

International protection characteristics for electric equipment

Alphanumeric symbols to indicate protection

Degree of protection IP	Protection against contact with dangerous parts and ingress of foreign objects		IP (= International Protection)
First characteristic digit:	Protection against contact with and ingress for foreign objects	Second characteristic digit:	Protection against infiltration of water
IP 0X IP 1X	No protection Back of hand Solid objects with dimensions greater than 50mm	IP X0 IP X1	No protection Water drops falling vertically
IP 2X	Finger (probe, ϕ 12, $l = 80$ mm) Solid objects with dimensions greater than 12,5mm	IP X2	Water drops at an angle (15° from vertical)
IP 3X	Tool (probe, ϕ 2,5 mm, $l = 100$ mm) Solid objects with dimensions greater than 2,5mm	IP X3	Rain (60° from vertical)
IP 4X	Wire Solid objects with dimensions greater than 1,0mm	IP X4 IP X5 IP X6 IP X7 IP X8	Splashes of water Jets of water Strong jets of water Temporary immersion Continuous immersion
IP 5X	Wire as IP X4 Harmful amount of dust Talcum powder		
IP 6X	Wire as IP X4 Dust (totally protected) Talcum powder		

In case only one characteristic digit is used, the other is replaced by „X“.

Third digit	Protection of person against contact with	Fourth digit	Supplementary information for protection of material
A	Back of hand (accessibility gauge ϕ 50mm)	H	High voltage devices
B	Finger (articulated test finger ϕ 12x80mm)	M	Tested against the harmful effects of water infiltration when the mobile parts of device are moving.
C	Tool (accessibility gauge ϕ 2,5mm x100mm)	S	Tested against the harmful effects of water infiltration when the mobile parts of the device are not moving.
D	Wire (accessibility gauge ϕ 1mm x100mm)	W	Suitable for use in specified atmospheric conditions and provided with additional measures and procedures.

The third and the fourth characteristic digits can be used voluntarily.

Symbols to indicate the international protection characteristics

Symbol								
	protecting against water drops	protecting against rain	protecting against splashes of water	protecting against jets of water	waterproof	tight against water pressure	protecting against harmful amount of dust Talcum powder	protecting against dust (totally protected) Talcum powder
e. g.	X1	X3	X4	X5	X7	X8	X5	X6

Symbols to indicate the international protection against the harmful effect of water

Symbol						
	water drops falling vertically	water drops falling vertically with an angle of 15° from vertical	rain	Jets of water from all directions	temporary immersion (flood)	continuous immersion temporary continuously
e. g.	X1	X2	X3	X5	X6	X7 X8

Symbols for flame proofness and explosion proofness for electric equipment



General symbol for flame proofness or explosion proofness

For flame proofness the general symbol is followed by "EEExI" and for explosion proofness "EEExII".

The special kind of protection is expressed by a subsequent small letter with the following meanings:

- d** flameproof enclosure
- e** type of protection "e"
- i_a, i_b** inherent safety
- o** oil immersion
- p** pressurising
- q** powder filling