



instrumentation cable series

WSL-32 / WSL-36

Austenitic Stainless-Steel Polyimide-Insulated

32 & 36 AWG AISI 304 stainless-steel polyimide-insulated ultra-low-heat-leak cryo wire



AISI 304 Stainless Steel

 $k \approx 0.25 \text{ W/(m}\cdot\text{K)} @ 4.2 \text{ K}$

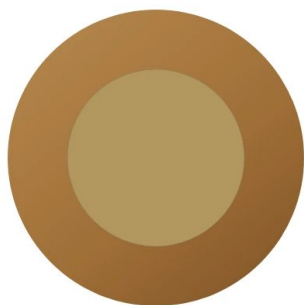
32 AWG & 36 AWG Polyimide

Application

WSL-32 (32 AWG / 0.202 mm) and WSL-36 (36 AWG / 0.127 mm) Austenitic AISI 304 Stainless-Steel Cryogenic Lead Wire insulated with heavy aromatic Polyimide (NEMA MW 16-C) enamel—providing the lowest thermal conductivity of any metallic.

Typical uses: Sub-Kelvin Adiabatic Demagnetization & Dilution Fridges, Superconducting Magnet Quench Voltage Taps, UHV Scanning Probe (STM / AFM) Piezo Scanner Leads, Cryogenic Capacitive Dilatometers & LHe Level Probes, Synchrotron & Beamline UHV Sample Stage Harnesses

Construction



Cross-section, not to scale

- 1 Solid annealed AISI 304 austenitic stainless-steel wire
- 2 Heavy aromatic Polyimide (NEMA MW 16-C) enamel
- 3 Thermal-anchoring protective enamel overcoat

Technical data

Typical values

DC resistance @ 295 K	22.4 Ω/m (WSL-32) · 56.6 Ω/m (WSL-36)	DC resistance @ 77 K / 4.2 K	16.2 Ω/m @ 77 K · 15.8 Ω/m @ 4.2 K (WSL-32) 40.9 / 39.8 Ω/m (WSL-36)
Dielectric breakdown	≥ 1,000 V rms (NEMA MW 1000 foil/twist test)	Thermal EMF vs Copper	≈ 3.0 to 4.4 μV/K (@ 300 K)
Operating temperature	10 mK (-273.14 °C) to +240 °C (513 K) continuous	Thermal conductivity (304 SS)	15.0 W/(m·K) @ 300 K · 7.9 W/(m·K) @ 77 K · 0.25 W/(m·K) @ 4.2 K
Thermal integral (300K→4K)	≈ 3,060 W/m (half that of Phosphor-Bronze, ~130× lower than Cu)	Bare conductor diameter	0.202 mm (32 AWG / WSL-32) · 0.127 mm (36 AWG / WSL-36)
Insulated outer diameter	0.231 mm (WSL-32) · 0.152 mm (WSL-36)	Tensile strength (annealed)	650 to 850 MPa (high resistance to handling breakage)
UHV outgassing	TML < 0.5 %, CVCM < 0.05 % per NASA SP-R-0022A (+240 °C bakeable)	Radiation resistance	Polyimide ML + 304 SS withstands > 10 MGy (1,000 Mrad) gamma
Chemical immunity	Inert to all cryostat solvents, ketones, alcohols & epoxies	Standards	ASTM A580 / A580M (UNS S30400 Austenitic Stainless Steel)

Sizes

2 standard constructions

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

Order designation	AWG & bare Ø	Insul. Ø mm	R @ 295K Ω/m	R @ 4.2K Ω/m	k @ 4.2K W/m·K
AISI 304 Stainless-Steel Polyimide Cryogenic Lead Wires 2 sizes					
☐ WSL-32 (32 AWG AISI 304)	32 AWG · 0.202 mm Bare Ø · Polyimide	0.231	22.4	15.8	0.25
☐ WSL-36 (36 AWG AISI 304)	36 AWG · 0.127 mm Bare Ø · Polyimide	0.152	56.6	39.8	0.25

– Can be supplied as single wire (WSL-32 / WSL-36) or custom twisted pairs (WDT-SS-32 / WDT-SS-36).

Standards and approvals

- ✓ ASTM A580 AISI 304
- ✓ NEMA MW 16-C Polyimide
- ✓ NASA SP-R-0022A UHV Grade

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/wsl-32-wsl-36-austenitic-stainless-steel-polyimide-insulated-cryogenic-lead-wire



Typical values for this cable type, based on ASTM A580 (AISI 304) / NEMA MW 16-C / NASA SP-R-0022A. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.