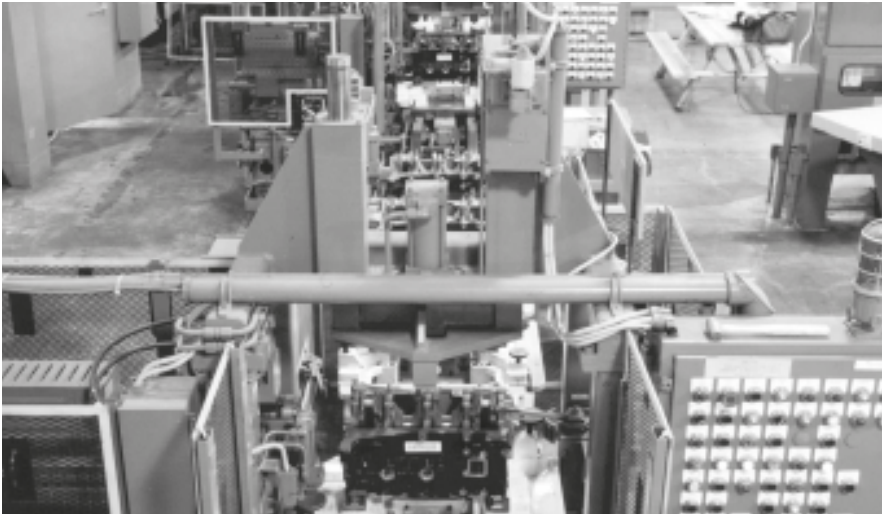


# Standards CE and IEC Classifications



## 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 of ensuring compliance with 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 (763) 422-2175 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

98/37/EC Machinery Directive

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

### Applicable International Standards

IEC 60529 (IEC529) Degrees of Protection Provided by Enclosures

IEC 60204 (IEC204) Electrical Equipment of Industrial Machines

## International Standards IP Protection Classification

IEC Publication 60529 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 60529 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








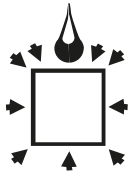
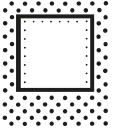
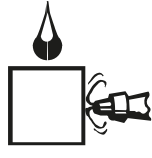
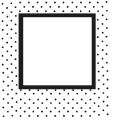
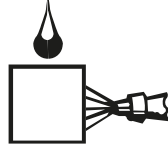
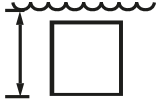

Publication 250 does test for environmental conditions such as corrosion, rust, icing, oil, and coolants. For this reason, and because the tests and evaluations for other characteristics are not identical, the IEC enclosure classification designations cannot be exactly equated with NEMA enclosure Type numbers.

The table on page A.07 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 on page A.07, 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.



## IP Rating Categories

First Numeral			Second Numeral		
IP	Protection of Persons	Protection of Equipment	IP	Protection of Equipment	
0	No Protection	No Protection	0	No Protection	
1	 Protected against contact with large areas of the body (back of hand)	Protected against solid objects over 50 mm in diameter	1	 Protected against vertically falling drops of water, e.g. condensation	
2	 Protected against contact with fingers	Protected against solid objects over 12mm in diameter	2	 Protected against direct sprays of water up to 15 from vertical	
3	 Protected against tools and wires over 2.5 mm in diameter	Protected against solid objects over 2.5mm in diameter	3	 Protected against sprays to 60° from vertical	
4	 Protected against tools and wires over 1 mm in diameter	Protected against solid objects over 1mm in diameter	4	 Protected against water sprayed from all directions (limited ingress permitted)	
5	 Protected against tools and wires over 1mm in diameter	Protected against dust (limited ingress, no harmful deposit)	5	 Protected against low pressure jets of water from all directions (limited ingress permitted)	
6	 Protected against tools and wires over 1mm in diameter	Totally protected against dust	6	 Protected against strong jets of water	
			7	 Protected against the effects of immersion between 15 cm and 1 m	
			8	 Protected against long periods of immersion under pressure	

CE IEC SYMBOLS

## Example Rating

If 1st IP number is...	and the 2nd IP number is...	Then the IP rating
2 (protection against solid objects)	3 (protection against liquids)	<b>IP 2 3</b> (An enclosure with this designation provides protection against touch with a finger and penetration of solid objects greater than 12mm and against spraying water.)

A

Technical Information

Standards