



industrial data rf cable series

TWISTCOAX

Balanced Twin-Coaxial Low-Magnetic-Signature Precision

100 Ω balanced ($2 \times 50 \Omega$) twin-coaxial low-magnetic-signature precision measurement cable

100 Ω Balanced ($2 \times 50 \Omega$ Coax)

< 1 nT Stray Magnetic Signature

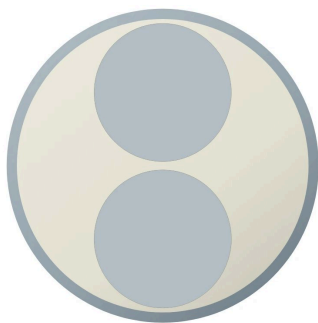
> 100 dB CMRR & Shielding

Application

Balanced twin-coaxial low-magnetic-signature precision measurement cable (TWISTCOAX) combining two matched 50 Ω coaxial lines (100 Ω differential) twisted inside an overall non-magnetic silver-plated OFHC copper braid ($\mu_r < 1.0005$) for fusion and MRI sensors.

Typical uses: Tokamak & Stellarator Fusion Diagnostics, Particle Accelerator Beam Monitors (BPM), SQUID, Fluxgate & MRI Magnetometry, Naval Minehunting & Acoustic Arrays, High-Speed Differential ADC / DAC Test

Construction



Cross-section, not to scale

- 1 2 $\times$ non-magnetic silver-plated OFHC copper conductors
- 2 Phase-matched PTFE or ePTFE coaxial dielectrics
- 3 2 $\times$ individual coaxial shields + inner FEP jackets
- 4 Overall silver-plated copper braid + foil screen
- 5 FEP fluoropolymer, PEEK or LSZH outer jacket

Technical data

Typical values

Characteristic impedance	100 Ω $\pm$ 2 Ω differential (2 $\times$ 50 Ω $\pm$ 1 Ω single-ended)	Intra-pair propagation skew	< 5.0 ps/m (< 0.15° phase skew at 100 MHz)
Velocity of propagation	70 % (solid PTFE, 95 pF/m) · 80 % (ePTFE, 82 pF/m)	Operating bandwidth	DC to 6 GHz (24/22 AWG) · DC to 12 GHz (26 AWG ePTFE)
Shielding & CMRR	> 105 dB RF shielding · > 100 dB common-mode rejection	Operating temperature (FEP)	-65 °C to +200 °C continuous
Cryogenic / UHV version	4 K (-269 °C) to +260 °C (PTFE/Polyimide)	Dielectric withstand voltage	1,500 V RMS (core/inner shield) · 1,000 V (shield/shield)
Sub-coax conductor gauges	2 $\times$ 28 AWG, 2 $\times$ 26 AWG, 2 $\times$ 24 AWG, or 2 $\times$ 22 AWG	Overall cable diameter	4.2 mm (2 $\times$ 28 AWG) to 6.8 mm (2 $\times$ 22 AWG)
Min. bending radius	6 $\times$ OD (static) · 10 $\times$ OD (dynamic)	Magnetic permeability	μ r < 1.0005 (strictly non-magnetic OFHC/SPC)
Vacuum & radiation rating	UHV compatible · up to 10 MGy (PEEK/PI version)	Flammability & fluids	FAR 25.869 / UL VW-1 & solvent/acid immune
Standards	IEC 61196-1, IEC 62153-4-9, MIL-STD-461 RE101/RS101		

