
Polymere optical harness-fibre for MOST

1. Scope

This Product Specification issued by Tycoelectronics AMP GmbH is effective for all suppliers of plastic optical fiber cord for the "Media Oriented System Transport"-network.

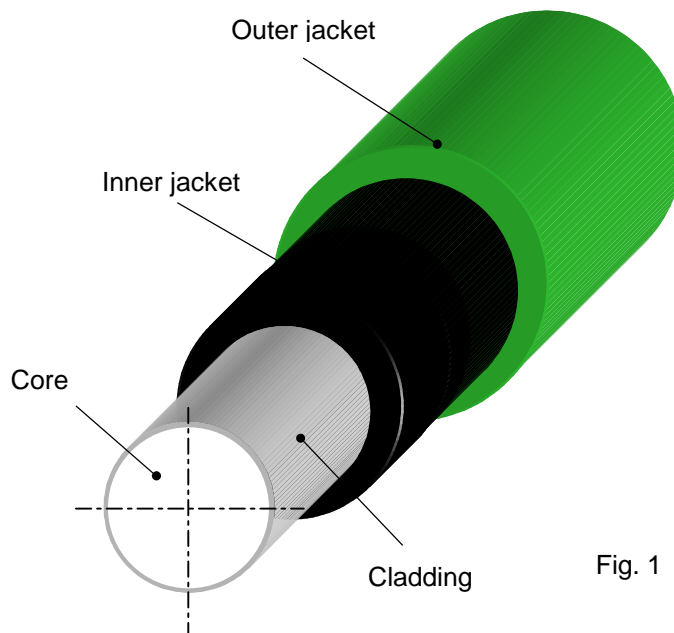
2. Application of this Product Specification

- a) Tyco Electronics GmbH
 - Product designation for ordering (fiber length, number of spools).
 - Product inspection after delivering.
- b) Supplier
 - Product inspection before delivering.
 - Product delivery to Tyco Electronics GmbH with certificate of conformity of each spool.

3. Product Description

All requirements have to be determined according the test guidelines for fiber optic cable issued by Daimler Chrysler AG actual state.

3.1 Structure



3.2 Materials

Item	Material
Core	Polymethyl Methacrylate (PMMA)
Cladding	Depending to Supplier (Fluorinated Polymere)
Inner Jacket	Polyamide 12 (PA12) black due to carbon*
Outer Jacket	Polyamide 12 (PA12) various colors

3.3 Dimensions

Item	Unit	Specification
Core diameter	µm	980 ± 45
Cladding diameter	µm	> 8
Inner Jacket diameter	mm	1.52 ± 0.02
Outer Jacket diameter	mm	2.3 ± 0.07
Roundness core R (fig. 2)	mm	< 0.02
Roundness inner jacket R (fig. 2)	mm	< 0.03
Eccentricity Inner Jacket to Core (distance between center lines)	mm	< 0.045
Eccentricity Outer Jacket to Core (distance between center lines)	mm	< 0.05

3.4 Mechanical Requirements

Item	Unit	Specification
Stripping Strength (Outer to Inner Jacket) $l_M = 30\text{mm}$	N	20 ± 10
Stripping Strength (Inner Jacket to Core) $l_M = 30\text{mm}$	N	unstrippable, > 60
Resistance to Curvature	N/mm	10 ~ 18
Tensile Force (complete fiber, dry, short period; elongation < 1,5%)	N	> 60
E-Module (stripping) Inner Jacket material (dry) ISO 527	N/mm ² (MPa)	> 1200
Admissible bending radii (180°)	mm	> 25
Admissible bending radii for short period (180°)	mm	> 10
Surface tension of Outer Jacket	mN/m	> 32

* Without processing agent & without flame retardent additives which could effectthe laserweldability.

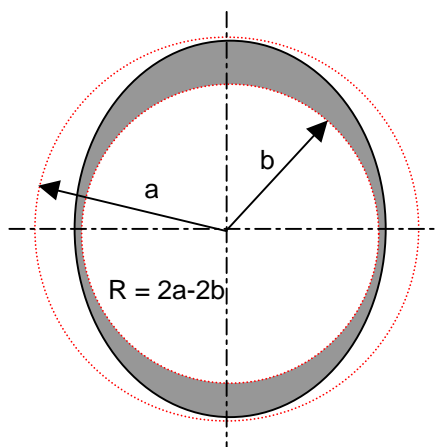


Fig.2 Roundness

3.5 Thermal Requirements

Item	Unit	Specification
Pistoning (Core to Inner Jacket) 24h / 90°C l = 0,5m	mm	± 0.03
Pistoning (Inner to Outer Jacket) 24h / 90°C l = 0,5m	mm	± 0.5
Application Temperature Range	°C	-40 ~ +85
Shrinkage 24h / 85°C	%	≤ 0.6
Flammability / selfquenching	s	< 30

3.6 Optical Requirements

Spectral attenuation

Wavelength λ [nm]	Condition 1 [dB/m]	Condition 2 [dB/m]
620	< 0.49	< 0.52
630	< 0.42	< 0.44
635	< 0,35	< 0,35
640	< 0.25	< 0.25
650	< 0.19	< 0.20
660	< 0.24	< 0.27
670	< 0.32	< 0.34
680	< 0.34	< 0.36
690	< 0.37	< 0.39

Condition 1 → 70°C / 10h

Condition 2 → 85°C / 85% r.h. / 50h

3.7 Environmental Requirements

Climate / time	Unit	Specification attenuation increase reversible / irreversible
-40°C / 3000 h	dB	< 0,1 / < 0,1
+85°C	dB	< 0,3 / < 0,3
+85°C, 85% r.H. / 3000 h	dB	< 0,4 / < 0,2

3.8 Miscellaneous data

Numerical Aperture	$\lambda = (650 \pm 25) \text{ nm}$	0.50 + 0.1
Bandwidth		>100 MHz * 10m
Environmentlight attenuation		>30 dB
Type of fiber		step index