

IP CLASSIFICATIONS		NEMA / UL CLASSIFICATIONS	
Ingress protection class of enclosures is according to IEC 529 given in form of IP classification, a two digit coding which is shown below		NEMA performance criteria and test methods are used by Underwriters Laboratories as guidelines for investigation and listing of electrical enclosures.	
First Digit	Second digit	Approx. IP equivalents in red.	
Protection against contact and ingress of solid objects	Protection against ingress of water		
0 No special protection	0 No special protection	1 IP30	Indoor use primarily to provide a degree of protection against contact with the enclosure equipment and against a limited amount of falling dirt
1 Protected against ingress solid objects with a diameter of more than 50 mm. No protection against deliberate access, e.g. with a hand, but large surfaces of the body are prevented from approach	1 Protection against dripping water falling vertically. No harmful effect must be produced (vertically falling drops)	2 IP31	Indoor use to provide a degree of protection against limited amounts of falling water and dirt
2 Protected against penetration by solid objects with a diameter of more than 12 mm. Fingers or similar objects prevented from approach	2 Protection against dripping water falling vertically. There must be no harmful effect when the equipment (enclosure) is tilted at an angle up to 15° from its normal position (drops falling at an angle).	3 IP64	Outdoor use to provide a degree of protection against windblown dust, rain and sleet; undamaged by the formation of ice on the enclosure
3 Protected against ingress of solid objects with a diameter of more than 2.5 mm. Tools, wires etc. with a thickness of more than 2.5 mm are prevented from approach	3 Protection against water falling at any angle up to 60° from the vertical. There must be no harmful effect (spray water).	3R IP32	Outdoor use to provide a degree of protection against rain and sleet; undamaged by the formation of ice on the enclosure
4 Protected against ingress of solid objects with a diameter of more than 1 mm. Tools, wires etc. with a thickness of more than 1 mm are prevented from approach	4 Protection against water splashed against the equipment (enclosure) from any direction. There must be no harmful effect (splashing water).	4 (X) IP66	Indoor or outdoor use to provide a degree of protection against splashing water, windblown dust and rain, hose directed water; undamaged by the formation of ice on the enclosure. (Resist corrosion).
5 Protected against harmful dust deposits. Ingress of dust is not totally prevented but the dust must not enter in sufficient quantity to interfere with satisfactory operation of the equipment. Complete protection against contact.	5 Protection against water projected from a nozzle against the equipment (enclosure) from any direction. There must be no harmful effect (water jet).	12/12K IP65	Indoor use to provide a degree of protection against dust, falling dirt and dripping non corrosive liquids.
6 Protection against ingress of dust (dust tight). Complete protection against contact.	6 Protection against heavy seas or powerful water jets. Water must not enter the equipment (enclosure) in harmful quantities (splashing over).	13 IP65	Indoor use to provide a degree of protection against dust and spraying of water, oil and non corrosive coolants.
	7 Protection against water when the equipment (enclosure) is immersed in water under defined conditions of pressure and time. Water must not enter in harmful quantities (immersion)		
	8 The equipment (enclosure) is suitable for continuous submersion in water under conditions which must be specified by the manufacturer (submersion).		

