

TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

IEC 62196-1:2022

Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements

“R”	Required
“S”	May be subcontracted, see OD 2012
“SF”	Specialized Facility, see IECCE 02-2
“W”	Witness testing in the categories “MED” and “MEAS”
“3PPS”	Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
8.8	Check of markings	Water, petroleum spirit, piece of close	R
9	Dimensions	Calipe, Projector	R
10	Protection against electric shock	Figure 2: Standard test finger, Electrical indicator Figure 14: Gauge A, Figure 15: Gauge B	R
12.2	Measurement of earthing contact resistance	AC source, measuring instruments	R
12.3	Short-time current withstanding test of earthing contact	Current source, measuring instruments AC source, measuring instruments	S
13.2	Test of insertability of conductors	Figure 8: Gauges	R
13.3.1	Rotation test	Figure 10: Rotation test equipment	R
13.3.2	Pull test	Weights, time meter, torquemeter	R
14.1.3	Eletrical interlock test	Pull and push instrument, continuity test instrument, oscilloscope	R
14.1.4	Mechanical interlock test	Pull and push instrument, continuity test instrument	R
14.1.5	Interlock withdraw force test	Figure 8: Apparatus for checking the withdrawal force, weights, time meter	R

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
14.1.6	Verification of the latching device	Figure 9: Apparatus for verification of the latching device, weights, time meter, continuity test instrument	R
15	Resistance to ageing	Heating cabinet	R
16.5	Permissible temperature test of touch parts	Heating cabinet, Current source, measuring instruments temperature measuring device	R
16.8	Latch release test	Weights, length meter	R
16.15	Check of withdrawal force	Appropriate test apparatus, weights	R
17.2	Contact tubes	Gauges to measure withdrawn force, test plug	R
20.2	Test of degrees of protection	test equipment up to IP 4x and IPx4 according to IEC 60529 torquemeter, High voltage test equipment	R
		test equipment above IP 4x and IPx4 according to IEC 60529	S
20.3	Humidity treatment	Humidity chamber	R
21.2	Insulation resistance test	Insulation test equipment	R
21.3	Electric strenght test	High voltage test equipment	R
22	Breaking capacity test	Appropriate test apparatus, power source, adjustable load (resistors and inductors), measuring instruments, High voltage test equipment	S 3PPS
23	Normal operation test	Appropriate test apparatus, power source, adjustable load (resistors and inductors), measuring instruments, High voltage test equipment	S 3PPS
24	Temperature rise test	Current source, measuring instruments, temperature measuring device	R 3PPS
25.3	Cord anchorage test	Torquemeter, test apparatus according to Figure. 4 incl. weights Apparatus for torque test	R
26.1	Cold treatment	Refrigerator	R
26.2	Impact test	Figure 5: impact test apparatus	R
26.3	Mechanical strenght test	Arrangement according to Figure. 6	R
26.4	Flexing test	Apparatus according to Figure. 7	R
		Weights, AC source, measuring instruments	
26.5	Torque test at screwed glands	Appropriate test arrangement incl. metal rods	R
26.6	Shutter test	Pull and push instrument, electrical indicator	R
26.8	Change of temperature test	Environment test chamber	R

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
26.9	Pull test	Appropriate test apparatus, weights, time meter	R
27.1	Torque test at screws	Torquemeter	R
28.1	Creepage distances, clearances	Caliper, appropriate gauges	R
29.2	Heat treatment	Heating cabinet	R
29.3	Ball-pressure test	Heating cabinet, apparatus according to Fig. 8, caliper	R
29.5	Glow-wire test	Test apparatus according to IEC 60695-2-10	R
29.6	Tracking test	Test apparatus according to IEC 60112	R
30	Corrosion test	Chemicals, humidity cabinet, heating cabinet	R
31	Short-circuit current withstand test	Short-circuit testing arrangement according to Fig. 15, 16, 17 incl. appropriate measuring devices	S 3PPS
33	Vehicle driveover	Vehicle driveover test apparatus, weights, velometer, Tyre pressure meter	R
34	Thermal cycling	Humidity chamber, Temperature measuring device, Heating cabinet	R
35	Humidity exposure	Humidity chamber, Temperature measuring device,	R
36	Misalignment	Pull and push instrument, continuity test instrument, oscilloscope, Current source, current measuring instruments, temperature measuring device, Humidity chamber	R
37	Contact endurance test	Humidity chamber, Temperature measuring device,	R