

Ingress protection ratings (IP)

Defined by IEC 60598



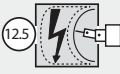

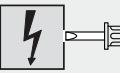

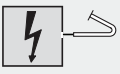





The resistive performance of fittings to solids and liquids is indicated by the IP (Ingress Protection) prefix followed by two numbers.

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

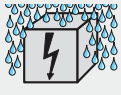

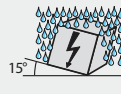

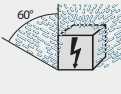



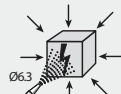



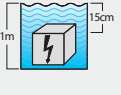

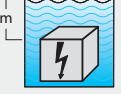

The second number indicates the measure of protection against the ingress of liquids. For instance: **IPX5**

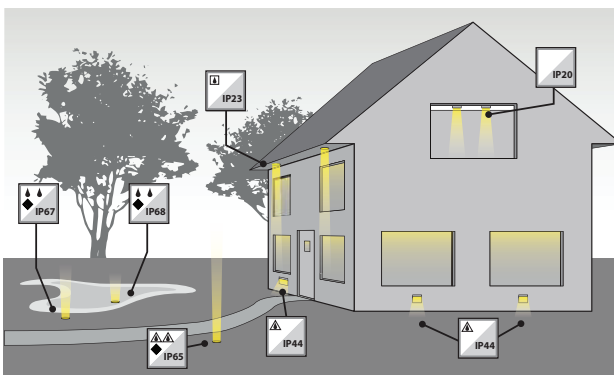
Ingress Protection (IP) Specification Guide

Protection against the ingress of solid objects IP.1X

IP No.	Example	Protection against contact and ingress of objects	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.	
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.	
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.	
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.	
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.	
IP6X		Dust tight	No ingress of dust.	

Protection against the ingress of liquids IPX.1

IP No.	Example	Protection against contact and ingress of water	Tests	Symbol
IPX1		Protected against dripping water	Dripping water (vertically falling drops) shall have no harmful effect	
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	
IPX3		Protected against spraying water	Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect	
IPX4		Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effect	
IPX5		Protected against water jets	Water projected by a nozzle against the enclosure from any direction shall have no harmful effect	
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. 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