

## IP ratings chart and table

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The IP ratings table below tells you what each digit in a standard IP code means. You can use this ingress protection chart to get a clear picture of the specific hazards and scenarios a given item's mechanical or electrical components should be protected against, and to what extent in what sort of environments.

### First digit - protection from foreign body and particulate ingress:

0	(or X - see section below): Not rated (or no rating supplied) for protection against ingress of this type.
1	Protection against solid objects larger than 50mm (accidental hand contact with open palm), but not against deliberate body contact.
2	Protection against solid objects larger than 12mm (accidental finger contact).
3	Protection against solid objects larger than 2.5mm (tools and wires).
4	Protection against solid objects larger than 1mm (fine tools and wires, nails, screws, larger insects and other potentially invasive small objects)
5	Partial protection against dust and other particulates, such that any ingress will not damage or impede the satisfactory performance of internal components.
6	Full protection against dust and other particulates, including a vacuum seal, tested against continuous airflow.

### Second digit - protection from moisture ingress:

0	(or X - see section below): Not rated (or no rating supplied) for protection against ingress of this type.
1	Protection against vertically falling droplets, such as condensation, sufficient that no damage or interrupted functioning of components will be incurred when an item is upright.

2	Protection against vertically dripping water when enclosure is tilted up to 15° off vertical.
3	Protection against direct moisture spray at angles up to 60° off vertical.
4	Protection against splashing water from any direction, tested for a minimum of 10 minutes with an oscillating spray (limited ingress permitted with no harmful effects).
5	Protection against low-pressure jets (6.3 mm) of directed water from any angle (limited ingress permitted with no harmful effects).
6	Protection against powerful jets (12.5 mm nozzle) of directed water from any direction.
7	Protection against full immersion for up to 30 minutes at depths between 15 cm and 1 metre (limited ingress permitted with no harmful effects).
8	Protection against extended immersion under higher pressure (i.e. greater depths). Precise parameters of this test will be set and advertised by the manufacturer and may include additional factors such as temperature fluctuations and flow rates, depending on equipment type.
9K	Protection against high-pressure, high-temperature jet sprays, wash-downs or steam-cleaning procedures - this rating is most often seen in specific road vehicle applications (standard ISO 20653:2013 Road