



instrumentation cable series

WQL Cryogenic Ribbon

Woven 12-twisted-pair (24-wire) 36 AWG cryogenic quantum & bolometer ribbon cable



12 Twisted Pairs (24-Wire)

Flat Thermal-Clamping Loom

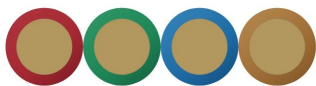
10 mK Dilution Fridge Ready

Application

WQL Cryogenic Ribbon Cable engineered by loom-weaving 12 colour-coded twisted pairs (24 conductors) of 36 AWG (0.127 mm) Manganin, Phosphor-Bronze, Constantan or Copper into a flat, flexible 7.5–9.0 mm wide polyester/PEEK or.

Typical uses: Superconducting Quantum Computing (Flux Bias & DC), Dilution Refrigerators (50 K → 4 K → 100 mK → 10 mK), TES & MKID Millimetre-Wave / X-Ray Bolometer Arrays, SQUID Multiplexer & Cryogenic CMOS Readout Looms, Multi-Channel Cryogenic Thermometry & Heater Buses

Construction



Cross-section, not to scale

- 1 12 twisted pairs (24 wires) × 36 AWG cryogenic alloy
- 2 Colour-coded Polyimide (ML) or Formvar wire enamel
- 3 Loom-woven polyester or PEEK textile weft binder

Technical data

Typical values

Single-wire DC R @ 295 K	34.7 Ω/m (Manganin 36 AWG) · 48.0 Ω/m (Phos-Bronze 36 AWG) · 1.36 Ω/m (Cu)
Pair capacitance @ 1 kHz	≈ 65 to 85 pF/m
Operating temperature	10 mK to +150 °C (Polyester weave) · 10 mK to +220 °C (PEEK weave)
Thermal anchoring	Monolayer flat geometry eliminates inner-core thermal shorts
Weight per metre	≈ 3.8 g/m (3.8 kg/km) — featherweight for space/cryo stages
Vacuum outgassing	Meets NASA SP-R-0022A / ECSS-Q-ST-70-02C UHV outgassing limits
Magnetic cleanliness	WQL-12P-PB36 uses non-magnetic Phosphor-Bronze + non-magnetic MDM option

Single-wire DC R @ 4.2 K	31.2 Ω/m (Manganin) · 41.8 Ω/m (Phos-Bronze) · ~0.015 Ω/m (Cu)
Dielectric withstand	≥ 500 V DC (wire-to-wire and pair-to-clamp)
Total 24-wire heat load	< 45 µW from 4 K to 100 mK (30 cm Manganin 36 AWG loom)
Ribbon width × thickness	8.0 ± 0.5 mm width × 0.45 ± 0.05 mm thickness (12 pairs)
Min. flat fold radius	2.0 mm (can be folded 90° flat around cryostat plate edges)
Potting compound bond	Woven weft wicks Apiezon N grease, GE 7031 & Stycast 2850FT
Standards	NEMA MW 1000 / IEC 60317

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	24-wire metallurgy & weave	Width mm	R @ 295K Ω/m	R @ 4.2K Ω/m	k @ 4.2K W/m-K
12-Twisted-Pair (24 × 36 AWG) Loom-Woven Cryogenic Ribbon Cables 4 sizes					
☐ WQL-12P-MN36 (Manganin)	12P × 36 AWG Manganin · PET Weave	8.0	34.7	31.2	0.5
☐ WQL-12P-PB36 (Phos-Bronze)	12P × 36 AWG Phosphor-Bronze · Non-Mag	8.0	48.0	41.8	2.2
☐ WQL-12P-CN36 (Constantan)	12P × 36 AWG Constantan (Cu55Ni45)	8.0	38.6	37.5	0.8
☐ WQL-12P-CU36 (OFHC Copper)	12P × 36 AWG OFHC Copper · Iso-Thermal Stage	8.0	1.4	0.0	350.0

– Can be supplied with overall braided CuNi / tinned-copper stainless-steel EMC overshield and non-magnetic 25-pin Micro-D connectors.

Standards and approvals

- ✓ NEMA MW 1000 Cryo Wire
- ✓ NASA SP-R-0022A Low Outgas
- ✓ MIL-DTL-83513 Micro-D Ready

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/wql-woven-polyester-12-twisted-pair-cryogenic-quantum-bolometer-readout-ribbon-cable



Typical values for this cable type, based on NEMA MW 1000 / NASA SP-R-0022A / ASTM B103. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.