

# Ingress Protection (IP) according to BS EN 60529 / DIN 40050

The IP Code is an internationally standardised classification system for the degree of protection provided by enclosures of electrical equipment against access to hazardous parts, ingress of solid foreign objects, dust and water. For the UK market, BS EN 60529 is the relevant national standard reference. EN 60529 and DIN 40050 are also commonly referenced in European and industrial contexts.

The degree of protection is indicated by the letters **IP**, followed by two characteristic numerals, for example **IP68**. The first characteristic numeral indicates protection against access to hazardous parts and against ingress of solid foreign objects. The second characteristic numeral indicates protection against ingress of water.

The higher the respective degree of protection, the more resistant the product is to dust, moisture and other environmental influences. Selecting the correct IP rating makes a significant contribution to the operational safety and service life of electrical components in industrial applications.

The first numeral indicates **Protection against access to hazardous parts and ingress of solid foreign objects**.

1 <sup>st</sup> characteristic numeral	Designation	Explanation
0	Not protected	No protection against access to hazardous parts or ingress of solid foreign objects.
1	Protected against solid foreign objects of 50 mm diameter and larger	Protection against access with the back of the hand; protection against solid foreign objects of $\varnothing \geq 50$ mm.
2	Protected against solid foreign objects of 12.5 mm diameter and larger	Protection against access with a finger; protection against solid foreign objects of $\varnothing \geq 12.5$ mm.
3	Protected against solid foreign objects of 2.5 mm diameter and larger	Protection against access with a tool; protection against solid foreign objects of $\varnothing \geq 2.5$ mm.
4	Protected against solid foreign objects of 1.0 mm diameter and larger	Protection against access with a wire; protection against solid foreign objects of $\varnothing \geq 1.0$ mm.
5	Dust-protected	Protection against access with a wire; ingress of dust is not totally prevented, but dust must not enter in a quantity sufficient to interfere with satisfactory operation or safety.
6	Dust-tight	Protection against access with a wire; no ingress of dust.

The second numeral indicates **Protection against ingress of water**.

2 <sup>nd</sup> characteristic numeral	Designation	Explanation
0	No protection	No protection against water.
1	Protection against dripping water	Protection against vertically falling drops of water.
2	Protection against dripping water when tilted	Protection against vertically falling drops of water when the enclosure is tilted at any angle up to 15° from the vertical.
3	Protection against spraying water	Protection against water sprayed at an angle of up to 60° on either side of the vertical.
4	Protection against splashing water	Protection against water splashed from any direction.
5	Protection against water jets	Protection against water projected in jets from any direction.
6	Protection against powerful water jets	Protection against powerful water jets from any direction.
7	Protection against temporary immersion	Protection against the ingress of water during temporary immersion.
8	Protection against continuous immersion	Protection against the ingress of water during continuous immersion under conditions specified by the manufacturer.
9K	Protection against high-pressure / steam-jet cleaning	Protection against water from any direction at very high pressure and high temperature.