Sizes

8 standard constructions

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

Order designation	Impedance / size	Conductor & dielectric	Wall $\approx$ mm	Outer $\varnothing \approx$ mm	Metal kg/km	Weight $\approx$ kg/km	Min. bend R fixed mm
Standard TWISTCOAX configurations 8 sizes							
☐ TWISTCOAX-28 Sub-Mini	100 Ω (2 $\times$ 50 Ω · 28 AWG)	2 $\times$ (19 $\times$ 40 SPC + PTFE) + Braid	0.40	4.20	22.0	36.0	25
☐ TWISTCOAX-26 Standard	100 Ω (2 $\times$ 50 Ω · 26 AWG)	2 $\times$ (19 $\times$ 38 SPC + PTFE) + Braid	0.45	4.85	31.0	51.0	29
☐ TWISTCOAX-26L Low-Loss	100 Ω (2 $\times$ 50 Ω · 26 AWG ePTFE)	2 $\times$ (19 $\times$ 38 SPC + ePTFE) + Braid	0.45	5.10	32.0	52.0	31
☐ TWISTCOAX-24 Precision	100 Ω (2 $\times$ 50 Ω · 24 AWG)	2 $\times$ (19 $\times$ 36 SPC + ePTFE) + Braid	0.50	5.80	44.0	72.0	35
☐ TWISTCOAX-22 Long-Run	100 Ω (2 $\times$ 50 Ω · 22 AWG)	2 $\times$ (19 $\times$ 34 SPC + ePTFE) + Braid	0.55	6.80	62.0	98.0	41
☐ TWISTCOAX-150 (2 $\times$ 75 Ω)	150 Ω (2 $\times$ 75 Ω · 26 AWG)	2 $\times$ 75 Ω Twisted Coax + Braid	0.50	5.90	38.0	64.0	36
☐ TWISTCOAX-UHV Tokamak	100 Ω (2 $\times$ 50 Ω · Polyimide)	Non-Magnetic OFHC + PI/PEEK	0.35	4.60	30.0	47.0	28
☐ TWISTCOAX-LSZH Naval	100 Ω (2 $\times$ 50 Ω · 24 AWG LSZH)	Non-Magnetic + Low-Smoke Jacket	0.70	6.40	46.0	82.0	39

– Outer diameters and weights are nominal engineering values for TWISTCOAX subject to standard manufacturing tolerances per IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec.

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 °C Ω /km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test V AC rms
TWISTCOAX-28 Sub-Mini (100 Ω (2 $\times$ 50 Ω · 28 AWG))	215.00	100.0	70.0	1,200
TWISTCOAX-26 Standard (100 Ω (2 $\times$ 50 Ω · 26 AWG))	135.00	100.0	70.0	1,500
TWISTCOAX-26L Low-Loss (100 Ω (2 $\times$ 50 Ω · 26 AWG ePTFE))	135.00	100.0	80.0	1,500
TWISTCOAX-24 Precision (100 Ω (2 $\times$ 50 Ω · 24 AWG))	84.00	100.0	80.0	1,500
TWISTCOAX-22 Long-Run (100 Ω (2 $\times$ 50 Ω · 22 AWG))	52.00	100.0	80.0	2,000
TWISTCOAX-150 (2 $\times$ 75 Ω) (150 Ω (2 $\times$ 75 Ω · 26 AWG))	135.00	150.0	78.0	1,500
TWISTCOAX-UHV Tokamak (100 Ω (2 $\times$ 50 Ω · Polyimide))	135.00	100.0	74.0	1,500
TWISTCOAX-LSZH Naval (100 Ω (2 $\times$ 50 Ω · 24 AWG LSZH))	84.00	100.0	76.0	1,500

– Characteristic impedance, propagation velocity, DC resistance at +20 °C, and dielectric withstand voltages verified per IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec.

Standards and approvals

- ✓ IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec
- ✓ CE (2014/35/EU) & RoHS 3 (2015/863/EU) Compliant
- ✓ REACH SVHC Compliance Verified

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

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Email

info@tebaoflex.com

Web

tebaoflex.com/cables/twistcoax-balanced-twin-coaxial-low-magnetic-signature-precision-measurement-cable



Typical values for this cable type, based on IEC 61196-1 / IEEE Tokamak & Magnetometer Balanced Twin-Coaxial Spec. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.