

Standards

CE and IEC Classifications

CE

The CE Mark is a European Union (EU) compliance symbol and acronym for Conformité Européenne. The CE Mark indicates that a product complies with all European directives and essential Harmonized Standards for health, safety,



environment, and consumer protection that may apply to that product. In addition, the CE Mark promotes free trade movement from outside and within the EU.

For industrial control equipment, the CE Mark is not intended to be applied to empty enclosures because such enclosures are inactive components of a final assembly. The responsibility for insuring compliance to all applicable EU Directives and Harmonized Standards belongs with the final equipment manufacturer.

Hoffman enclosures are designed in compliance with European standards and are eligible to receive a Manufacturer's Declaration of Conformity. The certificate assists the final equipment manufacturer in obtaining the CE Mark. Contact Applications Engineering at (612) 422-2868 for further information.

Hoffman enclosures meet the requirements of the applicable European standards specified below.

Applicable European Directives

73/23/EEC Low Voltage Directive for Electrical Equipment within Certain Voltage Limits

89/336/EEC EMC Directive Relating to Electromagnetic Compatibility

Note: The EMC Directive is only secondarily applicable since an empty enclosure does not produce electromagnetic interference.

Applicable European Standards

EN60529-1 (IEC529-1) Degrees of Protection Provided by Enclosures

EN60204-1 (IEC204-1) Electrical Equipment of Industrial Machines

International Standards' IP Protection Classification

IEC Publication 529, Classification of Degrees of Protection by Enclosures, provides a system for specifying enclosures of electrical equipment on the basis of the degree of protection required. IEC 529 does not specify degrees of protection against risk of explosions or conditions such as moisture (produced, for example, by condensation), corrosive vapors, fungus, or vermin. NEMA Standards Publication 250 does



not test for environmental conditions such as corrosion, rust, icing, oil, and coolants. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC enclosure classification designations cannot be exactly equated with NEMA enclosure Type numbers.

The table on below provides a cross-reference from NEMA enclosure Type numbers to IEC enclosure classification designations. This cross-reference is a Hoffman approximation based on the most current available information on enclosure test performance and is not sanctioned by NEMA, IEC, VDE, or any affiliated agency.

To use the table, first find the appropriate NEMA rating along the vertical axis and then read across the horizontal axis for the corresponding IP rating. Do not use this table to convert IEC classification designations to NEMA Type numbers.



In Europe, IEC ratings are based on performance criteria similar to NEMA. Nevertheless, there are differences in how enclosure performance is interpreted. For example, UL and CSA test requirements specify that an enclosure fails the watertight test if even a single drop of water enters the enclosure. In the IEC standards for each protection level (IP), a certain amount of water is allowed to enter the enclosure. IEC does not specify degrees of protection against risk of explosions or conditions such as moisture or corrosive vapors. NEMA, on the other hand, does specify for most environmental conditions. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC enclosure classification designations cannot be exactly equated with NEMA enclosure Type numbers.

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

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

Enclosure Rating	IP23	IP30	IP32	IP55	IP64	IP65	IP66	IP67
Type 1	•							
Type 2		•						
Type 3					•			
Type 3R			•					
Type 3S					•			
Type 4							•	
Type 4X							•	
Type 6								•
Type 12				•				
Type 13						•		

IEC 529 has no equivalents to NEMA enclosure Types 7, 8, 9, 10, or 11.

•Indicates compliance