

IP Rating Decoded — IEC 60529 Ingress Protection Codes

cBallast · IEC 60529:2013+AMD1:2018 · Reference

IP code structure

IP + two digits. First = solid/dust ingress; second = water ingress. Additional letters describe supplementary protection. Digit X = untested.

First digit — solid ingress

Digit	Test	Protection
0	-	No protection
1	50 mm sphere	Back of hand
2	12.5 mm sphere	Fingers
3	2.5 mm rod	Tools, thick wires
4	1.0 mm wire	Most wires, small screws
5	Dust protected	Limited dust ingress permitted
6	Dust tight	No dust ingress

Second digit — water ingress

Digit	Test	Protection
0	-	No protection
1	Vertical drip 1 mm/min 10 min	Dripping water
2	Drip 3 mm/min tilted 15deg 10 min	Dripping tilted 15deg
3	Spray 60deg 10 min	Spraying water
4	Splash any direction 10 min	Splashing water
5	6.3 mm jet any direction 15 min	Water jets
6	12.5 mm jet any direction 3 min	Powerful water jets
7	1 m immersion 30 min	Temporary immersion
8	Immersion mfr-declared depth	Continuous immersion
9K	80C 8-10 MPa 14-16 L/min 0.1-0.15m 4x30s	HP HT washdown

Common IP codes

Code	Application
IP20	General indoor electronics
IP44	Residential outdoor luminaire
IP54	Standard outdoor industrial enclosure
IP55	Motor terminal box
IP65	Sealed sensor, LED floodlight
IP66	Marine deck enclosure, offshore panel

IP67	Vehicle-mounted, occasional submersion
IP68	Submerged sensor, submersible pump
IP69K	Food/pharma washdown

IK impact rating (EN 62262)

IK	Impact J	Test
IK00	None	Not tested
IK04	0.5 J	200 g / 25 cm
IK07	2 J	500 g / 40 cm
IK08	5 J	1.7 kg / 30 cm
IK09	10 J	5 kg / 20 cm
IK10	20 J	5 kg / 40 cm

NEMA Type approximate equivalents

NEMA	Approx IP	Additional over IP
1	IP20	None
3	IP54	Rain, snow, sleet, ice
4	IP66	Hose-directed water, ice
4X	IP66	4 + corrosion resistance
6	IP67	Temporary submersion
6P	IP68	Prolonged submersion
12	IP52/IP54	Dust, dripping non-corrosive
13	IP54	Oil, dust

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