TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

IEC 61386-24:2004-07, Edition 1

Conduit systems for cable management
Part 24: Particular requirements - Conduit systems buried underground

R=Required by Lab
S=May be subcontracted
3PPS=Three Phase Power Supply required

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
7	Checking of marking	- Piece of cloth, water, petroleum spirit (Definition: see Note 1 in clause 7 of IEC 61386-1) - Meter	R
8	Checking of dimensions	- Ring gauges, slide caliper or any suitable method	R
10.2	Compression test	- Meter - Dynamometer with compression force higher than 750 N, two flat steel plates minimum (100 x 220 x 15) mm	R
10.3	Impact test	- Meter - Impact test apparatus according to Fig. 101, vee block - Mass of hammer (Table 102) - Refrigerator suitable for lower temperature (-5 ± 1) °C	R

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
10.4.101 – 10.4.102 – 10.4.103	Bending test	- Meter - Bending apparatus according to Fig. 102 (pliable conduits) - Refrigerator suitable for lower temperature (-5 ± 1) °C - Balls with diameter (95 +1/0) % of the minimum inner diameter declared by the manufacturer	R
13.1.3	Spread of fire	- Glow-wire test apparatus according to IEC 60695-2-1/1 (conduits fittings) - Meter (conduits) - Burner as specified in IEC 60695-2-4/1 - Rectangular metal enclosure according to Fig. 6 with two metal clamps (conduits) approximately 25 mm wide - Steel rods (2,0 ± 0,1) mm, (6,0 ± 0,1) mm, (16,0 ± 0,1) mm in diameter (conduits)	R
14.1.1	Resistance to external influences (Degree of protection – Ingress of foreign solid objects)	IP3X: - Rigid steel rod 2,5 mm diameter according to Table 7 of IEC 60529, Dynamometer (Push) range 0 to 3 N ± 10% - Test rod 2,5 mm diameter 100 mm long according to Table 6 of IEC 60529, Dynamometer (Push) range 0 to 3 N ± 10% IP4X: - Rigid steel wire 1,0 mm diameter according to Table 7 of IEC 60529, Dynamometer (Push) range 0 to 1 N ± 10% - Test wire 1,0 mm diameter 100 mm long according to Table 6 of IEC 60529, Dynamometer (Push) range 0 to 1 N ± 10% IP5X: - Dust chamber according to Table 7 and Fig. 2 of IEC 60529 (Cat. 2) - Test wire 1,0 mm diameter, 100 mm long according to Table 6 of IEC 60529, Dynamometer (Push) range 0 to 1 N ± 10% IP6X: - Dust chamber according to Table 7 and Fig. 2 of IEC 60529 (Cat. 1), - Test wire 1,0 mm diameter 100 mm long according to Table 6 of IEC 60529, Dynamometer (Push) range 0 to 1 N ± 10%	R

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting
14.1.2	Resistance to external influences (Degree of protection – Ingress of water)	IPX1: - Drip box according to Table 8 and Fig. 3a) of IEC 60529, IPX2: - Drip box according to Table 8 and Fig. 3b) of IEC 60529, IPX3: - Oscillating tube according to Table 8 and respectively Fig. 4 of IEC 60529, spray 60º from each side of vertical IPX4: - Same as IPX3 equipment, except spray 180º from each side of vertical IPX5: - Water jet hose nozzle according to Table 8 and Fig. 6 of IEC 60529, nozzle 6,3 mm diameter, IPX6: - Same as IPX5, except nozzle 12,5 mm diameter, IPX7: - Immersion tank suitable for the purpose, IPX8: - Same as IPX7 equipment but water level by agreement or suitable equipment	R
14.2.2.2	Resistance against corrosion - Test for medium protection	- Piece of wadding, white spirit with a kauri-butanol value 35 ± 5) - Potassium ferricyanide [K3Fe(CN)6], - Ammonium persulphate [(NH4)2S2O8], - Suitable wetting agent (e.g. sodium salt of an alkylnaphthaline sulphonic acid) - Thermometer - Suitable instrument for measurement of dimensions	S
14.2.2.3	Resistance against corrosion - Test for high protection	- White spirit with a kauri-butanol value 35 ± 5, piece of soft cloth - Copper sulphate (CuSO4 5H2O) - Suitable container - Hydrochloric acid - Thermometer	S

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.