

# INGRESS PROTECTION RATING (IP) Defined by IEC 605908

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

## 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 $\phi$	A large surface of the body, such as a hand (but no protection against deliberate access). Solid objects exceeding 50mm in $\phi$	
IP2X		Protected against solid objects greater than 12mm $\phi$	Fingers or similar objects not exceeding 80 mm in length. Solid objects exceeding 12mm in $\phi$	
IP3X		Protected against solid objects greater than 2.5mm $\phi$	Tools, wires, etc., of diameter or thickness greater than 2.5mm. Solid objects exceeding 2.5mm in $\phi$	
IP4X		Protected against solid objects greater than 1.0mm $\phi$	Wires or strips of thickness greater than 1.0mm. Solid objects exceeding 1.0mm in $\phi$	
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 liquid IP.X

IP No.	Example	Protection against contact and ingress of objects	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 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	

# IMPACT PROTECTION RATING (IK) 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
	No protection to this standard	-
	0.15	0.20kg impact
	0.20	0.20kg impact
	0.35	0.20kg impact
	0.50	0.20kg impact
	0.70	0.20kg impact

Number	Measure of protection – impact energy (joules)	Test
	1.00	0.50kg impact from 200mm
	2.00	0.50kg impact from 400mm
	5.00	1.70kg impact from 295mm
	10.00	5.00kg impact from 200mm
	20.00	5.00kg impact from 400mm

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

# TABLE FOR CHEMICAL RESISTANCE



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Chemical material investigated	Aluminium	Fibreglass	Acrylic	Polycarbonate	Stainless steel	Chemical material investigated	Aluminium	Fibreglass	Acrylic	Polycarbonate	Stainless steel
Accumulator Acid	▲	●	●	■	■	Hydrogen Peroxide (over) 40%	●	▲	■	▲	●
Acetic acid (up to) 5%	■	●	●	●	●	Hydrogen Sulphide	●	●	●	●	●
Acetic Acid (up to) 15%	▲	●	●	●	●	Ketones	●	▲	▲	●	●
Acetone	●	▲	▲	▲	●	Lysol	●	▲	▲	▲	●
Alcohol (up to) 30%	■	●	●	●	●	Metal salts & their aqueous solutions	▲	●	●	●	■
Alcohol Concentrate	●	▲	▲	●	●	Methanol	●	■	▲	●	●
Ammonia			■	▲		Methylene Chloride	■	▲	▲	▲	●
Ammonia 25%	●	■	●	■	●	Milk of lime	▲	●	●	■	●
Aniline	●	▲	▲	▲	●	Nitric Acid 5%	▲	●	●	●	●
Aromatic Hydrocarbons	●	■	●	●	●	Nitric Acid 30%	▲	■	■	■	■
Benzene	●	▲	▲	■	●	Nitric Acid concentrate	▲	▲	▲	▲	●
Carbon Dioxide	●	●	●	●	●	Oils			■	■	
Carbon Monoxide	●	●	●	●	●	Parafins			●	●	
Carbon Tetrachloride	■	■	■	●	●	Petrol	●	●	●	●	●
Caustic Soda 2%	▲	■	●	▲	●	Petroleum Ether	●		●	●	●
Caustic Soda 10%	▲	▲	●	▲	●	Phenol	■	▲	▲	▲	●
Chloroform	●	▲	▲	▲	■	Phosphoric			▲	■	
Common Salt	■	●	●	■	●	Pyridine	●	▲	▲	●	●
Crude Oil	●	●	●	●	●	Sea water	■	●	●	●	●
Diesel Oil	●	●	●	■	●	Soap suds	■	●	●	●	●
Dioxane		●	▲	▲	●	Soda	▲	●	●	●	■
Ether	●	■	▲	▲	●	Sodium Hydroide			■	▲	
Ethyl Acetate	●	▲	▲	●	●	Sulphuric Acid 5%	▲	●	●	●	▲
Glycerine	●	●	●	■	●	Sulphuric Acid 30%	▲	●	●	●	▲
Glycol	●	●	●	●	●	Sulphuric Acid concentrate	▲	▲	▲	■	▲
Hydrobomic			▲	■		Sulphurous Acid 5%	■	■	●	▲	■
Hydrobomic Acid	▲	▲	■		▲	Synthetic detergent	▲	●	●	●	●
Hydrocarbons	●	■	■	●	●	Turpentine	●	●	●	●	●
Hydrochloric Acid 5%	▲	●	●	●	▲	Water (up to) 70°C	●	●	●	●	●
Hydrochloric Acid 30%	▲	●	●	●	▲	Xylene	●	▲	▲	▲	●
Hydrochloric Acid 96%	▲	●	●	●	▲						
Hydrogen Peroxide 40%	■	▲	●	■	●						

Due to continual development, information is subject to change without notification

Ambient temperature 20°C

● Resistant | ■ Resistant within limits | ▲ Not resistant | ● Resistant when saturated, resistant within limits when unsaturated