



Understanding “Relevant Product Standard” for IP Testing

IEC-60529 requires that the “relevant product standard” is followed and used as the basis for all IP testing. Annex B list up to 24 items which may be included in the “relevant product standard” as shown below.

The following list is given as a guide for the detailed information to be specified in product standards:

- 1) extent and manner to which the IP Code shall be used (see clause 4);
- 2) definition of “enclosure” as it applies to the particular type of equipment (see clause 2);
- 3) the protection of both the enclosure and the equipment inside the enclosure against external influences or conditions (see clause 2);
- 4) degree of protection applied to hazardous moving parts (such as fans) external to the enclosure (see clause 2);
- 5) the range of application if enclosures are exposed to temporary or continuous immersion (see clause 6);
- 6) the application of “additional letters” for protection against access to hazardous parts provided by internal barriers or distances, if necessary (see clause 7);
- 7) supplementary information to be given by “supplementary letters”, if any (see clause 8);
- 8) the Secretariat of TC 70 shall be consulted before any new supplementary letter is introduced and the additional test procedure shall be stated (see clause 8);
- 9) details for the marking (see clause 10);
- 10) atmospheric conditions for testing if different from 11.1;
- 11) state and condition of test samples if different from the “general requirements for tests” (see 11.2);
- 12) details of test conditions (see 11.2) such as:
 - number of samples
 - mounting, assembling, positioning
 - pre-conditioning
 - whether energized or not
 - whether parts in motion or not;
- 13) application of the general requirements for tests and the acceptance conditions on, drain-holes and ventilation openings (see 11.3);
- 14) guidance for the interpretation of test results and for the acceptance conditions (see 11.3);
- 15) the working voltage, if applicable (see 12.3.1 and 12.3.2);
- 16) the category of the enclosure, indicating whether a pressure difference due to thermal cycling effects is present or not (see 13.4);
- 17) the location of the suction hole for the dust test if not in the vicinity of vulnerable parts (see 13.4);
- 18) the quantity and location of dust deposits permitted without affecting the safe operation (see 13.5.2);
- 19) the test device for IPX3 and IPX4 tests (oscillating tube or spray nozzle) (see 14.2.3 and 14.2.4);
- 20) the type of support for the enclosure (if not perforated) during IPX4 test (see 14.2.4);
- 21) the water temperature if the equipment is energized or running during the immersion test (see 14.2.7 d);
- 22) conditions for the continuous immersion test (see 14.2.8);
- 23) the acceptance conditions following the water tests, in particular the amount of water which may be allowed to enter and the details of any dielectric strength test (see 14.3);
- 24) the acceptance conditions if water can accumulate to reach live parts (see 14.3).

It is imperative that the “relevant product standard” is located and reviewed for IP or Environmental conditions. If your product was designed in accordance to an IEC product standard, then it’s simply a matter of reviewing the standard for references to IP or Environmental conditions. If your product was designed to UL standards, then the equivalent or similar IEC or BS/EN standard shall be identified. Sometimes the product standard may only state to perform all testing in accordance to IEC-60529. If a “relevant product standard” cannot be located or does not reference IP conditions, the technical committee (CertifiGroup) will investigate the product to determine if it has properties which may need to be taken into consideration before proceeding with tests in IEC-60529. Some examples may include energizing the product during testing because the product will have different Ingress Protection properties during static and dynamic condition (i.e. Shaft Seal).

IEC-60529 was designed for use with enclosures, however not all products have properties which are characteristic of an enclosure. In most all cases the “relevant product standard” will use the same test equipment as called out IEC-60529. While the differences are usually limited to alternate pre-conditioning and acceptance criteria. While your product may have passed IEC-60529 testing, unless the “relevant product standard” was followed your product may not be IP compliant.