

**Medical Micro-Coaxial & Ultra-High-Vacuum Cables**

Micro-Coaxial Cable for Medical and Precision Equipment

IEC 61196-1 · 50 Ω & 75 Ω · 36 to 46 AWG · Ag-Cu alloy · Solid/Foam PFA (≤ 40–65 pF/m) ·

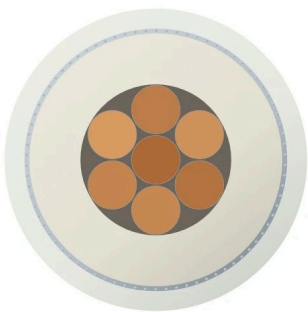
**36–46 AWG Micro-Coax****50 Ω & 75 Ω · ≤ 40 pF/m****48–256 Ch Probe Bundles**

Application

Micro-Coaxial Cable for Medical and Precision Equipment is an ultra-miniature 50 Ω or 75 Ω coaxial cable (single-core OD 0.22 mm to 0.55 mm, 36 AWG to 46 AWG) engineered with a high-tensile silver-plated copper-alloy conductor, thin-wall solid or foamed

Typical uses: Diagnostic Ultrasound Transducer Probes, 4K Surgical Endoscopes & Laparoscopes, Intravascular (IVUS / ICE) Catheters, Semiconductor ATE & Wafer Probe Cards, Micro-Gimbal UAV & Robotics Vision

Construction



Cross-section, not to scale

1	Ultra-fine 7-strand Ag-Cu alloy	ASTM B298 / Custom
2	Thin-wall solid or cellular foamed PFA	UL 1354 / IEC 61196
3	Micro-served spiral or braided shield	IEC 61196-1
4	Laser-strippable PFA micro-jacket (+	ISO 10993-5/-10

Technical data

Typical values

Characteristic impedance Z_0	50 $\Omega \pm 3 \Omega$ or 75 $\Omega \pm 3 \Omega$ (custom 60–85 Ω)	Nominal capacitance (50 Ω / 75 Ω)	95 pF/m (50 Ω) / 40–65 pF/m (75 Ω Foam/PFA)
Velocity of propagation (VoP)	70 % (Solid PFA) / 78–82 % (Foamed PFA)	Conductor DC resistance (40 / 42)	$\leq 3.6 / \leq 5.8 / \leq 9.2 \Omega/\text{m}$ at 20 °C
Max. operating pulse voltage	100–200 V peak-to-peak (piezo transmit)	Dielectric withstand test	500 V rms at 60 Hz
Single micro-coax temperature range	-40 °C to +200 °C (PFA fluoropolymer)	Medical bundle outer sheath range	-20 °C to +80 °C (medical PVC/TPU) / +150
Hot-bar & laser termination heat	Withstands +260 °C soldering without	Sterilization compatibility	EtO, STERRAD H ₂ O ₂ plasma & wipe disinfectants
Autoclave steam option	+134 °C steam autoclave (silicone outer)	Flammability rating	UL 1354 / UL VW-1
Conductor gauge range	36, 38, 40, 42, 44, and 46 AWG (7-strand)	Single micro-coax outer diameter	0.22 mm (46 AWG) to 0.55 mm (36 AWG)
Complete 128-ch bundle diameter	7.2 mm to 9.2 mm (ultra-limp medical trunk)	Min. bend radius (single / bundle)	4 × D (single coax) / 6 × D (probe trunk)
Flex fatigue life ($\pm 90^\circ$ bend test)	> 1,000,000 cycles (200 g load)	Mass termination pitch	Compatible with 0.25–0.50 mm hot-bar PCBs
Biocompatibility (outer sheath)	ISO 10993-5 (cytotoxicity) & -10 (irritation)	Hospital disinfectant resistance	Resistant to IPA, Cidex, bleach &
Acoustic / triboelectric noise	Low-noise lubricated PTFE binder & shield	Inter-channel RF crosstalk	< -65 dB between adjacent bundle channels
Tensile break strength (alloy core)	> 650 MPa high-strength Cu-Sn/Ag alloy	RoHS / REACH / MDR status	RoHS 3 & EU MDR phthalate-free
Standards	IEC 61196-1		

Sizes

4 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Construction / Variant	Conductor	Outer $\varnothing \approx$ mm	Metal kg/km	Weight $\approx$ kg/km	Min. bend R fixed mm
Standard Micro-Coaxial Cable for Medical and Precision Equipment variants 4 sizes						
☐ 38 AWG 50 Ω Solid PFA Micro-Coax	50 Ω Spiral Ag-Cu Shield (PFA)	38 AWG (7×0.040)	0.44	0.4	0.7	2
☐ 40 AWG 75 Ω Low-Cap Foamed PFA (48 pF/m)	75 Ω Spiral Ag-Cu Shield (PFA)	40 AWG (7×0.032)	0.36	0.3	0.5	1
☐ 42 AWG 75 Ω Low-Cap Foamed PFA (45 pF/m)	75 Ω Spiral Ag-Cu Shield (PFA)	42 AWG (7×0.025)	0.30	0.2	0.3	1
☐ 128-Channel 40 AWG Ultrasound Probe Bundle	128× 40 AWG Coax + Overall Braid	128 × 40 AWG	8.20	46.0	88.0	33

– Dimensions and weights are nominal production values subject to manufacturing tolerances per IEC 61196-1 / ISO 10993 / UL Style 1354.

Attenuation & RF power handling

6 sizes

Frequency	Nominal attenuation dB / 100 m	Nominal attenuation dB / 100 ft	Max. CW RF power W (@ 40 °C)	Impedance $Z_0 \Omega$	Velocity VoP %
5 MHz (Abdominal Ultrasound)	18.0	5.49	15	50	78.0
15 MHz (Vascular / Linear Probe)	31.0	9.45	10	50	78.0
40 MHz (High-Freq IVUS / Derm)	52.0	15.85	6	50	78.0
100 MHz (Endoscope LVDS / Clock)	82.0	24.99	4	50	78.0
500 MHz (High-Speed Camera / ATE)	185.0	56.39	2	50	78.0
1000 MHz (1 GHz Micro-Interconnect)	265.0	80.77	1	50	78.0

– Attenuation values apply at +20 °C ambient into a matched 50 Ω load; CW power ratings assume VSWR 1.0:1 at +40 °C ambient.

Standards and approvals

- ✓ UL Style 1354 / IEC 61196
- ✓ ISO 10993-5 / -10
- ✓ RoHS 3 / EU MDR

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

+86 185 9591 3361

Email

info@tebaoflex.com

Web

tebaoflex.com/cables/micro-coaxial-cable-for-medical-and-precision-equipment



Typical values for this cable type, based on IEC 61196-1 / ISO 10993 / UL Style 1354. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.