industrial data rf cable series

ISO Class 1 Cleanroom Ethernet

ISO Class 1 Cleanroom High-Flex Industrial Ethernet Cable

ISO 14644-1 Class 1 low-outgassing continuous-flex Cat.5e / Cat.6 / Cat.6A cleanroom LAN



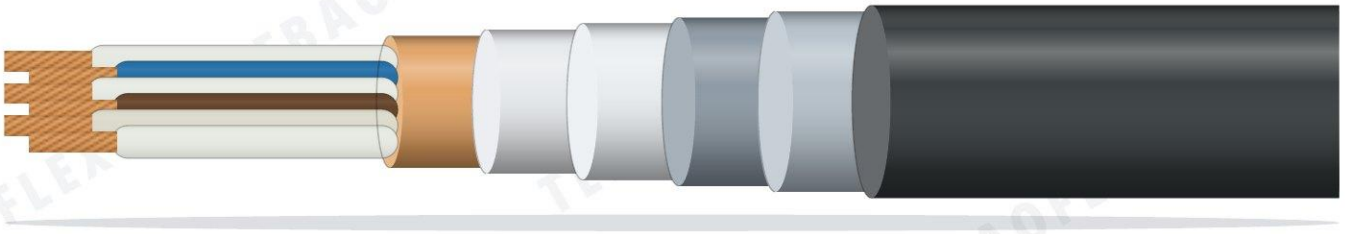
ISO 14644-1 Class 1 Cleanroom | **100 Ω · Cat.5e / Cat.6 / Cat.6A** | **Drag-Chain & ±180°/m Robot Torsion**

Application

ISO Class 1 cleanroom (VDI 2083 / ISO 14644-1) continuous-flex industrial Ethernet cable (Cat.5e, Cat.6, Cat.6A) with 19-wire tinned copper cores, 100 Ω pairs, overall Al/PET foil plus ≥ 85 % tinned braid, and low-outgassing cleanroom sheath.

Typical uses: Semiconductor Wafer Fab & Lithography, FPD / OLED & Micro-LED Cleanrooms, Aseptic Pharmaceutical & Biotech Filling, Battery Dry-Room & Gigafactory Robotics, Aerospace & Satellite Cleanroom Assembly

Construction





Cross-section, not to scale

1. 19-wire extra-fine stranded tinned copper
2. Low-capacitance polyolefin / foam-skin PE cores
3. Low-friction PTFE/fleece wrap + 100 % Al/PET foil
4. Tinned copper wire braid screen
5. Metallic screen
6. ISO Class 1 low-outgassing cleanroom TPE/PUR jacket

Technical data

Typical values

Characteristic impedance	100 Ω ± 15 Ω (1–100 MHz Cat.5e / 250M Cat.6 / 500M Cat.6A)	**Conductor DC resistance @ 20 °C**	≤ 140 (AWG 26/19) · ≤ 86 (24/19) · ≤ 58 Ω/km (22/19)
Velocity of propagation	70 % – 76 % nominal (mutual capacitance ≈ 48 pF/m)	**Dielectric test voltage**	1,500 V AC rms · UL AWM 300 V / 600 V rating
Operating temp. (fixed)	-40 °C to +80 °C	**Operating temp. (flexing)**	-30 °C to +80 °C (UL +80 °C)
Cleanroom sterilization	Resists IPA alcohol wipe-down & H2O2 VHP vapor	**Conductor stranding**	19-wire extra-fine tinned Cu (AWG 26/19, 24/19, 22/19)
Min. bending radius	5 × OD (fixed) · 7.5–10 × OD (continuous drag-chain)	**Torsion angle (CATLine R)**	± 180°/m for ≥ 5 million robotic cycles
Particulate emission	ISO 14644-1 Air Cleanliness Class 1 certified	**Outgassing (TVOC / AMC)**	ISO 14644-8 tested low outgassing · Zero silicone/LABS
Halogen-free & flame	IEC 60754-1/2 halogen-free · IEC 60332-1-2 / UL FT1	**Standards**	ISO 14644-1 Class 1, ISO 14644-8, VDI 2083

