

**TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING**  
**IEC 60669-1:2017, Edition 4.0**  
**Switches for household and similar fixed electrical installations –**  
**Part 1: General requirements**

“R”	Required
“S”	May be subcontracted, see OD 2012
“SPTL”	Specialized Facility, see IECEE 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
6	Inspection of the marking	None	-
8	Marking	None	-
8.1 to 8.8	Inspection of the marking	None	-
8.9	Indelibility of markings	Chemicals	R
9	Dimensional measurement	Slide-gauge	R
10	Protection against electric shock		
10.1	Checking of the accessibility	Standard test finger, unjointed test finger, indicator, heating cabinet	R
10.2 to 10.7	See (sub-) clauses 11.4, 16 and 23	See the relevant sub-clauses	R
11	Provision for earthing		
11.1 to 11.3	See Clause 12	See the relevant sub-clause	R
11.4	Measurement of contact resistance	AC source: max. 12 V, min. 25 A, measuring instruments	R
12	Terminals		

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
12.2.1 to 12.2.12	Mechanical tests (torque, pull) on screw terminals	Caliper, weights, screwdriver and spanner with torquemeter, test apparatus of figure 10	R
12.3.5 to 12.3.11	Mechanical tests on screwless terminals Electrical tests; mV-Meter	Weights, test apparatus of figure 10, current source or similar, device to measure millivolts, heating cabinet	R
12.3.12	Conductor deflecting test	Specified test apparatus according principle of figure 11a , current source or equivalent, weights or precision dynamometer, device to measure millivolts	R
13	Constructional requirements		
13.3.2 to 13.3.3	See clause 20	See the relevant sub-clause	R
13.5	Knob of rotary switches	Weight	R
13.9	Degree of protection: see clause 15	See the relevant sub-clause	R
13.15.1 to 13.15.2	Test on membranes	Heating cabinet, unjointed test finger, dynamometer, refrigerator	R
14.3	Slow operation	See clause 19	R
14.6	Cord operated switches	Dynamometer	R
15.	Resistance to ageing, to harmful ingress of water and to humidity		
15.1	Ageing test	Heating cabinet, climatic chamber, rough cloth and devices to apply a 5 N force	R
15.2	Ingress of water and foreign solid objects	Device to apply a certain torque to the glands Test wall according to figure 27	R
		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	R
		Dust chamber	S

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
		Drip box Drip box -15° Oscillating tube / spray ± 60° or spray nozzle / spray ± 60° Oscillating tube / spray ± 180° or spray nozzle / spray ± 180	R
		Water jet hose nozzle – nozzle 6,3 mm diameter Water jet hose nozzle – nozzle 12,5 mm diameter Immersion tank	S
15.3	Humidity treatment	Humidity cabinet	R
16	Insulation resistance and electric strength		
16.1	Insulation resistance	DC source (500 V) and instruments	R
16.2	Electric strength	Adjustable high voltage test equipment (AC) up to 4000 V	R
17	Temperature-rise test	AC source up to 75 A, temperature measuring instruments, voltage and current measuring devices, torquemeter, special flush mounted boxes	R
18	Making and breaking capacity tests specified according to the ratings	Test apparatus according to method of actuating the switch, supply source with a short circuit capacity of min. 1500 A, adjustable load circuit (resistors and inductors), tungsten filament lamp load, motor load, measuring instruments	R
19	Normal operation, tests specified according to the ratings	See also clause 18, special load circuit for fluorescent lamp loads, self-ballasted lamp loads	R
20	Mechanical strength		
20.2	Impact test	Specified test apparatus of figure 15	R
20.3	Mounting test on cylinder surface	Cylinder rigid steel sheet, torque screwdriver	R
20.4	Test of screwed glands	Test spanner, cylindrical metal rod	R
20.5 to 20.9	Removal of covers, cover-plates	Calibers of figure 20 and figure 23, 1 mm thickness sheet, dynamometer	R
20.10	Pull test on operating member of a cord operated switch	Dynamometer, weights	R
21	Resistance to heat		
21.2	Heat test	Heating cabinets	R

<b>Clause</b>	<b>Measurement/testing</b>	<b>Testing / measuring equipment / material needed</b>	<b>Subcontracting</b>
21.3 to 21.4	Ball pressure test	Ball pressure test apparatus, heating cabinet	R
22	Screws, current carrying parts and connections		
22.1 to 22.4	Inspection, manual tests, tightening	Test screwdriver, spanner	R
22.5 to 22.7	Inspections and chemical tests on metals of current carrying parts	Instruments for chemical analysis	S
23	Creepage distances, clearances	Checking by measurement with slide gauges	R
24	Resistance of insulating material to abnormal heat, to fire and to tracking		
24.1.1	Glow-wire test	Test apparatus according to IEC 60695-2-1	R
24.2	Resistance to tracking	Test apparatus according to IEC 60112	R
25	Resistance to rusting, treatment	Chemicals, humidity cabinet, heating cabinet	R
26	EMC requirements		
26.1	Immunity	Not required	-
26.2	Emission	Not required	-