

EN 60529 outlines international classification system for the sealing effectiveness of enclosures of electrical equipment against the intrusion into the equipment of foreign bodies (i.e. tools, dust, fingers) and moisture. This classification system utilizes the letters "IP" ("Ingress Protection") followed by two or three digits. (A third digit is sometimes used. An "x" is used for one of the digits if there is only one class of protection; i.e. IPX4 which addresses moisture resistance only.)

## DEGREES OF PROTECTION — FIRST DIGIT

The first digit of the IP code indicates the degree that persons are protected against contact with moving parts (other than smooth rotating shafts, etc.) and the degree that equipment is protected against solid foreign bodies intruding into an enclosure.

FIRST NUMBER	TEST
0	No special protection
1	Protection from a large part of the body such as a hand (but no protection from deliberate access); from solid objects greater than 50mm in diameter.
2	Protection against fingers or other object not greater than 80mm in length and 12mm in diameter.
3	Protection from entry by tools, wires, etc., with a diameter or thickness greater than 1.0mm.
4	Protection from entry by solid objects with a diameter or thickness greater than 1.0mm.
5	Protection from the amount of dust that would interfere with the operation of the equipment.
6	Dust tight.

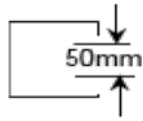

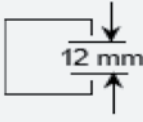

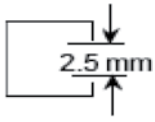

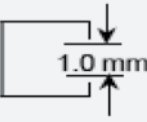





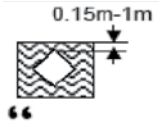
## DEGREES OF PROTECTION — SECOND DIGIT

The second digit indicates the degree of protection of the equipment inside the enclosure against the harmful entry of various forms of moisture (e.g. dripping, spraying, submersion, etc.)

FIRST NUMBER	TEST
0	No special protection
1	Protected against vertically falling drops of water, if the case is disposed or condensation.
2	Protected against falling drops of water, if the case is disposed up to 15 degrees of vertical.
3	Protected against sprays of water from any direction, up to 60 degrees from the vertical.
4	Protected against splash water from any direction limited ingress permitted.
5	Protected against low pressure water jets from any direction. Limited ingress permitted.
6	Protected against high pressure water jets from any direction. Limited ingress permitted.
7	Protected against short periods of immersion in water between 15cm and 1m.
8	Protected against long, durable periods of immersion in water, under pressure.

Submersion depth and time must be specified by the end-user. The requirement must be more onerous than IP67

# INGRESS PROTECTION CODE SYMBOLS

1ST DIGIT	FOREIGN OBJECT PROTECTION	2ND DIGIT	WATER PROTECTION
0	Not protected	0	Not protected
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
		7	
		8	