

Water and dust ingress ratings explained.

Frequently Asked Questions

1. What is the IP Rating System?

The Ingress Protection (IP) rating system is an internationally recognized scale that relates to proven protection against environmental factors such as liquids and solids.

Ingress protection ratings can be identified by the letters IP, followed by two numbers. These numbers define the amount of protection a digital scale has against specified elements and its ability to resist foreign matter that could otherwise get inside the product and cause it to fail.

The first number refers to the amount of protection a scale or indicator enclosure has against solid matter (such as dust particles), while the second number defines the level of protection against liquids. The larger each digit is, the greater the protection.

IP RATINGS SCALE

First number - Protection against solids

0	No protection.
1	Protected against solid objects greater than 50 mm.
2	Protected against solid objects greater than 12 mm diameter.
3	Protected against solid objects greater than 2.5mm diameter.
4	Protected against solid objects greater than 1.0mm diameter.
5	Dust protected.
6	Dust tight. No Ingress of dust.

Second number - Protection against liquids

0	No protection.
1	Protected against vertically dripping water.
2	Protected against dripping water when tilted up to 15°.
3	Protected against spraying water at an angle of up to 60° from vertical.
4	Protected against splashing water when the enclosure is tilted at any angle up to 15°.
5	Protected against water jets from any direction.
6	Protected against heavy seas or powerful jets of water.
7	Protected against the effects of short term immersion (under defined conditions of pressure and time).
8	Protected against submersion (under conditions specified by the manufacturer).
9K	Protected against close-range high pressure, high temperature spray downs.

2. What is IP66?

The IP66 rating provides protection against ingress of dust and moisture – making products with this certification suitable for use in environments that might be prone to dust, damp, moisture and dirt.

IPX6 offers protection against ingress of water, making products with this rating suitable for use outdoors in damp/wet conditions, or for use in environments where equipment may be subject to frequent hose-downs.

In many industries, where dust and dirt can be an issue, it is important to ensure that dust cannot penetrate the casing of a product and cause it to fail. The IP6X rating offers the highest protection available against dust particles.

3. What are the advantages of IP66?

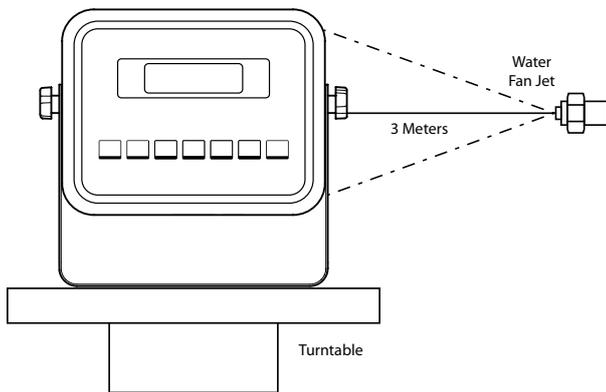
In environments that require washdown, such as in the food processing industry, the combination of water, chemicals, high pressures and temperatures can prove fatal for electronic circuits and instrumentation. The IP66 rating offers assurance that the piece of equipment that has undergone these tests is durable.

4. How does a product achieve the IP66 rating?

Products bearing the IP66 rating undergo a challenging set of tests to ensure that they offer protection against penetration of moisture and dust particles.

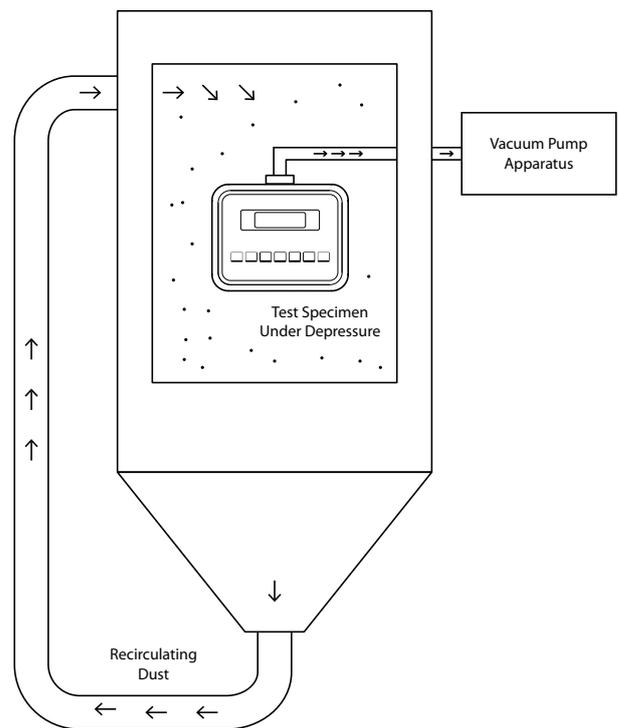
5. How is the water intrusion test performed?

In order to pass the IP6X water intrusion test, the product must be resistant to powerful jets of water being projected against the enclosure while it spins a minimum of five rotations. The water is sprayed at a rate of 100 litres per minute, from a 12.5 mm nozzle at a distance of three meters. The test must last a minimum of three minutes.



6. How is the dust intrusion test performed?

A test unit is placed into a sealed chamber, inside which the pressure is maintained below the surrounding atmospheric pressure by use of a vacuum pump. This test is performed with a maximum depression of 20 mbar inside the item under test, and with a maximum extraction rate of 60 volumes/hour. For the duration of the test, the chamber is filled with circulating fine dust such as talcum powder. The object of the test is to attempt to draw the dust particles into the test unit within a defined period of time. The protection is deemed to be satisfactory if the unit has completely resisted dust ingress at the end of the test.



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