



PERMANENT DOCUMENT

**ENEC 303
Annex BD**

**Annex BD
to Routine Test Requirements for manufacturers
(as per Article 9 of the Agreement)
Thermal-links - Requirements and application guide
EN 60691**

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Annex BD to PD ENEC 303

Thermal-links - Requirements and application guide EN 60691

ROUTINE TESTS (100%)

1 Dielectric strength

- 1.1 The dielectric strength of THERMAL-LINKS shall be checked (if applicable) between:
- Current-carrying parts and enclosure (wrapped in metal foil), or
 - Current-carrying parts and insulated exposed metal parts.
- 1.2 Compliance is checked by applying the appropriate test voltage between the relevant circuits specified in Table 1.

Table 1
Test voltages for dielectric strength

Between	Test voltage
Current-carrying parts and enclosure (wrapped in metal foil, if applicable)	$2 V_r + 1000 \text{ V}$
or	
Current-carrying parts and insulated exposed metal parts	$2 V_r + 1000 \text{ V}$

- 1.3 A power transformer with an output of not less than 100 VA is required for this test.
- 1.4 The insulation is subjected to a test voltage with a substantially sine-wave form having a frequency between 45 Hz and 62 Hz.
- 1.5 Initially not more than half the prescribed voltage is applied. It is then raised with a rate of rise of approximately 500 V/s to the full value.
- 1.6 The polymeric enclosure (if provided) shall be wrapped in metal foil and the test voltage shall be applied for 1 min between the current-carrying parts and the metal foil.
- 1.7 The specimens are deemed to comply with the requirements if no flashover or breakdown occurs.

2.0 Insulation resistance

- 2.1 The insulation resistance of THERMAL-LINKS shall be adequate (If applicable) between:
- Current-carrying parts and enclosure (wrapped in metal foil), or
 - Current-carrying parts and insulated exposed metal parts.
- 2.2 Compliance is checked by measuring the insulation resistance of the THERMAL-LINK between the current-carrying parts and the enclosure (wrapped in metal foil, if applicable) or between the current-carrying parts and insulated exposed metal parts, and between the terminals. The insulation resistance shall be measured with a d.c. voltage of $2 V_r$.

NOTE - A d.c. test voltage is used in order to eliminate possible deviations due to capacitive currents.

- 2.3 The specimens are deemed to comply with the requirements if the insulation resistance measured between the current-carrying parts and the enclosure (wrapped in metal foil, if applicable) or between the current-carrying parts and insulated exposed metal parts is not less than 2 MΩ.

PERIODIC TESTS

The manufacturer shall conduct regular inspections for production control and tests for validating performance as per 13.2 and 13.3 of the standard EN 60691:2016.

1. The manufacturer shall test three samples each, for all temperature ratings for thermal-links, once every two years for
 - 10.3 (Interrupting current),
 - 11.3 (Rated functioning temperature) and
 - 11.4 (Maximum temperature limit)

followed by the tests of 10.1 (Dielectric strength) and 10.2 (Insulation resistance).

The pre-conditioning tests described in 9.2 (Lead secureness tests) may be omitted.

2. The tests of 10.3 shall be conducted on
 - a) the highest rated voltage,
 - b) the highest rated current,
 - c) both a) and b) with a.c. and/or d.c. in the case of a resistive or motor load, or with a.c. in the case of inductive, pilot duty or electric discharge lamp load; and
 - d) the current and circuit condition declared by the manufacturer in the case of a special load.

Non-compliance in any of the tests shall be subject to a review and repetition as per Clause 5.

(Note: clause references are from the standard EN 60691:2016)