



RW-3040

Raychem brand Moulded Components, Light weight, Flame Retarded, Semi-Rigid, Heat Shrinkable, Elastomer (-25L)

SCOPE

This Quality Assurance Specification establishes the quality standard for moulded components manufactured from light weight, cross-linked, electrically-insulating, flame retarded, semi-rigid, elastomer material. The dimensions of these components shrink to a pre-determined size on the application of heat. Temperature range -75°C to 150°C

Approved Signatories*

TE Connectivity Electronics :

Approved electronically via DMTEC

* This document is electronically reviewed and approved - therefore no signatures will appear.

1. REVISION HISTORY

Revision Number	Change Request	Date	Author
1		July 2014	Sreeni Kurup
2	RTS-1328137	July 2017	Pedro Vu

2. REQUIREMENTS**2.1 Composition, Appearance and Colour**

The moulded components shall be homogeneous and essentially free from pinholes, bubbles, flaws, cracks and inclusions. The colour shall be black unless otherwise specified.

2.2 Dimensions

Dimensions shall be as specified in the relevant TE specification control drawing (SCD).

2.3 Test Requirements

The moulded components and material from which they are made shall meet the requirements contained in Table 1.

3. TEST METHODS**3.1** The test methods shall in accordance with IEC 62329-2, unless otherwise specified. Refer to this specification for details of test conditioning where IEC 62329-3 is specified in IEC 62329-2.**3.2 Preparation of Test Specimens**

Unless otherwise specified, tests shall be carried out on a moulded test sheet of the material 150 mm x 150 mm x 2.0 ± 0.3 mm (*6 x 6 x 0.075 ± 0.01 inches*) or on a moulded component of suitable size. For tests on the recovered moulded component, the component shall be recovered by conditioning in an oven at $200 \pm 3^\circ\text{C}$ for 10 mins and allowed to cool in air to ambient temperature. No pre-conditioning period is required prior to testing. Unless otherwise specified, all tests shall be made under standard ambient conditions according to IEC Publication 60 212. In cases of dispute the tests shall be carried out at a temperature of $23 \pm 2^\circ\text{C}$ ($73 \pm 5^\circ\text{F}$) and at $50 \pm 5\%$ relative humidity.

4. RELATED STANDARDS & issue

IEC 62329-2: 2006	Heat shrinkable moulded shapes. Part 2: Methods of test
IEC 60212: 2010	Standard Conditions for Use Prior to and During Testing of Solid Electrical Insulating Materials
Subsequent amendments to, or revisions of, any of the above publications apply to this standard only when incorporated in it by updating or revision.	

5. SAMPLING

Tests shall be carried out on a sample of material taken at random from each batch of moulding compound. A batch of moulding compound is defined as that quantity of moulding compound manufactured at any one time. Testing frequency shall be Production Routine or Qualification. Production Routine tests consisting of Visual Examination, Dimensions, Secant Modulus at 2% Strain, Tensile Strength, Ultimate Elongation, Heat Shock, Specific Gravity and Electric Strength shall be carried out on every batch of moulding compound.

Qualification tests shall be carried out to the requirements of the Design Authority.

6. PACKAGING

Packaging shall be in accordance with good commercial practice. Each package shall bear an identification label showing quantity, part number and batch number. Additional information shall be supplied as specified in the contract or order.

TABLE 1 Test Requirements

Test	Test Method IEC 62329-2 clause or sub-clause	Test Requirements
Visual Examination		As per Clause 2.1
Dimensions	5	As per SCD
Tensile Strength	10	10 MPa minimum (<i>1450 psi</i>)
Ultimate Elongation	10	400 % minimum
Secant Modulus at 2% Strain	11	100 - 180 Mpa (<i>14500 – 26100 psi</i>)
Density	6	1.0 (+/- 0.05)
Heat Shock (4h ± 15m at 215 (<i>420 °F</i>) ± 5°C) - Tensile Strength - Ultimate Elongation	7 10 10	 10 MPa minimum (<i>1450 psi</i>) 400% minimum
Heat Ageing (168h ± 2h at 160 (<i>320 °F</i>) ± 3°C) - Tensile Strength - Ultimate Elongation	23 10 10	 10 MPa minimum (<i>1450 psi</i>) 400% minimum
Bending at low temperature (4h ± 15m at -75 (<i>-100 °F</i>) ± 2°C)	8	No cracking
Flammability - Average time of burning - Average extent of burning	16	120 seconds maximum 25 mm (<i>1 inch</i>) maximum
Electric Strength	12	15 MV/m minimum
Volume Resistivity after damp heat	13	10 ¹² ohm-cm minimum
Copper Mirror Corrosion (16h ± 30m at 150 (<i>302 °F</i>) ± 3°C)	18	No corrosion of mirrors
Water Absorption (24 ± 2h immersion at 23 (<i>75 °F</i>) ± 2°C)	24	0.5 % maximum
Resistance to mould growth - Tensile Strength - Ultimate Elongation	30	Method B 56 days exposure 10 MPa minimum (<i>1450 psi</i>) 400% minimum

TABLE 1 Test Requirements (Cont'd)

Test Fluid	Test Method IEC 62329-2 clause or sub-clause	Temperature °C (°F)	Time (Hours)	Test Requirements
Fluid Resistance <ul style="list-style-type: none"> • Aviation gasoline (ISO 1817 Liquid B) • Aviation kerosene (ISO 1817 liquid F) • Hydraulic fluid, phosphate base (ISO 1817 liquid 103) • Hydraulic fluid, silicone base (S1714) • Hydraulic fluid, mineral base (H520) • Lubricating oil, synthetic base (ISO 1817 liquid 101) • Lubricating oil mineral base (ISO 1817 Oil No 2) • Lubricating oil, mineral base (O-1176) • Lubricating oil, mineral base (O-142) • Cleaning fluid, isopropyl alcohol • Cleaning fluid, Propanol 25%, white spirit 75% • Cleaning fluid, methylethylketone • Runway de-icer, inhibited potassium acetate in water,50% • Aircraft de-icer, ethylene glycol 80%, water 20% - Tensile Strength - Ultimate Elongation 	20	40 ± 2 (<i>104 ±5</i>) 40 ± 2 (<i>104 ±5</i>) 70 ± 2 (<i>149 ±5</i>) 50 ± 2 (<i>122 ±5</i>) 50 ± 2 (<i>122 ±5</i>) 70 ± 2 (<i>149 ±5</i>) 50 ± 2 (<i>122 ±5</i>) 50 ± 2 (<i>122 ±5</i>) 23 ± 2 (<i>75 ±5</i>) 23 ± 2 (<i>75 ±5</i>) 23 ± 2 (<i>75 ±5</i>) 23 ± 2 (<i>75 ±5</i>) 23 ± 2 (<i>75 ±5</i>)	24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2 24 ± 2	8 MPa minimum (<i>1160psi minimum</i>) 300 % minimum

In line with a policy of continual product development, TE Connectivity reserves the right to make changes in construction, materials and dimensions without further notice. You are advised, therefore, to contact TE Connectivity Electronics, should it be necessary to ensure that this document is the latest issue.

** Use of “from the pump” fluids allowed – baseline standard shown in italics below.