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 ≈ mm	Outer Ø ≈ mm	Metal kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Standard ISO Class 1 Cleanroom Ethernet configurations 8 sizes							
☐ ISO Class 1 Cleanroom Ethernet Cat.5e S	2×2×AWG26/19 · 100 Ω	19-Wire Sn-Cu Drag-Chain	0.75	5.20	21.0	36.0	26
☐ ISO Class 1 Cleanroom Ethernet PN Cat.5e	1×4×AWG22/19 · 100 Ω	19-Wire PROFINET Type C	0.90	6.50	33.0	56.0	33
☐ ISO Class 1 Cleanroom Ethernet Cat.5e 4P	4×2×AWG26/19 · 100 Ω	19-Wire 4-Pair GigE S	0.80	6.10	28.0	48.0	31
☐ ISO Class 1 Cleanroom Ethernet Cat.5e R	4×2×AWG26/19 · Robot	±180°/m Torsion Cleanroom	0.85	6.30	29.0	50.0	32
☐ ISO Class 1 Cleanroom Ethernet Cat.6 S	4×2×AWG26/19 · 250 MHz	19-Wire 250 MHz GigE Vision	0.85	6.60	31.0	54.0	33
☐ ISO Class 1 Cleanroom Ethernet Cat.6A S	4×2×AWG26/19 · 500 MHz	10GBASE-T S/FTP Drag-Chain	0.90	6.90	35.0	61.0	35
☐ ISO Class 1 Cleanroom Ethernet Cat.6A 24	4×2×AWG24/19 · 500 MHz	Long-Reach 10G S/FTP Chain	0.95	7.80	42.0	75.0	39
☐ ISO Class 1 Cleanroom Ethernet Cat.6A R	4×2×AWG26/19 · Robot 10G	±180°/m Torsion 10GBASE-T	0.95	7.10	36.0	64.0	36

– Outer diameters and weights are nominal engineering values for ISO Class 1 Cleanroom Ethernet subject to standard manufacturing tolerances per ISO 14644-1 Class 1 / VDI 2083 & ISO/IEC 11801 (Cleanroom High-Flex Ethernet).

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 °C Ω/km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test VAC rms
ISO Class 1 Cleanroom Ethernet Cat.5e S (2×2×AWG26/19 · 100 Ω)	140.00	100.0	70.0	1,500
ISO Class 1 Cleanroom Ethernet PN Cat.5e (1×4×AWG22/19 · 100 Ω)	58.00	100.0	70.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.5e 4P (4×2×AWG26/19 · 100 Ω)	140.00	100.0	70.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.5e R (4×2×AWG26/19 · Robot)	140.00	100.0	70.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.6 S (4×2×AWG26/19 · 250 MHz)	140.00	100.0	72.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.6A S (4×2×AWG26/19 · 500 MHz)	140.00	100.0	75.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.6A 24 (4×2×AWG24/19 · 500 MHz)	86.00	100.0	76.0	1,500
ISO Class 1 Cleanroom Ethernet Cat.6A R (4×2×AWG26/19 · Robot 10G)	140.00	100.0	75.0	1,500

– Characteristic impedance, propagation velocity, DC resistance at +20 °C, and dielectric withstand voltages verified per ISO 14644-1 Class 1 / VDI 2083 & ISO/IEC 11801 (Cleanroom High-Flex Ethernet).

Standards and approvals

- ISO 14644-1 Class 1 / VDI 2083 & ISO/IEC 11801 (Cleanroom High-Flex Ethernet)
- 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
+86 185 9591 3361

Email
info@tebaoflex.com

Web
tebaoflex.com/cables/sabclean-catline-iso-class-1-cleanroom-high-flex-industrial-ethernet-cable

Typical values for this cable type, based on ISO 14644-1 Class 1 / VDI 2083 & ISO/IEC 11801 (Cleanroom High-Flex Ethernet). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.