








## The IP code symbols explained

EEN 60529 provides for an 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 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.

Special symbols in the IP classification system may be used on products to illustrate the IP protection provided. A "1st digit" representation of Numbers 5 & 6 is a grid-like symbol. Tear drops represent "2nd digit" with one teardrop for Numbers 3 & 4, two teardrops for Nos. 5, 6, & 7, and two teardrops with specified depth for No. 8.

1st digit	symbol	protection	explanation
<b>0</b>		No protection	-
<b>1</b>		Protection against large foreign bodies	Protection of persons from accidental large area direct contact with active or internal moving parts (e.g. hand contact), but no guarding against intentional access to such parts. Protection of the object from access of solid foreign matter larger than Ø50mm.
<b>2</b>		Protection against medium foreign bodies	Protection of persons from finger contact with active or internal moving parts. Protection of the object from access of solid foreign matter larger than Ø12mm.
<b>3</b>		Protection against small foreign bodies	Protection of persons from contact with active or internal moving parts with tools, wires or similar foreign matter thicker than Ø2.5mm. Protection of the object from access of solid foreign matter larger than Ø2.5mm.
<b>4</b>		Protection against granular foreign bodies	Protection of persons from contact with active or internal moving parts with tools, wires or similar foreign matter thicker than or > than Ø1mm.
<b>5</b>		Protection against deposits of dust	Total protection of persons from contact with voltage carrying or internal moving parts. Protection of the object from harmful deposits of dust. Ingress of dust is not completely prevented, but dust is prevented from entering in a quantity that would impair the functioning of the object.
<b>6</b>		Protection against ingress of dust	Total protection of persons from contact with voltage carrying or internal moving parts. Protection of the object from ingress of dust.

2nd digit	symbol	protection	explanation
<b>0</b>		No protection	-
<b>1</b>		Protection against water dripping vertically	Water drops falling vertically must not have any harmful effect.
<b>2</b>		Protection against water dripping up to 15°	Water drops falling at any angle up to 15° from vertical must not have any harmful effect.
<b>3</b>		Protection against spray water	Water hitting the object at any angle up to 60° from vertical must not have any harmful effect.
<b>4</b>		Protection against splash water	Water splashing against the object from all directions must not have any harmful effect
<b>5</b>		Protection against jet water	A jet of water aimed against the object from all directions must not have any harmful effect.
<b>6</b>		Protection against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
<b>7</b>		Protection against dipped state	If the object is dipped into water (150mm to 1000mm), under the defined conditions of pressure and time, water must not enter the object in any harmful quantity.
<b>8</b>		Protection during submerged state	If the object is submerged in water under defined extreme conditions, water must not enter the object in any harmful quantity.

From the Chart, IP 54 would indicate equipment that had:

1st digit	2nd digit
<b>5</b> Total protection of persons from contact with voltage carrying or internal moving parts. Protection of the object from harmful deposits of dust. Ingress of dust is not completely prevented, but dust is prevented from entering in a quantity that would impair the functioning of the object.	<b>4</b> Water splashing against the object from all directions must not have any harmful effect