

## **POLAMCO TAK AND 100P275 SPECIFICATION**

### **Scope**

To ensure that these parts comply with existing, future and potential specifications it is proposed to set the specification such that the parts will comply with the relevant parts of the following documents:-

- Def Stan 59-35(Part 6) Supp 003 for CECC75201.002 Connectors
- BS G 198 Part 5 material DF, Spec for Moulded Parts
- BS G 198 Part 5 adhesive W1
- VG 95343-14 System group D
- BR 1336(A) Material Toxicity Table

The tests are broken down into groups covering: material, dimensional, screening, mechanical, environmental and thermal. All tests and levels are from the above specifications.

### **1. Material Requirements for Heat Shrink Boot.**

All tests and requirements are as per BS G 198: Part 5 Material DF

- 1.1 Resistance to Mould growth not greater than scale 2
- 1.2 Copper Mirror Corrosion, no corrosion.
- 1.3 Tensile Strength and Elongation at break, >7Mpa and >200%.
- 1.4 Dielectric Strength > 8kV/mm
- 1.5 Volume Resistivity after damp heat >  $1 \times 10^{12}$
- 1.6 Low temperature Flexibility no cracking at -30°C
- 1.7 Heat Ageing, elongation at break > 100% after 168hrs @ 150°C
- 1.8 Water absorption < 0.5%
- 1.9 Flammability self extinguish < 30 secs
- 1.10 Resistance to Fluids ; Following Aging for 24hrs in the following fluids the tensile strength is >4Pa and Elongation of Break > 100%.
  - 1.10.1 Fuel BS 903-A16 test fluid B at 40°C
  - 1.10.2 Hydraulic Fuel H-520 at 50°C
  - 1.10.3 Phosphate ester based BS 903-A16 test fluid 102 at 70°C
  - 1.10.4 Silicone based hydraulic fluid at 50°C
  - 1.10.5 De-icing fluid at 23°C
  - 1.10.6 Cleaning Fluid at 23°C
  - 1.10.7 Inhibited ethylene glycol de-icing fluid at 23°C
  - 1.10.8 Sullage fluid at 23°C
- 1.11 Heat Shock, 4hrs @ 175°C no cracking or flow.
- 1.12 Secant Modulus at 2% strain <130MPa.
- 1.13 Thermal endurance, temperature index > 105°C.
- 1.14 Oxygen Index >29%
- 1.15 Flammability Temperature >250°C
- 1.16 Smoke Index <20
- 1.17 Toxicity Combustion products index <5

**2. Dimensions of TAK Parts and 100P275**

See relevant specification Control Drawings.  
 The TAK parts when installed on accessories suitable for the electrical connectors specified as CECC75201.002 shall meet the dimensions given in Def Stan 59-35 (Part 6) Supplement 003.

**3. Screening Requirements.**

3.1 Screening Effectiveness.

The screening effectiveness shall be measured in accordance with IEC 60512-23-3, wire injection method. The specification describes how to measure a pair of connectors with the accessories, for the purpose of this qualification the effect of the connectors are eliminated by replacing them with a dummy part with the correct attachment thread. The cable is replaced with a corresponding shielding tube and the coupling length shall be along the whole length of the accessory from its mating thread to the end of the heat shrink boot.

The following attenuation shall be obtained for each part and variant (i.e. straight 45° and 90°).

Frequency MHz	Attenuation db min
0.1	90
1	90
10	90
100	75
500	70

With longer parts resonance may occur before the 500MHz frequency is reached (see IEC 60512-23-2 section 3.3) in which case state the attenuation at the maximum frequency reached before resonance.

3.2 Electrical Continuity

The electrical continuity from the shell of the accessory to the cable or shielding tube shall be measured in accordance to IEC 61076-7 Annex C.

Initial value 5 milliohms maximum.

After ageing, environmental and mechanical tests 10 milliohms maximum.

**4. Mechanical Testing**

4.1 Dynamic Shear testing.

Entry Size	Min Force N
05	150
08 and 10	200

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12, 14 and 16	250
20 and 23	300

### 4.2 Resistance to Cable Torsion

Entry Size	Min Torque Nm
05	2
08 and 10	3
12, 14 and 16	3
20 and 23	5

### 4.3 Vibration

Level 1 IEC 60512-6-4, 55-2000Hz, 10g acceleration, 6 hours duration (2 hours per axis)

Level 2 22 to 33 Hz, 0.254mm amplitude, 100 sweeps per axis, 3 axes

### 4.4 Shock

IEC60512-6-3 300g half sine, 3ms duration, 6 shocks in each of 3 axes

## **5. Environmental**

### 5.1 Salt Mist

IEC 60512-11-6, severity 500 hours

### 5.2 Damp Heat

IEC 60512-6-4 steady state 56 hours

## **6. Thermal Properties and long term ageing.**

### 6.1 Thermal Ageing

IEC 60512-11-9, 1000 hrs at 105°C

### 6.2 Thermal Cycling

IEC 60512-x-x, 10cycles -30°C to 105°C

### 6.3 Dynamic Shear Testing

IEC 60512-17-X

Entry size 14 cable 10mm diameter, 75°C :100N, 105°C : 30N

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