

IP防尘防水等级如何申请办理

产品名称	IP防尘防水等级如何申请办理
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产品详情

IP防尘防水等级如何申请办理

IP(INGRESS PROTECTION)防护等级系统是由IEC(INTERNATIONAL ELECTROTECHNICAL COMMISSION)所起草，将电器依其防尘防湿气之特性加以分级。IP防护等级是由两个数字所组成，第1个数字表示电器防尘、防止外物侵入的等级(这里所指的外物含工具，人的手指等均不可接触到电器之内带电部分，以免触电)，第2个数字表示电器防湿气、防水浸入的密闭程度，数字越大表示其防护等级越高。

The IP (INGRESS PROTECTION) protection level system was drafted by IEC (INTERNATIONAL ELECTROTECHNICAL COMMISSION), which classifies electrical appliances according to their dust and moisture resistance characteristics. The IP protection level is composed of two numbers. The first number indicates the level of the appliance that is dust-proof and protected against foreign objects. In order to avoid electric shock), the second number indicates the degree of tightness of the appliance against moisture and water. The higher the number, the higher the protection level.

防护等级多以IP后跟随两个数字来表述，数字用来明确防护的等级。

The protection level is mostly expressed by IP followed by two numbers, which are used to clarify the protection level.

第1个数字表明设备抗微尘的范围，或者是人们在密封环境中免受危害的程度。I代表防止固体异物进入的等级，高别是6;

The first number indicates the extent to which the equipment is resistant to dust, or the extent to which people are protected from harm in a sealed environment. I represents the level to prevent solid foreign matter from entering, the highest level is 6;

第二个数字表明设备防水的程度。P代表防止进水的等级，高别是8。The second number indicates how waterproof the device is. P stands for the level of protection against water ingress. The highest level is 8.

IP后第1位数字防尘等级 First digit dustproof level after IP

IP1 x

防护50mm直径和更大的固体外来体探测器，球体直径为50mm,不应完全进入

Protects solid foreign body detectors with a diameter of 50mm and larger. The diameter of the sphere is 50mm and should not completely enter

IP2 x

防护12.5mm直径和更大的固体外来体探测器，球体直径为12.5mm,不应完全进入

Protects 12.5mm diameter and larger solid foreign body detectors, the sphere diameter is 12.5mm, should not fully enter

IP3 x

防护2.5mm直径和更大的固体外来体探测器，球体直径为2.5mm,不应完全进入

Protects 2.5mm diameter and larger solid foreign body detectors, the diameter of the sphere is 2.5mm, and it should not completely enter

IP4 x

防护1.0mm直径和更大的固体外来体探测器，球体直径为1.0mm,不应完全进入

Protects solid foreign body detectors with a diameter of 1.0mm and larger. The diameter of the sphere is 1.0mm and should not completely enter

IP5 x

防护灰尘不可能完全阻止灰尘进入，但灰尘进入的数量不会对设备造成伤害

Protective dust cannot completely prevent dust from entering, but the amount of dust entering will not cause damage to the equipment

IP6 x

灰尘封闭柜体内在20毫巴的低压时不应进入灰尘

Dust should not enter the dust in the closed cabinet at a low pressure of 20 mbar

IP后第二位数字:防水等级Second digit after IP: waterproof rating

防水等级 (第二个X表示)Waterproof level (indicated by the second X)

(1) IPx 1

方法名称：垂直滴水试验

Method name: Vertical drip test

试验设备：滴水试验装置

Test equipment: drip test device

试样放置：按试样正常工作位置摆放在以 1r/min 的旋转样品台上，样品顶部至滴水口的距离不大于 200mm

Placement of the sample: Place it on the rotating sample table at 1r / min according to the normal working position of the sample. The distance from the top of the sample to the drip opening is not greater than 200mm.

