



**TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING**

**Test Methods**

**IEC 60245- 2 2. Edition (1994-07) + Am. 1 (1997-09) + Am. 2 (1997-12)  
and additional tests according to IEC 60811**

R=Required by Lab

S=May be subcontracted

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
1.8	Checking of the durability of colours and markings.	Piece of cotton wool or cloth and water.	R
1.9	Measurement of insulation thickness.	Profile projector or measuring microscope of at least 10 x magnification.	R
1.10	Measurement of sheath thickness.	Profile projector or measuring microscope of at least 10 x magnification.	R
1.11	Measurement of overall dimensions and ovality.	Profile projector, dial micrometer, vernier caliper, diameter measuring tape.	R
1.12	Solder ability test for untinned conductors	Solder bath (270 ± 10°C), zinc chloride solution 10%, mandrels, hot-air oven. Composition of solder: tin (59,5% - 60%) and lead.	R
2.1	Electrical resistance of conductor.	Measuring bridge or equivalent electrical equipment. Thermometer or temperature compensation to 20°C.	R
2.2	Voltage test carried out on completed cables.	AC voltage source (AC 0...2500 V). Water bath.	R
2.3	Voltage test on cores.	AC voltage source (AC 0...2500 V). Water bath.	R



2.4	Insulation resistance at temperatures above 90	Insulation resistance tester with DC source between 80 V and 500 V. Air oven.	R
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Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
3.1	Flexing test.	Flexing apparatus, pulleys made of metal with different diameters. Weights. For current load a low voltage or a voltage about 230/400 V to be used. For voltage load between conductors, about 230 V ac (two-core) and/or about 400 V ac (3 phase) ,(three or more cores). Fault detection facilities: current interruption; short circuit between conductors and short circuit between test sample and pulleys Carrier speed: 0,33 m/s	R
3.2	Static flexibility test.	Device for fixing the test sample	R
3.3	Wear resistance test.	Wear resistance test apparatus, fixed reel with diameter of 40 mm at the bottom of the groove, weight (500 g).	R
3.4	Tensile strength of the central heart of lift cables.	Freely hanging weight or a suitable mechanical strength testing machine.	R
3.5	Three pulley flexing test.	Three pulley flexing apparatus, pulleys made of metal with different diameters. Weights. Current and voltage load, see Sub Clause 3.1: Flexing test.	R



3.6	Kink test.	Tensile strength testing machine or equivalent apparatus.	R
5	Flame retardance test for lift cables.	Propane gas burner (1 kW pre-mixed flame), 3-sided metallic screen, AC Voltage source, lamp of about 100W/220V, an indicator lamp of about 10W/220V.	R
6	Test for resistance to heat of textile braids.	Air oven with natural air flow, aluminium block (1000±50) g, steel base plate and upright with guide rods, stop-watch.	R

**Additional tests:**

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
IEC 60811-1-1 Sub Clause 9.1 And IEC 60811-1-2 Sub Clause 8.1	Tensile test before and after ageing.	Tensile machine, equipment for punching dumb-bell test pieces, equipment for cutting or grinding the insulation or/and sheath to obtain 2 parallel surfaces. Optical measuring device / dial gauge. Air oven with natural air flow, airflow rate: 8...20 complete air changes per hour. A fan shall not be used inside the oven.	R
IEC 60811-2-1 Clause 9	Hot set test.	Air oven with a window, natural airflow, airflow rate: 8...20 completed air changes per hour. A fan shall not be used inside the oven. Grips, weights, metal scale.	R