Anhui Feichun Special Cable Co., Ltd.

安徽飞纯特种电缆有限公司

Excellence in Special Cable Engineering & Manufacturing

AFC

TECHNICAL SPECIFICATION SHEET — CONTROL & INSTRUMENTATION CABLES

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Control & Instrumentation Cable Series

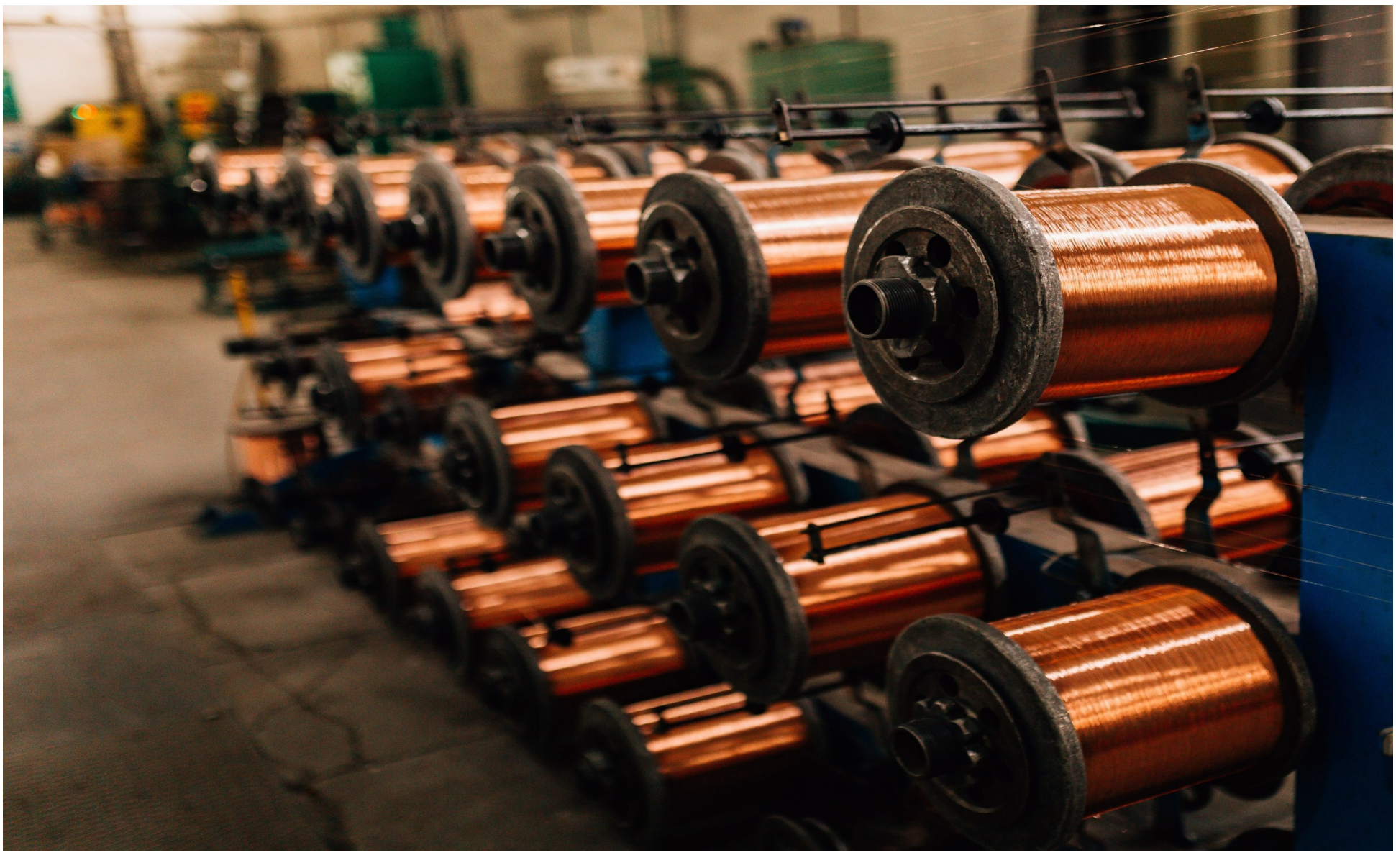
Precision-engineered cables for signal transmission, process control, and instrumentation systems

1. Product Overview

This specification defines the technical requirements for Control and Instrumentation Cables rated 600V, manufactured by Anhui Feichun Special Cable Co., Ltd. These cables are specifically designed for signal transmission, process control systems, and instrumentation applications where signal integrity, noise immunity, and reliable performance are critical.

The product range includes various configurations from unarmored designs for protected installations to heavy-duty double-armored constructions for harsh industrial environments. All cables feature premium insulation materials and are manufactured in accordance with international quality standards.

