



**LOVAG**

**Test Instruction IEC 62208 and EN 62208**  
**Conditions for Testing Empty Enclosures**  
**For Low-Voltage Switchgear and Controlgear Assemblies**  
**General requirements**

This Test Instruction is based on the following standard:

Standard: IEC 62208 Ed. 2.0 : 2011  
EN 62208 : 2011

It complies with this standard in all respects and provides additional information ensuring a suitable degree of repeatability of the tests between the different test laboratories.

Valid from: 2012-10-09

Signature:

A handwritten signature in blue ink, appearing to read 'S. Manganaro'.

Dr. S.Manganaro  
Chairman of LOVAG technical Committee

## PREAMBLE

For convenience in the use of this test instruction, the paragraphs are numbered according to the clauses in the IEC document.

Tests must be carried out according to the standard; the test instruction only adds a few specific details.

### 1. Scope

Refer to standard.

### 2. Normative references

Refer to standard.

### 3. Terms and definitions

Refer to standard.

### 4. Classification

Refer to standard.

### 5. EMC requirements

Refer to standard.

### 6. Information to be given regarding the enclosure

Refer to standard.

#### 6.1 Marking

Refer to standard.

#### 6.2 Documentation

Check if all required information is available concerning:

- Thermal power dissipation (see 9.14)
- Dimensions (see 6.3.2)
- Mounting arrangements (see 6.3.3), including method of fixing (see 4 b) of the enclosure of the equipment mounting surfaces
- Permissible loads (see 6.3.3)
- Lifting and transport support (see 6.3.5)
- Protective circuit (see 6.3.6)
- Rated insulation voltage (see 8.6 and 4 e), only for enclosures made of insulating material.

- Protected space (see 3.2)
- IK-code (see 8.7)
- IP-code (see 8.8)
- Type of material (see 4 a)
- Intended location (see 4 c and 7.2.1)
- Service conditions (see 7, including 7.2; if applicable also 7.3 and 7.4)
- Reference to this standard

## 7. Service conditions

Refer to standard.

## 8. Design and construction

Refer to standard.

## 9. Type tests

### 9.1 General conditions of tests

Empty Enclosures can be considered of the same fundamental design, if the following conditions are met:

- they have the same basic design;
- type of material is identical (§ 4.a);
- same thickness of material;
- method of fixing is identical (§ 4.b);
- the intended location is identical (§ 4.c);
- the degree of protection is identical (§ 4 d) IP & IK;
- the rated insulation voltage is identical (§ 4 e);
- service conditions are identical (§ 7).

The following variations are permitted:

- Dimensions

Taking into account height, width and depth of the enclosure, the test-program should at least comprise the following enclosures:

- the smallest enclosure;
- the largest enclosure ;
- if different from the two types here above, the enclosure with the largest distance between two closing points (hinges, cover screws, lock) on one side of the door or cover.

According to Table 1 the tests have to be performed as follow:

	Enclosure to be tested	Sample 1	Sample 2	Sample 3
Type 1	Smallest size	X	X (**)	N/A (***)
Type 2	Largest size	X	X (**)	X
Type 3	Largest distance between two closing points	X (*)	N/A	N/A

- (\*) New Type requested, if different from Type 1 and Type 2
- (\*\*) § 9.8.2 and § 9.8.3 can be performed only on one size
- (\*\*\*) In case it is not provided by calculation, the thermal power dissipation data shall be determined by testing each enclosure with different dimensions.

*Rationale regarding the selection of tested size:*

- For sample 1: due to IK verification
- For sample 2: due to thermal stability verification
- For sample 3: due to protective circuit verification (for a same construction, selection of the longest expected protective circuit as  $0.1\Omega$  is a maximum value not to be exceeded); anyway, the smallest size is also checked with sequence on sample 1

Subclause	Test	Sample 1	Sample 2	Sample 3	Representative sample (see 9.11)
9.4	Static loads	1	N/A	N/A	N/A
9.5	Lifting	2	N/A	N/A	N/A
9.6	Axial inserts loads of metal	3	N/A	N/A	N/A
9.7	Degree of protection against external mechanical impacts (IK code)	4	N/A	N/A	N/A
9.8	Degree of protection (IP code)	5	N/A	N/A	N/A
9.9.1	Thermal stability	N/A	1	N/A	N/A
9.9.2	Resistance to heat	N/A	2	N/A	N/A
9.9.3	Resistance to abnormal heat and fire	N/A	3	N/A	N/A
9.10	Dielectric strength	6	N/A	N/A	N/A
9.11	Continuity of the protective circuit	7	N/A	2	N/A
9.12	Resistance to ultra-violet (UV) radiation	N/A	N/A	N/A	a)
9.13	Resistance to corrosion	N/A	N/A	1	N/A
9.13	Marking	8	N/A	N/A	N/A
9.14	Thermal power dissipation capability	N/A	N/A	b)	
a) Tests carried out on representative sample only. All tests shall be carried out on complete enclosures. If this is not possible, they can be carried out on representative samples taken from the enclosure. b) Only applicable if verified by test.					

**Table 1 – Number of samples to be tested and order of test per sample**

**9.3 Marking**

Refer to standard.

**9.4 Static loads**

Refer to standard.

**9.5 Lifting**

Refer to standard.

**9.6 Axial loads of metal inserts**

Refer to standard.

**9.7 Degree of protection against external mechanical impacts (IK Code)**

The impacts shall be applied evenly distributed to the faces of the enclosure : i.e. at least one impact should be given in a corner of the face, and one in the centre of the face.

**9.8 Degree of protection (IP Code)**

Refer to standard and to LOVAG Test Instruction IEC/EN 60529

**9.9 Properties of insulating materials****9.9.1 Thermal stability**

Refer to standard.

**9.9.2 Resistance to heat**

Refer to standard.

**9.9.3 Resistance to abnormal heat and to fire**

In the case of multilayered insulating materials, the tip of the glowing wire apparatus is applied to the side of the multilayer turned to the inside of the enclosure.

**9.10 Dielectric strength**

Refer to standard.

**9.11 Continuity of the protective circuit**

Refer to standard.

**9.12 Resistance to ultra-violet (UV) radiation**

Refer to standard.

**9.13 Resistance to corrosion**

If samples or parts are taken from the enclosure, metal parts that have contact with other metals shall be tested in the same combination as they would have in the enclosure itself.

**9.14 Thermal power dissipation capability**

In case it is not provided by calculation, the thermal power dissipation data shall be determined by testing each enclosure with different dimensions.