



TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

IEC 60884-1:2002-06, Edition 3.0

Plugs and socket-outlets for household and similar purposes - Part 1: General requirements

R=Required by Lab

S=May be subcontracted

3PPS=Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
8.8	Test of markings	Water, petroleum spirit	R
9	Checking of dimensions	Caliper, micrometer, gauges	R
10	Protection against electrical shock	Jointed test finger, unjointed testfinger, electrical indicator, Figures 9 and 10: Gauges for checking non-accessibility of live parts, through shutters, and of live parts of socket-outlets with increased protection, Test plug	R
11.5	Measuring of contact resistance	AC source, measuring instruments	R
12.2	Tests on screw terminals	Screw driver and spanner with torque meter, weights, Figure 11: Arrangement for checking damage to conductors	R
12.3	Tests on screwless terminals Weights	Figure 11: Arrangement for checking damage to conductors, AC source, measuring instruments, Figure 12: Deflection test apparatus	R
13.14	Lateral strain of socket-outlets	Figure 13: Device for checking the resistance to lateral strain	R



Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
13.23 13.24	Test on membranes	Heating cabinet, Freezer	R
14.2	Test of non-solid pins	Figure 14: Device for testing of non-solid pins	R
14.23.1	Temperature rise test on plugs of plug-in equipments	AC source, measuring instruments, temperature measuring device	R
14.23.2	Torque test on plugs of plug-in-equipment	Apparatus for the torque test	R
16.1	Ageing test	Heating cabinet, humidity chamber	R
16.2	Ingress of water	Test devices according to IEC 60529 Figure 15: Test wall in accordance with the requirements of 16.2.1	R
16.3	Humidity treatment	Humidity chamber	R
17.1	Insulation resistance	Insulation test equipment	R
17.2	Electric strength	High voltage test equipment	R
19	Temperature rise	AC source, measuring instruments, temperature measuring device, test block for flush-mounted accessories	R
20 21	Breaking capacity Normal operation	Figure 16: Apparatus for breaking capacity and normal operation, AC source, adjustable load (resistors and inductors), measuring instruments, Figure 9: Gauge for checking non-accessibility of live parts, through shutters, after normal operation test, Figure 10: Gauge for checking non-accessibility of live parts, through shutters, and of live parts of socket-outlets with increased protection	R 3PPS
22.1	Verification of the maximum withdrawal force	Figure 18: Apparatus for checking the withdrawal force, test-plug	R
22.2	Verification of the minimum withdrawal force	Figure 19: Gauge for the verification of the minimum withdrawal force	R
23.2	Test of the cord retention	Figure 20: Apparatus for testing the cord retention, Apparatus for the torque test	R
23.4	Flexing test	Figure 21: Apparatus for flexing test	R
24.1	Impact test	Figures 22, 23, 24, 25 and 26: Impact-test apparatus	R
24.2	Tumbling barrel test	Tumbling barrel according to IEC 60068-2-32	R



Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
24.3	Test on ordinary surface-type socket-outlets	Cylinder of rigid steel sheet, flat steel sheet	R
24.4	Impact test at low temperature	Figure 27: Apparatus for impact test at low temperature	R
10.1 24.5	Impact test at low temperature	Figure 28: Arrangement for compression test	R
24.6	Test on screwed glands	Metal rods, test-spanner with torque meter	R
24.7	Abrasion test	Figure 28: Apparatus for abrasion test on insulating sleeves of plug pins	R
24.8	Test on shutters	Test-pin, electrical indicator	R
24.9	Test on multiple portable socket-outlets	Figure 29: Arrangement for mechanical strength test on multiple portable socket-outlets	R
24.10	Test of the fixing of the pins	Figure 30: Example for test arrangement to verify the fixation of pins in the body of the plug	R
24.11 24.12 24.13	Test on portable socket-outlets with suspension means	Cylindrical steel rod	R
24.14 up to 24.18	Removal of covers or cover-plates Weights	Figure 31: Arrangement for test on covers or cover-plates, Figure 32: Gauge for the verification of the outline of covers or coverplates, Figure 35: Gauge for verification of grooves, holes and reverse tapers	R
25	Resistance to heat	Heating cabinet, Figure 37: Ball pressure test apparatus Figure 38: Apparatus for compression test for the verification of resistance to heat	R
26	Screws, current carrying parts and connections	Screw-driver and spanner with torque meter	R
27	Creepage distances, clearances	Caliper, tolerances gauges	R



Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
28.1.1	Glow-wire test	Test apparatus according to IEC 60695-2-10	R
28.1.2	Test of the resistance to heat of pins with insulating sleeves	Figure 40: Apparatus for testing resistance to abnormal heat of insulating sleeves of plug pins	R
28.2	Resistance to tracking	Test apparatus according to IEC 60112	R
29	Resistance to rusting	Chemicals, humidity cabinet, heating cabinet	R
30.1	Pressure test at high temperature	Figure 41: Apparatus for pressure test at high temperature, Heating cabinet	R
30.2	Static damp heat test	Climatic chamber according to IEC 60068-2-30	R
30.3	Test at low temperature	Freezer	R
30.4	Impact test at low temperature	Figure 42: Impact test apparatus on pins provided with insulating sleeves	R

Note: The presence of equipment alone does not indicate a satisfactory situation. Assessors must evaluate the equipment design, calibration, uncertainty and documentation to ensure compliance with the directions of the standard. The requirements of ISO Guide 25 regarding validation are applicable, as the tests of this standard are not standardized tests.