

IP Protection Classes

The protection of enclosures against ingress of dirt or against the ingress of water is defined in IEC529 (BSEN60529:1991). Conversely, an enclosure which protects equipment against ingress of particles will also protect a person from potential hazards within that enclosure, and this degree of protection is also defined as a standard.

The degrees of protection are most commonly expressed as 'IP' followed by two numbers, e.g. IP65, where the numbers define the degree of protection. The first digit shows the extent to which the equipment is protected against particles, or to which persons are protected from enclosed hazards. The second digit indicates the extent of protection against water. The wording in the table is not exactly as used in the standards document, but the dimensions are accurate.

First Digit	Protection against Human Contact	Protection against Foreign Bodies
0	No special protection	No special protection
1	With back of hand	Large foreign bodies, diam. >50mm
2	With a finger	Medium-sized foreign bodies, diam. >12.5mm
3	With tools and wires etc with a thickness >2.5mm	Small foreign bodies, diam. >2.5mm
4	With tools and wires etc with a thickness >1mm	Granular foreign bodies, diam. >1mm
5	Complete protection	Dust protected; dust deposits are permitted, but their volume must not affect the function of the unit.
6	Complete protection	Dust-proof
Second Digit	Protection against Water Ingress	
0	No special protection	
1	Water dripping vertically	
2	Water dripping at an angle (up to 15 degrees from the vertical)	
3	Spray water (any direction up to 60 degrees from the vertical)	
4	Spray water from all directions	
5	Water jets from a nozzle in all directions	
6	High pressure jets	
7	Temporary immersion	
8	Permanent immersion	