

# Comparison of IEC, CSA, NEMA, UL and CUL Ratings

NEMA 250 and UL 50 specify requirements and test for the degree of protection against entry as well as environmental conditions such as falling dirt, ice, corrosion, oil and coolants; whereas, IEC 60529 does not have such requirements. Different rating requirements make comparison difficult and disagreements are common.

The IEC designation consists of the letters IP followed by two numerals. The first number indicates the degree of protection against access to hazardous parts and solid foreign objects entering the enclosure. The second number indicates the degree of protection provided by the enclosure with respect to the harmful ingress of water.

**CAUTION IS NECESSARY WHEN ATTEMPTING TO EQUATE IEC AND NEMA ENCLOSURE RATINGS BECAUSE AN EXACT EQUIVALENCE IS NOT POSSIBLE.**

IP FIRST CHARACTER	"TYPE" RATED ENCLOSURES														IP SECOND CHARACTER
	1	2	3	3R	3S	4	4X	5	6	6P	12	12K	13		
IP0_	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_0
IP1_	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_1
IP2_	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_2
IP3_			Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_3
IP4_			Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_4
IP5_			Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_5
IP6_						Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	IP_6
										Shaded	Shaded	Shaded	Shaded	Shaded	IP_7
											Shaded	Shaded	Shaded	Shaded	IP_8
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	

**A = IP FIRST CHARACTER**

A shaded block in the "A" column indicates that the enclosure type exceeds the requirements for the respective IEC 60529 IP first character designation. The IP first character designation is the degree of protection against access to hazardous parts and solid foreign objects.

**B = IP SECOND CHARACTER**

A shaded block in the "B" column indicates that the NEMA Enclosure type exceeds the requirements for the respective IEC 60529 IP second character designation. The IP second character designation is the degree of protection against the ingress of water.