2. Detailed Cable Specifications



Type MC Steel Tape Armor Control Cable

CIC-001

CABLE ELEC 3.31mm² 1×3C 0.6kV STA

MC-LSZH

Configuration	3/C 12 AWG (3.31 mm²)
Voltage Rating	600V
Cable Type	MC (Metal Clad) — Steel Tape Armor
Conductor	Stranded Annealed Copper, Class B
Insulation	XLPE (Cross-linked Polyethylene)
Armor Type	Steel Tape Armor (STA), Interlocked
Outer Jacket	LSZH (Low Smoke Zero Halogen)
Temperature Rating	90°C (Dry/Wet)
Flame Retardancy	IEC 60332-1, IEC 60332-3 Category C

Low Smoke | Zero Halogen | Steel Armor | Control Systems

Type TC-ER Unarmored Tray Cable

CIC-002

CABLE ELEC 2.08mm² 1×7C 1kV XLPE-SP

TC-ER

Configuration	7/C 14 AWG (2.08 mm²)
Voltage Rating	600V
Cable Type	TC-ER (Tray Cable – Exposed Run)
Conductor	Stranded Copper, Flexible
Insulation	XLPE / XHHW-2 (90°C Wet/Dry Rated)
Armor Type	No Armor (Unarmored Design)
Outer Jacket	PVC (Polyvinyl Chloride), Sunlight Resistant
Temperature Rating	90°C (Continuous), 105°C (Emergency)
Installation Methods	Cable Tray, Conduit, Exposed Runs, Direct Burial

Flexible | UV Resistant | No Armor | Multi-Core

FEICHUN SPECIAL CABLES

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Double Armored Heavy Duty Control Cable

CIC-003

CABLE ELEC 2.08mm² 1×7C 1kV STA+SWA

HEAVY DUTY

Configuration	**7/C 14 AWG (2.08 mm²)**
Voltage Rating	600V
Cable Type	Double Armored Control Cable
Conductor	Stranded Annealed Copper, Class 2
Insulation	XLPE (Cross-linked Polyethylene)
Inner Armor	Steel Tape Armor (STA)
Outer Armor	Steel Wire Armor (SWA), Galvanized
Bedding	Extruded PVC Inner Sheath
Outer Jacket	PVC Oversheath, Black
Mechanical Protection	Superior crush, impact, tensile, and rodent resistance

Double Armor · Heavy Duty · Rodent Resistant · Underground

Type TC-LS Low Smoke Control Cable

CIC-004

CABLE ELEC 1.31mm² 1×3C 0.6kV XLPE-LSZH

TC-LS

Configuration	**3/C 16 AWG (1.31 mm²)**
Voltage Rating	600V
Cable Type	TC-LS (Tray Cable – Low Smoke)
Conductor	Stranded Copper, Flexible
Insulation	XLPE (Cross-linked Polyethylene)
Armor Type	Unarmored
Outer Jacket	LSZH (Low Smoke Zero Halogen)
Fire Performance	IEC 60332-1, IEC 60332-3, IEC 61034 Smoke Density
Halogen Content	Zero Halogen (<0.5% by IEC 60754-1)

Low Smoke · Zero Halogen · Fire Safe · Indoor Use

3. Product Comparison Matrix

Feature	CIC-001 3/C 12 AWG	CIC-002 7/C 14 AWG	CIC-003 7/C 14 AWG	CIC-004 3/C 16 AWG
Cross Section	3.31 mm^2	2.08 mm^2	2.08 mm^2	1.31 mm^2
Steel Tape Armor	✓	—	✓	—
Steel Wire Armor	—	—	✓	—
LSZH Jacket	✓	—	—	✓
Direct Burial	✓	✓	✓	—
Exposed Run	✓	✓	✓	✓

4. Applicable Standards & Certifications

UL 1569
Metal-Clad Cables

UL 1277
TC / TC-ER Cables

IEC 60502-1
Power Cables ≤1kV

IEC 60332-3
Flame Propagation

IEC 61034
Smoke Density

IEC 60754
Halogen Content

IEEE 1202
Flame Testing

GB/T 9330
Control Cables (CN)

5. Typical Applications



Process Control
DCS, PLC, and SCADA system interconnections



Instrumentation
Sensor, transducer, and analyzer connections



Oil & Gas
Refinery and petrochemical facilities



Chemical Plants
Hazardous area installations



Healthcare
Hospitals and medical facilities (LSZH)



Transportation
Tunnels, metro, and railway systems

6. Technical Notes & Installation Guidelines

⚠ **Important Considerations**

- **Bending Radius:** Minimum bending radius during installation is 6× cable outer diameter for unarmored types and 12× for armored types.
- **Pulling Tension:** Maximum recommended pulling tension based on conductor cross-section; consult manufacturer data for specific limits.
- **LSZH Applications:** LSZH jacketed cables are recommended for enclosed spaces, tunnels, public buildings, and areas where fire safety is paramount.
- **Double Armor Selection:** Use STA+SWA configurations for direct burial, underground ducts, or areas subject to mechanical damage or rodent activity.
- **Grounding:** Steel armor must be properly grounded at both ends in accordance with local electrical codes.

7. Quality Assurance

All Control and Instrumentation cables manufactured under this specification undergo comprehensive testing protocols including conductor resistance verification, insulation resistance measurement (IR), high voltage withstand testing (Hi-Pot), capacitance and inductance testing for signal cables, and mechanical property verification. Factory test certificates and material certificates are available upon request for each production batch. Custom configurations, lengths, and marking options are available to meet project-specific requirements.

FEICHUN SPECIAL CABLES

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