NORRES BAGGERMAN
Leading Performance.

Ingress Protection (IP) according to ANSI/IEC 60529, EN 60529 and DIN 40050

Ingress Protection (IP) is an internationally standardized system for classifying the degree of protection provided by electrical equipment against the ingress of foreign objects, dust, and water. For the U.S. market, the classification is based on ANSI/IEC 60529, the U.S. adoption of the international IEC 60529 standard. EN 60529 and DIN 40050 are also commonly referenced in European and industrial contexts. These standards allow for a consistent assessment of the degree of protection under different environmental conditions.

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

1st 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 50 mm in diameter and larger.
2	Protected against solid foreign objects of 12.5 mm diameter and larger	Protection against access with a finger; protection against solid foreign objects 12.5 mm in diameter and larger.
3	Protected against solid foreign objects of 2.5 mm diameter and larger	Protection against access with a tool; protection against solid foreign objects 2.5 mm in diameter and larger.
4	Protected against solid foreign objects of 1.0 mm diameter and larger	Protection against access with a wire; protection against solid foreign objects 1.0 mm in diameter and larger.
5	Dust-protected	Dust-protected; protection against access with a wire.
6	Dust-tight	Dust-tight; protection against access with a wire.

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

2nd characteristic numeral	Designation	Explanation
0	No protection	Not protected.
1	Protection against dripping water	Protected against vertically falling water drops.
2	Protection against dripping water when tilted	Protected against vertically falling water drops when the enclosure is tilted up to 15°.
3	Protection against spraying water	Protected against spraying water.
4	Protection against splashing water	Protected against splashing water.
5	Protection against water jets	Protected against water jets.
6	Protection against powerful water jets	Protected against powerful water jets.
7	Protection against temporary immersion	Protected against the effects of temporary immersion in water.
8	Protection against continuous immersion	Protected against the effects of continuous immersion in water under conditions specified by the manufacturer.
9K	Protection against high-pressure, high-temperature water jets / steam-jet cleaning	ANSI/IEC: protected against high-pressure and high-temperature water jets. DIN 40050-9: protected against high-pressure / steam-jet cleaning.