

Ingress Protection (IP) Ratings Explained

IP ratings are used to define the degree of protection of electrical enclosures against intrusion from foreign bodies such as dust, water, dirt and moisture. These ratings are published by the International Electrotechnical Commission (IEC).

IP ratings consist of a two-digit code, with each digit representing the protection range. The higher the number, the greater the protection.



Level	Ingress Limit	Effective Against
0		No protection
1	≥ 50 mm diameter	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	≥ 12.5 mm diameter	Fingers or similar objects
3	≥ 2.5 mm diameter	Tools, thick wires, etc.
4	≥ 1 mm diameter	Solid objects such as most wires, screws, large insects, nails, etc.
5	Dust protected	Partial protection against dust that may harm equipment
6	Dust-tight	No ingress of dust

Level	Ingress Limit	Effective Against
0		No protection
1	Dripping water	Vertically falling droplets, such as condensation
2	Dripping water when tilted up to 15°	Vertically falling droplets deflected up to 15°
3	Spraying water	Spraying water up to 60°
4	Splashing water	Water splashing from any direction
5	Water jetting	Water projected by a nozzle (6.3 mm) from any direction
6	Powerful water jetting	Direct high-pressure jets (12.5 mm nozzle)
7	Temporary immersion (up to 1 mm)	Full immersion up to 30 minutes at depths between 15 cm and 1 meter
8	Continuous immersion	Continuous immersion in water under conditions which shall be specified by the manufacturer
9(K)	High-pressure and high-temperature water jetting	High-pressure and high-temperature jet sprays, wash downs, or steam-cleaning procedures

EXAMPLE:

A device **IP69K** rated is dust-tight and protected against high-pressure, high-temperature washdowns

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