PROTECTION INDEX TABLE

Quick overview

The enclosure protection rating (IP Code) represents a level of protection provided by the enclosure of an electrical device, its definition is recorded in an international standard of the International Electrotechnical Commission relating to waterproofing published for the first time times in 1989. It is included in the European standard EN 60529. This index classifies the level of protection offered by equipment using electricity against intrusions by solid and liquid bodies. The index format, given by the IEC 60529 standard, is IP 69 where the characters 6 and 9 are two numbers and/or a letter. The numbers indicate compliance with the conditions summarized in the tables below. When no criteria are met, the number can be replaced by the letter X.

For example, an IP2X protection rating means that the device is protected against the intrusion of solids larger than 12.5 mm (first number), but that its operation does not imply the need to protect it against the intrusion of liquids. We therefore place an “X” in place of the second number, to signify the uselessness of protecting this material against access to the interior of its envelope by liquids.

Protection index table against solids and liquids

Index	1st digit (ten) Protection against solids.	2nd digit (unit) Protection against water intrusion.
0	No protection.	No protection.
1	Protected against solid bodies greater than 50 mm.	Protected against vertical falling drops of water.
2	Protected against solid bodies greater than 12.5 mm.	Protected against falling water drops up to 15° from the vertical.
3	Protected against solid bodies greater than 2.5 mm.	Protected against water in rain up to 60° from the vertical.
4	Protected against solid bodies greater than 1 mm.	Protected against splashing water from all directions.
5	Protected against dust and other microscopic residues.	Protected against water jets from all directions with the lance (6.3 mm nozzle, distance 2.5 to 3 m, flow rate 12.5 l/min ±5%).
6	Totally protected against dust.	Protected against strong jets of water from all directions from the lance (12.5 mm nozzle, distance 2.5 m to 3 m, flow rate 100 l/min ±5%).
7		Protected against the effects of temporary immersion up to 1 m for 30 min. Ingress of water in harmful quantities will not be possible when the equipment is immersed in water under the defined conditions of pressure and time.
8		Submersible equipment beyond 1 m under the conditions specified by the manufacturer in terms of duration and pressure. Normally this means that the equipment is hermetically sealed, however, with certain types of equipment this may mean that water can penetrate, but without producing harmful effects.
9		Protection against high pressure, high temperature and multi-direction cleaning. IPx9 hardware is not necessarily submersible. Example: road vehicles. If the equipment is submersible, it must have a double indication such as IP67 / IP69.