electrical enclosures manufactured by Hoffman are tested for both type-rating and IP-rating and carry both type and IP ratings.

Glossary Terms Specifying Non-hazardous Environmental Conditions

Corrosion-Resistant
Constructed to provide a degree of protection against exposure to corrosive agents such as salt spray. Type 4X enclosures meet this requirement.

Dust-tight
Constructed so that circulating or airborne dust will not enter the enclosure under specified test conditions. Type 3, 4, 4X, 12, 12K, and 13 enclosures meet this requirement.

Drip-tight
Constructed so that falling moisture or dirt does not enter the enclosure under specified test conditions. Type 3, 4, 4X, 12, 12K, and 13 enclosures meet this requirement.

Indoor
Not to be exposed to weather. Type 1, 3, 3R, 4, 4X, 6, 12, 12K, and 13 enclosures meet this requirement.

Oil-Resistant
Constructed so that oil will not interfere with successful operation of equipment. Type 12 and 13 enclosures meet this requirement.

Oil-tight
Constructed so that oil will not enter the enclosure under specified test conditions. Type 13 enclosures meet this requirement.

Outdoor
Constructed or protected so that exposure to the weather will not interfere with successful operation of equipment. Type 3, 3R, 4, 4X, and 6 enclosures meet this requirement.

Rainproof
Constructed, protected, or treated to prevent beating rain from interfering with the successful operation of the apparatus or result in wetting of live parts and wiring within the enclosure under specified test conditions. Type 3R enclosures meet this requirement.

Rain-tight
Constructed or protected so that exposure to beating rain will not result in water entering the enclosure under specified test conditions. Type 3, 4, 4X, and 6 enclosures meet this .

Water-tight
Constructed so that moisture will not enter the enclosure when it is subjected to a stream of water under specified test conditions. Type 4, 4X, and 6 enclosures meet this requirement.

Weatherproof
Constructed or protected so that exposure to the weather will not interfere with successful operation of the equipment. Rainproof, rain-tight, or water-tight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

Wet Locations

See Rainproof.