试验条件：滴水量为 10.5 mm/min

Test conditions: dripping water is 10.5 mm / min

持续时间：10 min

Duration: 10 min

(2) IPx 2

方法名称：倾斜 15 ° 滴水试验

Method name: 15 ° Drip Test

试样放置：使试样的一个面与垂线成 15 ° 角，样品顶部至滴水口的距离不大于 200mm。每试验完一个面后，换另一个面，共四次。

Placement of the sample: Make one side of the sample at an angle of 15 ° to the vertical line, and the distance from the top of the sample to the drip opening should not be greater than 200mm. After each test, one side was changed for another four times.

试验条件：滴水量为 30.5 mm/min

Test conditions: dripping water is 30.5 mm / min

持续时间：4 × 2.5 min (共 10 min)

Duration: 4 × 2.5 min (10 min total)

(3) IPx 3

方法名称：淋水试验

Method name: Water spray test

试验方法：

experiment method:

a. 摆管式淋水试验

a. Swing tube type water spray test

试验设备：摆管式淋水溅水试验装置

Test equipment: Swing tube type water spray test device

试样放置：选择适当半径的摆管，使样品台面高度处于摆管直径位置上，将试样放在样台上，使其顶部到样品喷水口的距离不大于 200mm，样品台不旋转。

Sample placement: Select a swing tube with an appropriate radius so that the height of the sample table is at the diameter of the swing tube. Place the sample on the sample table so that the distance from the top of the sample tube to the sample nozzle is not greater than 200mm.

试验条件：水流量按摆管的喷水孔数计算，每孔为 0.07 L/min，淋水时，摆管中点两边各 60° 弧段内的喷水孔的喷水喷向样品。被试样品放在摆管半圆中心。摆管沿垂线两边各摆动 60°，共 120°。每次摆动(2 × 120°) 约 4

Test conditions: The water flow rate is calculated according to the number of water spray holes in the swing tube, each hole is 0.07 L / min. When the water is sprayed, the water spray from the water spray holes in the 60° arc segment on both sides of the swing tube is sprayed toward the sample. The test sample is placed in the center of the semicircle of the swing tube. The swing tube swings 60° on both sides of the vertical line for a total of 120°. Each swing (2 × 120°) about 4

试验时间：连续淋水 10 min

Test time: continuous water spray for 10 min

b. 喷头式淋水试验

b. Sprinkler spray test

试验设备：手持式淋水溅水试验装置

Test equipment: Hand-held water spray test device

试样放置：使试验顶部到手持喷头喷水口的平行距离在 300mm 至 500mm 之间

Sample placement: make the parallel distance from the top of the test to the nozzle of the hand-held nozzle between 300mm and 500mm

试验条件：试验时应安装带平衡重物的挡板，水流量为 10 L/min

Test conditions: A baffle with a counterweight should be installed during the test, and the water flow rate is 10 L / min

试验时间：按被检样品外壳表面积计算，每平方米为 1 min (不包括安装面积)，不少 5 min

Test time: Calculated according to the surface area of the shell of the tested sample, 1 min per square meter (excluding installation area), minimum 5 min

(4) IPx4

方法名称：溅水试验

Method name: Water splash test

试验方法：experiment method:

a. 摆管式溅水试验

a. Swing tube splash test

试验设备和试样放置：与上述 IPX 3 之 a 款均相同；

Test equipment and sample placement: same as a) of IPX 3 above;

试验条件: 除后述条件外，与上述 IPX 3 之 a 款均相同；喷水面积为摆管中点两边各 90° 弧段内喷水孔的喷水喷向样品。被试样品放在摆管半圆中心。摆管沿垂线两边各摆动 180°，共约 360°。每次摆动 (2 × 360°) 约 12s

Test conditions: Except for the conditions mentioned below, it is the same as the above-mentioned one of IPX 3. The water spray area is the water spray from the water spray holes in the 90° arc segments on both sides of the midpoint of the swing tube toward the sample. The test sample is placed in the center of the semicircle of the swing tube. The swing tube swings 180° on each side of the vertical line for a total of about 360°. Each swing (2 × 360°) about 12s

试验时间：与上述 IPX 3 之 a 款均相同 (即 10 min)。

Test time: Same as paragraph a of IPX 3 above (ie 10 min).

