

What is Ingress Protection Level?

The Ingress Protection level, also commonly known as the IP protection level, is detailed in international protection standards. A higher number in the rating does not necessarily mean it can replace a test with a lower number. For instance, an IPX7 rating for immersion up to 1m deep might not withstand the IPX6 test for high-pressure water jets. Users must be cautious, and the rating must be presented in the correct sequence without inversion.



Liquid Ingress Protection		
Level	Liquid Protection	Description
0	No protection	Direct exposure
1	Dripping water	Vertical dripping, tested for 10 minutes, equivalent to a rainfall rate of 1mm per minute.
2	Dripping water at 15°	Vertical dripping, testing for 10 minutes, equivalent to a rainfall rate of 1mm per minute.
3	Spraying at 60°	The object is tilted at 60° on both sides, tested for 10 minutes, with a water flow rate of 10L per minute, and a water pressure of 50-150kPa.
4	Splashing from any angle	Tested for 10 minutes, with a water flow of 10L per minute, and a water pressure of 50-150kPa.
5	Low pressure water jet	Nozzle diameter of 6.3mm, tested for 3 minutes, with a water flow rate of 12.5L per minute, and a water pressure of 100kPa at a distance of 3m.
6	High pressure water jet	Nozzle diameter of 12.5mm, tested for 3 minutes, with a water flow rate of 100L per minute, and a water pressure of 100kPa at a distance of 3m.
7	Immersion up to 1m	The highest point of the test object must be submerged at least 15cm in water, tested for 30 minutes.
8	Immersion beyond 1m	Usually refers to being sealed, it can also mean that water enters the test object but will not have negative effects. The test duration is at least 1 hour.

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Solid Particle Protection		
Level	Protection against solid particles of the following diameters entering	Description
0	No protection	Direct exposure
1	>50mm	Protects against solid particles larger than 50mm entering the test object.
2	>12.5mm	Protects against solid particles larger than 12.5mm entering the test object.
3	>2.5mm	Protects against solid particles larger than 2.5mm entering the test object.
4	>1mm	Protects against solid particles larger than 1mm entering the test object.
5	Dust-resistant	Cannot provide complete protection, but the amount of intrusion should not have adverse effects on the test object.
6	Completely dustproof	Dust and fine particles cannot enter the test object, providing complete isolation.

Additional Markings	
Letter	Meaning
H	High Voltage
M	Test while in motion
S	Test while stationary
W	Climatic conditions

GearKo's entire range of Planetary gearboxes and reducers have passed the IP65 test, ensuring full dust protection and resistance to low-pressure water jets. They can be confidently used in most harsh environments. Furthermore, they come with a lifetime warranty for maintenance and oil changes. If there's a requirement for IP67, please [contact us](#) for a solution.