

## NEMA, UL, CSA vs. IEC Type Cross Reference

Cannot be used to convert IEC classes to NEMA Type numbers

Type	IP 23	IP 32	IP 64	IP 65	IP 66
1	*				
3			*		
3R		*			
4					*
4X					*
12				*	
13				*	

## Comparison of Specific Non-Hazardous Applications

Provides a Degree of Protection Against the following Environmental Conditions	Type							
	1	3	3R	4	4X	12	13	
Incidental contact	■	○	○	■○	■○	■	■	
Falling dirt	■			■	■	■	■	
Falling liquids				■	■	■	■	
Light splashing				■	■	■	■	
Dust				■	■	■	■	
Lint				■	■	■	■	
Fibers <sup>a</sup>				■	■	■	■	
Flyings <sup>a</sup>				■	■	■	■	
Hosedown				■○	■○			
Splashing water				■	■			
Oil and coolant seepage						■	■	
Oil or coolant spraying							■	
Oil or coolant splashing							■	
Rain		○	○	○	○			
Snow		○	○	○	○			
Sleet <sup>b</sup>		○	○	○	○			
Windblown dust		○		○	○			
Corrosive agents					■○			

■ = Indoor Locations
○ = Outdoor Locations

<sup>a</sup> These fibers and flyings are non-hazardous materials and are not considered Class III type ignitable fibers or combustible flyings.

<sup>b</sup> External operating mechanisms are NOT required to be operable when the enclosure is ice covered.

**Type 1** enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment in locations where unusual service conditions do not exist.

**Type 3** enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, and sleet; and to be undamaged by the formation of ice on the enclosure. They are not intended to provide protection against conditions such as internal condensation or internal icing.

**Type 3R** enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain; and to be undamaged by the formation of ice on the enclosure. They are not intended to provide protection against conditions such as dust, internal condensation or internal icing.

**Type 4** enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust, rain, splashing water, and hose directed water; and to be undamaged by the formation of ice on the enclosure. They are not intended to provide protection against conditions such as internal condensation or internal icing.

**Type 4X** enclosures are intended for indoor OR outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose directed water; and to be undamaged by the formation of ice on the enclosure. They are not intended to provide protection against conditions such as internal condensation or internal icing. (**Note:** An outdoor rating arises from an external icing test.)

**Type 12** enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping noncorrosive liquids. They are not intended to provide protection against conditions such as internal condensation.

**Type 13** enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying water, oil and noncorrosive coolant. They are not intended to provide protection against conditions such as internal condensation.

## Sources of Standards

### National Electrical Manufacturers Association

2101 L Street Northwest  
Washington D.C. 20037

### Underwriters Laboratories Inc.

333 Pfingsten Road  
Northbrook, IL 60062

### Canadian Standards Association

178 Rexdale Boulevard  
Etobicoke, Ontario, Canada M9W 1R3

### International Electrotechnical Commission

3 Rue de Varembe  
CH - 1211  
Geneva 20, Switzerland