

**Ingress protection ratings (IP)** Defined by IEC 60598

The resistive performance of fittings to solids and liquids is indicated by the IP (Ingress Protection) prefix followed by two numbers.





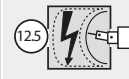



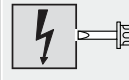

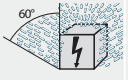

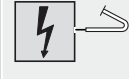



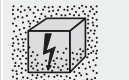

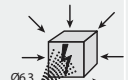

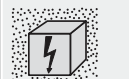



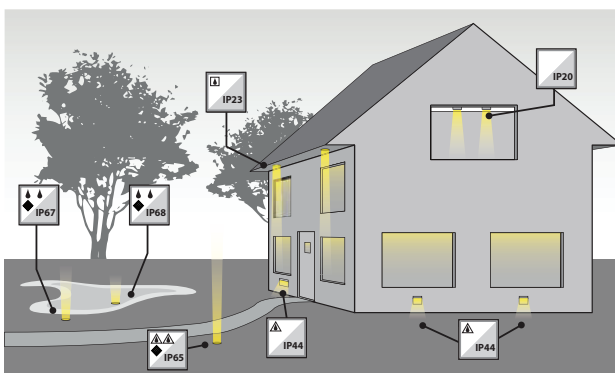
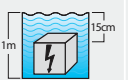



The first number indicates the measure of protection against the ingress of solids. For instance: **IP2X**

The second number indicates the measure of protection against the ingress of liquids. For instance: **IPX5**

**Ingress Protection (IP) Specification Guide**

**Protection against the ingress of solid objects IP.1X**

**Protection against the ingress of liquids IP.X1**

| IP No.  | Example   | Protection against contact and ingress of objects                | Tests  | Symbol  | IP No. | Example   | Protection against contact and ingress of water        | Tests   | Symbol  |
|---|---|--|--|---|--------|---|--|---|---|
| IP1X  |    | Protected against solid objects greater than 50mm $\varnothing$  | A large surface of the body, such as a hand (but no protection against deliberate access). Solid objects exceeding 50mm in diameter.               |    | IPX1   |    | Protected against dripping water                       | Dripping water (vertically falling drops) shall have no harmful effect  |    |
| IP2X  |   | Protected against solid objects greater than 12mm $\varnothing$  | Fingers or similar objects not exceeding 80 mm in length. Solid objects exceeding 12mm in diameter.  |   | IPX2   |   | 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   |   |
| IP3X  |  | Protected against solid objects greater than 2.5mm $\varnothing$ | Tools, wires, etc., of diameter or thickness greater than 2.5mm. Solid objects exceeding 2.5mm in diameter.  |  | IPX3   |  | Protected against spraying water                       | Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect   |  |
| IP4X  |  | Protected against solid objects greater than 1.0mm $\varnothing$ | Wires or strips of thickness greater than 1.0mm. Solid objects exceeding 1.0mm in diameter.  |  | IPX4   |  | Protected against splashing water                      | Water splashed against the enclosure from any direction shall have no harmful effect  |  |
| IP5X  |  | 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. |  | IPX5   |  | Protected against water jets                           | Water projected by a nozzle against the enclosure from any direction shall have no harmful effect   |  |
| IP6X  |  | Dust tight   | No ingress of dust.  |  | IPX6   |  | Protected against heavy seas                           | Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities   |  |
|  |   |  |  |   | IPX7   |  | 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  |  |
|   |   |  |  |   | IPX8   |  | Protected against submersion                           | The equipment is suitable for continuous submersion in water under conditions which shall be specified by the manufacturer.<br><br>NOTE Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects. |  |

**IK ratings** Defined by UTE 20010  
 Degree of Impact Protection EN62262.

IK rating system is an International classification showing degrees of protection provided by luminaires against external mechanical impacts.

| Number   | Measure of protection – impact energy (joules) | Test                     |
|--|--|--------------------------|
|  IK00   | No protection to this standard -               |                          |
|  IK01   | 0.15   | 0.20kg impact            |
|  IK02   | 0.20   | 0.20kg impact            |
|  IK03   | 0.35   | 0.20kg impact            |
|  IK04 | 0.50   | 0.20kg impact            |
|  IK05 | 0.70   | 0.20kg impact            |
|  IK06 | 1.00   | 0.50kg impact from 200mm |
|  IK07 | 2.00   | 0.50kg impact from 400mm |
|  IK08 | 5.00   | 1.70kg impact from 295mm |
|  IK09 | 10.00  | 5.00kg impact from 200mm |
|  IK10 | 20.00  | 5.00kg impact from 400mm |

When higher impact energy protection is required 50 joules is recommended.