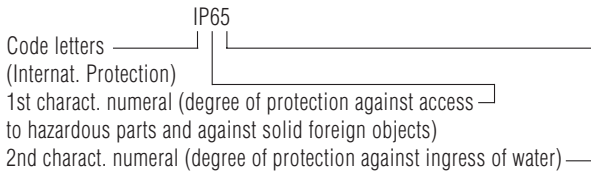


Degree of Protection

Electrical devices to which connectors belong to have to be protected for safety reasons from outside influences like dust, foreign objects, direct contact, moisture and water. This protection is provided on industrial connectors by its housings with their latching devices and sealed cable entries. The degree of protection can be selected depending on the type of intended use. The standard IEC 60529 and/or DIN EN 60529/VDE 0470 Part 1 has specified the degree of protection and divided into several classes.

The degree of protection is indicated in the following way:



The following charts 4 and 5 give an overview about all protection degrees.

Chart 4

1st charact. numeral	Brief description	Definition
0	Non-protected	—
1	Protected against access to hazardous parts with the back of a hand. Protected against solid foreign objects of $\geq 50\text{mm } \emptyset$.	The probe, sphere of $50\text{mm } \emptyset$, shall not fully penetrate and shall have adequate clearance from hazardous parts.
2	Protected against access to hazardous parts with a finger. Protected against solid foreign objects of $\geq 12,5\text{mm } \emptyset$.	The jointed test finger of $12\text{mm } \emptyset$, 80mm length, shall have adequate clearance from hazardous parts. The probe, sphere of $12,5\text{mm } \emptyset$, shall not fully penetrate.
3	Protected against access to hazardous parts with a tool. Protected against solid foreign objects of $\geq 2,5\text{mm } \emptyset$.	The probe of $2,5\text{mm } \emptyset$ shall not penetrate at all.
4	Protected against access to hazardous parts with a wire. Protected against solid foreign objects of $\geq 1\text{mm } \emptyset$.	The probe of $1\text{mm } \emptyset$ shall not penetrate at all.
5	Protected against access to hazardous parts with a wire. Dust-protected.	The probe of $1\text{mm } \emptyset$ shall not penetrate. Intrusion of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the device or to impair safety.
6	Protected against access to hazardous parts with a wire. Dust-tight.	The probe of $1\text{mm } \emptyset$ shall not penetrate. No intrusion of dust.

Chart 5

2nd charact. numeral	Brief description	Definition
0	Non-protected	—
1	Protected against vertically falling water drops	Vertically falling drops shall have no harmful effects.
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical.
3	Protected against spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects.
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects.
5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects.
6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
7	Protected against the effects of temporary immersion in water	Intrusion of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water for 30 min. in 1m depth.
8	Protected against the effects of continuous immersion in water	Intrusion of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7.
9K ¹⁾	Protected against water during high pressure/steam jet cleaning	Water projected in powerful jets with high pressure against the enclosure from any direction shall have no harmful effects.

¹⁾ Remark: Numeral acc. to DIN 40050 part 9, vehicles IP code.