



TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING
IEC 60309-1:1999-02 + A1:2005-10 + A2:2012-06, Edition 4.0
Plugs, socket-outlets and couplers for industrial purposes –
Part 1: General requirements

R = Required to be at Lab

S = May be subcontracted

W = May be witnessed at MTL

SF = Specialized Facility

3PPS = Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
7.6	Check of markings	Water, petroleum spirit, piece of cloth	
9.1	Protection against electric shock	Figure 2: Standard test finger	SMT-PB
10.2	Measurement of contact resistance	AC source, measuring instruments	LSP-500VAS
11.2.1	Test of insertability of conductors	Figure 13: Gauges	
11.3.1	Test of insertability of conductors	Figure 13: Gauges	
11.3.8	Bending test	Figure 19: Test device incl. current source and measuring instruments	
11.5.1	Mechanical test	Figure 15: Test device incl. weights and torque meter	
11.5.2	Pull test	Weights and torque meter	
11.6	Voltage drop test	Heating cabinet, current source, measuring instruments	GDJS-015B
11.7.1	Temperature-cycling test	Heating cabinet, current source, measuring instruments	
11.7.2	Short-time withstand current test	Current source, measuring instruments	
12.1	Interlocks	Equipment as required by IEC 60309-4 depending on the type of interlock, if any	
13	Resistance to ageing	Heating cabinet	GDJS-015B
18.2	Test of degrees of protection	Torque meter	

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
		Test apparatus acc. IEC 60529: Jointed test finger Rigid sphere 50 mm diameter Rigid sphere 12,5 mm diameter Rigid steel rod 2,5 mm diameter Rigid steel rod 1,0 mm diameter	SMT-PB SMT-0211 SMT-IP20C SMT-IP30T SMT-IP40T
		Dust chamber	SC-015
		Drip box Drip box -15° Oscillating tube/spray ± 60° or spray nozzle/spray ± 60° Oscillating tube/spray ± 180°	
		Water jet hose nozzle – nozzle 6,3 mm diameter Water jet hose nozzle – nozzle 12,5 mm diameter Immersion tank	JL-X
18.5	Humiditytreatment	Humiditychamber	GDJS-015B
19.2	Insulationresistancetest	Insulationtestequipment	WB2681A
19.3	Electricstrenghttest	High voltagetestequipment	
20	Breakingcapacitytest	Appropriate test apparatus, power source, adjustable load (resistors and inductors), measuring instruments	
21	Normal operationtest	Appropriate test apparatus, power source, adjustable load (resistors and inductors), measuring instruments	
22	Temperaturerisetest	AC source, measuring instruments, temperature measuring device	
23.3	Cord anchorage test	Torquemeter, test apparatus according to Fig. 6 incl. weights Apparatusfortorquetest	BCL-LJ2
24.1	Coldtreatment	Refrigerator	
24.2	Impact test	Figure 7: impacttestapparatus	ZBP-T
24.3	Mechanicalstrenghttest	Arrangement accordingto Fig. 8	
24.4	Flexingtest	Apparatusaccordingto Fig. 9	JCY-2
24.5	Torque test at screwed glands	Appropriate test arrangement incl. metal rods	BCL-LJ2
25.1	Torquetest at screws	Torquemeter	
26.1	Creepagedistances, clearances	Caliper, appropriategauges	CK-1
27.2	Heattreatment	Heating cabinet	GDJS-015B
27.3	Ball-pressure test	Heating cabinet, test apparatus according to IEC 60695-10-2, caliper	



IEC System for Conformity Testing and Certification of Electrotechnical equipment and Components

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
27.4	Glow-wiretest	Test apparatus according to IEC 60695-2-11	ZRS-3H
27.5	Tracking test	Test apparatus according to IEC 60112	TTC-1
28	Corrosiontest	Chemicals, humidity cabinet, heating cabinet	YWX/Q-010
29	Short-circuit current withstand test	Short-circuit testing arrangement according to Fig. 16, 17, 18 incl. appropriate measuring devices	