

The image shows three iPhones of different colors (black, silver, and gold) lying on a dark, wet surface covered in numerous water droplets. The phones are arranged in a slightly overlapping manner. The text 'ip67 vs ip68' is overlaid in the center in a bold, yellow and red font.

ip67 vs ip68

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IPX Protection Codes

IP 2 3 C H

FOR REFERENCE ONLY

(Optional) Supplementary letter H, M, S, W

(Optional) Additional letter A, B, C, D

Second characteristic numeral
Numbers 0 to 9 or Letter X

First characteristic numeral
Numbers 0 to 6 or Letter X

International Protection

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**FOR LATEST INFORMATION PLEASE REFER TO
INTERNATIONAL STANDARDS**

IP = Ingress Protection or IP = International Protection

IP Standard Basics Explained: **Higher the number means higher protection**

IP followed by letter X and a number :

Means only water proofing test is done,

as an example IPX7, Temporary immersion in water upto 1 m

IP followed by two numbers :

Means both water proofing and dust resistance are tested,

as an example, IP67 rating, The first number (6) indicates the dust resistance, and the second number (7)

indicates the water proofing ability.

IP followed by a number and X :

Means an equipment is tested for dust resistance and not for water resistance,

as an example IP5X, Dust-protected

IPX Rating Chart: [Water Resistance / Waterproof]

IPX	Official Terms	Testing for	Test Details
ipx0	Non-protected	---	---
ipx1	Dripping Water	No harmful effects with Vertical falling water drops	Test Duration: 10 minutes Water Equivalent to 1 mm rainfall per minute
ipx2	Dripping Water when tilted up to 15°	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical	Test Duration: 10 minutes Water Equivalent to 3 mm rainfall per minute
ipx3	Spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects	Test Duration: 5 minutes, Water Volume: 0.7 Liters/minute Pressure: 80-100 kN/m ²
ipx4	Slashing water	Water splashed against the enclosure from any direction shall have no harmful effects	Test Duration: 5 minutes, Water Volume: 10 Liters/minute Pressure: 80-100 kN/m ²
ipx5	Water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects	Test Duration: min 3 min, Water Volume: 12.5 Lit/minute Pressure: 30 kN/m ² at distance of 3 m
ipx6	Powerful water jets	Water projected in powerful jets (12.5mm) against the enclosure from any direction shall have no harmful effects	Test Duration: min 3 min, Water Volume: 100 Lit/minute Pressure: 100 kN/m ² at distance of 3 m
ipx7	Temporary immersion in water upto 1 m	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time	Test Duration: 30 minutes Immersion at depth of 1 m
ipx8	Continuous immersion in water beyond 1 m	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7	Test Duration: Continuous immersion in water Immersion at depth beyond 1m, as specified by the manufacturer
ipx9	Protected against high pressure & temp water jets	Water projected at high pressure and high temperature against the enclosure from any direction shall not have harmful effects	Fan jet nozzle: 15 Lit/min, Turntable speed 5 rev/min Spray at 0°, 30°, 60°, 90°, 30 seconds per po

IPX Dust Resistance Rating Chart

IPX	Official Terms	Testing for
ip0x	No test required	---
ip1x	Protected against solid foreign objects of 50 mm \varnothing & greater	The object probe, sphere of 50 mm \varnothing , shall not fully penetrate
ip2x	Protected against solid foreign objects of \varnothing 12.5 mm & greater	The object probe, sphere of 12,5 mm \varnothing , shall not fully penetrate
ip3x	Protected against solid foreign objects of \varnothing 2.5 mm & greater	The object probe, sphere of 2,5 mm \varnothing , shall not penetrate at all
ip4x	Protected against solid foreign objects of \varnothing 1.0 mm and greater	The object probe of 1,0 mm \varnothing , shall not penetrate at all
ip5x	Dust-protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
ip6x	Dust-tight	No ingress of dust

IPX Dust & Water Resistance, Explained with examples [dustproof]

ip20 rating	Led Strip Lights	Means Protected against solid foreign objects of \varnothing 12.5 mm & greater, example adult fingers
ip44 rating	Most commonly used in Bathroom lighting	Means Protected against solid foreign objects of \varnothing 1.0 mm and greater (4) and Slashing water (4) protected
ip54 rating	PowerRider Bone Conduction Headphones	Means Dust protected (5) and Slashing water (4) protected
ip65 rating	Sony Xperia Z5	Sony Xperia Z5 is Certified with an IP65 and IP68 rating Means Fully protected from dust (6) and against low-pressure water jets, when all ports are closed (5) Can be submerged in 1.5 meters (4.9 feet) of fresh water for up to 30 mins. (8)
ip66 rating	Bullet Outdoor Security Camera	Means Fully protected from dust (6) and Powerful water jets (6)
ip67 rating	iphone7	Fully protected from dust (6) and can also withstand being submerged in 1m (about 3.3 feet) of static water for up to 30 mins (7)
ip68 rating	Samsung Galaxy S7	Fully protected from dust (6) and can also withstand being submerged in static water, Immersion at depth beyond 1m, as specified by the manufacturer Here for Samsung Galaxy S7 it is: 1.5 meters (about 5 feet) for up to 30 minutes. So ip68 waterproof rating is good for water sports
ipx7 rating	Apple Watch Series 1	IPX7 waterproof rating is more than enough for outdoor sporting requirements

IPX rating shows Water Resistance then What is meaning of ATM?

ATM stands for atmospheres

Each ATM is equivalent to 10 meters (33 feet) of static water pressure.

Below you will find a chart that outlines that basic water-resistance levels.

Water Ratings	Withstands pressures equivalent to	Usage
1 ATM	a depth of 10 meters (33 feet)	Improved resistance to rain and splashes. No showering or swimming.
3 ATM	a depth of 30 meters (98 feet)	Rain, splashing, accidental submersion & showering. No swimming.
5 ATM	a depth of 50 meters (164 feet)	Rain, splashing, accidental submersion, showering, surface swimming, shallow snorkeling
10 ATM	a depth of 100 meters (328 feet)	Rain, splashing, accidental submersion, showering, swimming and snorkeling. No deep water scuba diving or high-speed water sports.
20 ATM	a depth of 200 meters (656 feet)	Rain, splashing, accidental submersion, showering, swimming, snorkeling, surface diving and water sports. No deep water diving.

Thank you

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