b. 喷头式溅水试验

b. Sprinkler splash test

试验设备和试样放置：与上述 IPX 3 之 b 款均相同；

Test equipment and sample placement: same as b) of IPX 3 above;

试验条件：拆去设备上安装带平衡重物的挡板，其余与上述 IPX 3 之 b 款均相同；

Test conditions: Remove the baffle with balance weight installed on the device, the rest are the same as the above paragraph b of IPX 3;

试验时间：与上述 IPX 3 之 b 款均相同，即按被检样品外壳表面积计算，每平方米为 1 min (不包括安装面积) 不少 5min

Test time: same as the above paragraph b of IPX 3, that is, calculated based on the surface area of the shell of the tested sample, 1 min per square meter (excluding installation area), at least 5 min

(5) IPx5

方法名称：喷水试验

Method name: water spray test

试验设备：喷嘴的喷水口内径为 6.3mm

Test equipment: the inner diameter of the water outlet of the nozzle is 6.3mm

试验条件：使试验样品至喷水口相距为 2.5m ~ 3m ，水流量为 12.5 L/min (750 L/h)

Test conditions: make the distance between the test sample and the water spray port 2.5m ~ 3m, and the water flow rate is 12.5 L / min (750 L / h)

试验时间：按被检样品外壳表面积计算，每平方米为 1 min (不包括安装面积) 不少 3 min

Test time: Calculated based on the surface area of the tested sample shell, 1 min per square meter (excluding installation area), at least 3 min

(6) IPx 6

方法名称：强烈喷水试验；

Method name: Strong water spray test;

试验设备：喷嘴的喷水口内径为 12.5 mm

Test equipment: the inside diameter of the water outlet of the nozzle is 12.5 mm

试验条件：使试验样品至喷水口相距为 2.5m ~ 3m ，水流量为 100 L/min (6000 L/h)

Test conditions: make the distance between the test sample and the water spray port 2.5m ~ 3m, and the water flow rate is 100 L / min (6000 L / h)

试验时间：按被检样品外壳表面积计算，每平方米为 1 min (不包括安装面积) 不少 3 min

Test time: Calculated according to the surface area of the shell of the tested sample, 1 min per square meter (excluding installation area), at least 3 min

(7) IPx 7

方法名称：短时浸水试验

Method name: short-term immersion test

试验设备和试验条件：浸水箱。其尺寸应使试样放进浸水箱后，样品底部到水面的距离至少为 1m 。试样顶部到水面距离至少为 0.15m

Test equipment and test conditions: immersion tank. The size should be such that the distance from the bottom of the sample to the water surface is at least 1m after the sample is placed in the immersion tank. The distance from the top of the sample to the water surface is at least 0.15m

试验时间: 30 min

Test time: 30 min

(8) IPx 8

方法名称: 持续潜水试验 ;

Method name: continuous diving test;

1: Water droplets drip into the shell without effect

2: 当外壳倾斜到 15 度时 , 水滴滴入到外壳无影响

2: When the shell is tilted to 15 degrees, water droplets drip into the shell without effect

3: 水或雨水从 60 度角落到外壳上无影响

3: No impact from water or rain from the 60 degree corner to the housing

4: 液体由任何方向泼到外壳没有伤害影响

4: The liquid is splashed into the shell from any direction without harm.

5: 用水冲洗无任何伤害

5: Rinse with water without any harm

6: 可用于船舱内的环境

6: Can be used in the cabin environment

7: 可于短时间内耐浸水(1m)

7: Resistant to water immersion in a short time (1m)

8: 于一定压力下长时间浸水

8: Long time immersion in water under a certain pressure

例: 有秤或显示仪表标示为IP65 , 表示产品可以 完全防止粉尘进入及可用水冲洗无任何伤害。

Example: If there is a scale or display instrument marked as IP65, it means that the product can completely prevent dust from entering and can be washed with water without any harm.

IPXX等级中关于防水实验的规定。

The provisions of IPXX grade on waterproof test.