

# The IP Rating System

- IP stands for Ingress Protection
- The rating's first digit e.g. **IP66** relates to the ingress protection against dust (6 means dust tight, see the table below)
- The rating's second digit e.g. **IP66** relates to the ingress protection against water (6 means protected against heavy water jets, see the table below)

## Protection against solid objects

1 <sup>st</sup> Digit	Description	Definition
0	Non-protected	No special protection.
1	Protected against solid objects greater than 50 mm	A large surface of the body such as the hand (no protection against deliberate access). Solid objects exceeding 50mm diameter.
2	Protected against solid objects greater than 12 mm	Fingers or other objects not exceeding 80 mm in length. Solid objects exceeding 12 mm diameter.
3	Protected against solid objects greater than 2.5 mm	Tools, wires, etc of diameter or thickness greater than 2.5 mm. Solid objects exceeding 2.5 mm diameter.
4	Protected against solid objects greater than 1 mm	Wires or strips of thickness greater than 1 mm. Solid objects exceeding 1 mm.
5	Dust protected	Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the equipment.
6	Dust-tight	No ingress of dust.

## Protection against liquids

1 <sup>st</sup> Digit	Description	Definition
0	Non-protected	No special protection.
1	Protected against dripping water	Dripping water (vertically falling drops).
2	Protected against dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15° from its normal position.
3	Protected against spraying water	Water falling as spray at an angle up to 60° from the vertical shall have no harmful effect.
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effect.
5	Protected against water jets	Water projected from a nozzle against the enclosure from any direction shall have no harmful effect.
6	Protected against heavy seas	Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities.
7	Protected against the effects of immersion	Ingress of water in a harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time.
8	Protected against submersion	The equipment is suitable for continuous submersion in water under conditions, which shall be specified by the manufacturer.