

- 10.11 Short-circuit withstand strength;
- 10.12 Electromagnetic compatibility.

The reference designs, the number of assemblies or parts thereof used for verification, the selection of the verification method when applicable, and the order in which the verification is carried out shall be at the discretion of the original manufacturer.

The data used, calculations made, and comparisons undertaken for the verification of assemblies shall be recorded in verification reports.

## **10.2 Strength of materials and parts**

### **10.2.1 General**

The mechanical, electrical and thermal capability of constructional materials and parts of the assembly shall be deemed to be proven by verification of construction and performance characteristics.

Where an empty enclosure in accordance with IEC 62208:2011 is used, and it has not been modified so as to degrade the performance of the enclosure, no repetition of the enclosure testing to 10.2 is required.

### **10.2.2 Resistance to corrosion**

#### **10.2.2.1 Verification by test**

The resistance to corrosion of representative samples of ferrous metallic enclosures, including internal and external ferrous metallic constructional parts of the assembly, shall be verified.

The test shall be carried out on:

- an enclosure or representative sample enclosure with representative internal parts in place and door(s) closed as in normal use, or
- representative enclosure parts and internal parts separately.

In all cases, hinges, locks and fastenings shall also be tested unless they have previously been subjected to an equivalent test and their resistance to corrosion has not been compromised by their application.

Where the enclosure is subjected to the test, it shall be mounted as in normal use according to the original manufacturer's instructions.

The test specimens shall be new and in a clean condition and shall be subjected to severity test A or B, as detailed in 10.2.2.2 and 10.2.2.3.

NOTE The salt mist test provides an atmosphere that accelerates corrosion and does not imply that the assembly is suitable for a salt-laden atmosphere.

#### **10.2.2.2 Severity test A**

This test is applicable to:

- ferrous metallic indoor enclosures;
- external ferrous metallic parts of indoor assemblies;
- internal ferrous metallic parts of indoor and outdoor assemblies upon which intended mechanical operation may depend.

The test consists of:

six cycles of 24 h each to damp heat cycling test according to IEC 60068-2-30:2005 (Test Db) at  $(40 \pm 2)$  °C. Variant 1 or 2 to be selected as recommended by Annex A of IEC 60068-2-30:2005,

followed by,

two cycles of 24 h each to salt mist test according to IEC 60068-2-11:1981 (Test Ka: Salt mist) at a temperature of  $(35 \pm 2)$  °C.

### 10.2.2.3 Severity test B

This test is applicable to:

- ferrous metallic outdoor enclosures;
- external ferrous metallic parts of outdoor assemblies.

The test comprises two identical 12-day periods.

Each 12-day period comprises:

five cycles of 24 h each to damp heat cycling test according to IEC 60068-2-30:2005 (Test Db) at  $(40 \pm 2)$  °C. Variant 1 or 2 to be selected as recommended by Annex A of IEC 60068-2-30:2005,

followed by:

seven cycles of 24 h each to salt mist test according to IEC 60068-2-11:1981 (Test Ka: Salt mist) at a temperature of  $(35 \pm 2)$  °C.

### 10.2.2.4 Results to be obtained

After the test, the enclosure or samples shall be washed in running tap water for 5 min, rinsed in distilled or demineralized water, then shaken or subjected to an air blast to remove water droplets. The specimen under test shall then be stored under normal service conditions for 2 h.

Compliance is checked by visual inspection to determine that:

- there is no evidence of cracking or other deterioration other than iron oxide as allowed by ISO 4628-3:2016 for a degree of rusting Ri1 (considering the sample as a whole). However, surface deterioration of the protective coating is allowed. In case of doubt associated with paints and varnishes, reference shall be made to ISO 4628-3:2016 to verify that the samples conform to the specimen Ri1;
- the mechanical integrity is not impaired;
- seals are not damaged;
- doors, hinges, locks, and fastenings work without abnormal effort.

### 10.2.2.5 Verification by comparison to reference design

Similar enclosures, enclosure parts and internal ferrous metallic parts, irrespective of their shape and size, are covered by the corrosion test on the representative samples if they are manufactured from the same materials and with the same surface treatments, using the same manufacturing process.