

Ingress protection (IP) according to EN 60529 / DIN 40050

Ingress protection (IP)

A standard for classifying product properties in terms of ingress protection.

The degrees of protection are indicated by a code consisting of the two constant letters 'IP' and two digits for the degree of protection, e.g. IP 68.

The first digit stands for:
Solid particle protection

| Protection level | Effective against | Description |
|------------------|---------------------------------------|---|
| 0 | — | No protection against contact and ingress of objects. |
| 1 | large solid particles | Protection against contact with large surfaces of the body, such as the back of a hand. Protected against large solid particles ($\varnothing > 50$ mm). |
| 2 | medium-sized solid particles | Protection against contact with fingers. Protected against medium-sized solid particles ($\varnothing > 12.5$ mm). |
| 3 | small solid particles | Protection against tools, thick wires and small solid particles ($\varnothing > 2.5$ mm). |
| 4 | very small solid particles | Protection against tools, most wires and very small solid particles ($\varnothing > 1$ mm). |
| 5 | dust (limited amount of dust allowed) | Complete protection against contact. Protection against dust accumulation on the inside. |
| 6 | dust (no dust allowed) | Complete protection against contact. Protection against ingress of dust. |

The second digit stands for:
Liquid ingress protection

| Protection level | Effective against | Description |
|------------------|--------------------------------------|---|
| 0 | — | No protection against ingress of water. |
| 1 | dripping water | Protection against vertically dripping water. |
| 2 | dripping water when tilted at 15° | Protection against dripping water at any angle up to 15° from the vertical. |
| 3 | spraying water | Protection against spraying water up to angle of 60° from vertical. |
| 4 | splashing of water | Protection against water splashing from any direction. |
| 5 | water jets | Protection against directed water jets of low pressure from any angle. |
| 6 | powerful water jets | Protection against directed water jets of high pressure from any angle. |
| 7 | immersion, up to 1 meter depth | Protection against full immersion up to the depth of 1m for 30 minutes. |
| 8 | immersion, 1 meter or more in depth | Protection against immersion up to greater depths and higher pressure. |
| 9K | powerful high-temperature water jets | Protection against directed water jets of high temperature and pressure, wash downs or steam cleaning procedures. |