

References

VDE 0620-1

VDE Specification for plugs and socket outlets
for household and similar purposes
Part 1: General requirements

DIN EN 50075 - VDE 0620 Part 101

VDE Specification for plugs and socket outlets up to 400 V, 25 A
Flat non-wirable two-pole plugs, 2,5 A 250 V, with cord, for the
connection of class-II-equipment for household and similar purposes

DIN EN 60320-1 - VDE 0625 Part 1

VDE Specification for the safety of appliance couplers
for household and similar general purposes
Part 1: General requirements

DIN EN 60320-2-1 - VDE 0625 Part 2-1

VDE Specification for appliance couplers
for household and similar general purposes
Part 2: Sewing machine couplers

DIN EN 60320-2-2 - VDE 0625 Part 2-2

VDE Specification for appliance couplers for
household and similar general purposes
Part 2-2: Interconnection couplers for household and similar general purposes

DIN EN 60799 - VDE 0626

VDE Specification for cord sets and interconnection cord sets

ENEC-303 - Requirements for manufacturers
Annex W und Annex X

1. General

Any plug, coupler and socket outlet has to be subjected to the following tests, as far as applicable:

Type of plug and socket outlet	Test to be performed according to clause
two-pole socket outlets	3.1.1, 3.2.2; 4
socket outlets with more than two poles	3.1.1, 3.1.2, 3.2.1, 3.2.2; 4

The indicated tests are minimum requirements. The manufacturer shall perform additional tests or checks if he considers it necessary for a special product.

The indicated tests and surveillance measures have to be specified by the manufacturer in a testing or working instruction.

The performance of the tests has to be confirmed in writing; the records shall contain the main conditions. The test records have to contain the following information:

- Product type
- Date of test
- Place of manufacture (if manufactured at several places)
- Tested quantity
- Number of rejected products and measures, i. e. destroyed/repaired.

Prior to the use of the test equipment it has to be checked as to correct functioning. It has to be calibrated at least once a year.

2. Evaluation of base material and components

The manufacturer shall introduce a suitable programme to guarantee that only materials and components are used corresponding with the certified version. In any case this programme has to take into consideration the safety-relevant components, e. g. the plug insert and cord. The validity of VDE Certificates available for components has to be checked periodically.

3. Production line test (required on finished products at 100%)

The following tests have to be performed by the manufacturer on all manufactured products which are relevant for a VDE certification. It is not allowed to place on the market products not having passed the tests. They have to be clearly segregated from faultless products.

The test equipment has to be checked prior to and after each use as well as in case of continuous use every 24 h. The checks have to show that the test equipment indicates errors when detected defect products are checked or reproduced errors have been used.

Products having been produced prior to the check of the test equipment are allowed to be placed on the market only if the check has been satisfactory.

3.1 Continuity test

3.1.1 Polarized systems; Phase (L) und Neutral Conductor (N) – correct connection

In polarized systems the test has to be performed by applying the Safety Extra Low Voltage (SELV) for not less than 2 s:

Note: For test equipment with an automatic time programme the time may be reduced from 2 s to not less than 1 s.

- for plugs, couplers, plugs and socket outlets between the external terminal of L and N of the flexible cable and cord and the corresponding L and N pin or contact of the plug and socket outlet.
- for extension cord sets, cord sets and interconnection cord sets between L and N pin on one terminal and the corresponding L and N contact on the other terminal of the flexible cable and cord.

The polarity has to be correct.

Other suitable test can be used.

3.1.2 Protective earth conductor (E) connection

The test has to be performed at safety extra low voltage (SELV) which is applied for not less than 2 s.

Note: For test equipment with an automatic time programme the time may be reduced from 2 s to not less than 1 s.

- for plugs, couplers and plugs and socket outlets between the external terminal of the protective earth conductor of the flexible cable and cord and the earth conductor pin or contact of the plug and socket outlet.
- for extension cord sets, cord sets and interconnection cord sets between the corresponding protective earth conductor or contact on each terminal of the extension cord.

It must be possible to measure the continuity.

Other suitable test can be used.

3.2 Dielectric strength test

3.2.1 Short circuit/wrong connection, connection and reduction of the creepage distances and clearances Phase (L) or Neutral Conductor (N) connected to the protective earth conductor (E)

The test is performed between L and N conductors and the protective earth conductor.

An a. c. voltage of 50 or 60 Hz is applied for 2 s on the supply terminal, i. e. on the plug.

Note: For test equipment with an automatic time programme the time may be reduced from 2 s to not less than 1 s.

- 2000 V \pm 10% or

- through an impulse voltage test having a waveform 1,2/50 μ s, peak value 4 kV; three impulses with intervals not below 1 s are applied on each pole:
 - between L and protective earth conductor
 - between N and protective earth conductor

Note: L and N may be connected for this test.

A flashover shall not occur.

3.2.2 Contour check

It shall be checked that live parts, e. g. loose strands, are not accessible.

If this danger cannot be prevented by the construction itself and suitable manufacturing processes, the following test or a similar one (e. g. impulse voltage test) shall be performed:

The endangered parts of plug and socket outlet surfaces, except the engagement face of plugs, are scanned by adjusted electrodes and a pressure force of 20 N, applying to live parts of the plugs and socket outlets a voltage of AC 2000 V (r. m. s. value) for at least 1 s.

Neither a flash-over nor a breakdown shall occur.

4. Periodic tests

The manufacturer has to guarantee by suitable periodic tests that the manufactured products comply with the certified version. The periodic tests have to be performed by the manufacturer on each day of production for each production lot at least on one sample per produced type.

	Plugs and portable socket outlets	Euro plug	Socket outlets Appliance couplers
	DIN VDE 0620-1 (VDE 0620-1) Clauses	DIN VDE 0620-101 (VDE 0620-101) Clauses	Corresponding parts of standard DIN EN 60320 (VDE 0625) Clauses
4.1 Visual check and markings	8	6	8
4.2 Pull forces	22	-	16
4.3 Twist test on plug pins *)	24.2	13.2	-
4.4 Dimensions	9	7	9

*) **Remark:** The tumbling barrel test need not be performed.

For the performance of the periodic tests the relevant standards should be available at the factory.

The procedure as described shall preferably be used. In justified cases the manufacturer is allowed to use a different procedure, if equivalent results are achieved by this procedure.

The above-mentioned tests have to be specified by the manufacturer in a testing or working instruction. The performance of the tests has to be confirmed in writing.