ANHUI FEICHUN SPECIAL CABLE CO., LTD.

安徽飞纯特种电缆有限公司

FLEXIBLE ELECTRIC CABLE - TECHNICAL SPECIFICATION

4 × 2.5 MM²

Flexible Electric Cable with 1.1kV Insulation

FLEXIBLE | COPPER CONDUCTOR | MULTI-PURPOSE

⚡ VERSATILE GENERAL PURPOSE POWER CABLE

Ideal for Lighting, Power Distribution & Small Motor Applications

Number of Cores	Conductor Size	Rated Voltage	Material	Current Rating
4	2.5 mm²	1.1 kV	Copper	~30 A

1. GENERAL DESCRIPTION

This 4 core flexible electric cable with 2.5mm² copper conductors is a versatile, general-purpose power cable designed for a wide range of electrical installations. Featuring Class 5 flexible stranded copper conductors and 1.1kV insulation, this cable is ideal for lighting circuits, small motor connections, general power distribution, and control applications. Its compact size and excellent flexibility make it easy to install in various environments, from residential and commercial buildings to light industrial applications. The cable offers reliable performance, cost-effectiveness, and compliance with international standards.

Parameter	Specification
Cable Designation	**4 × 2.5 MM² Flexible Electric Cable**
Number of Cores	**4 Cores**
Conductor Cross-Section	**2.5 mm² per core**
Rated Voltage U_0/U	**0.6/1.1 kV**
Conductor Material	Annealed Copper (Cu) - Class 5 Stranded
Conductor Type	Flexible Multi-Wire Stranded

Insulation Material	Cross-Linked Polyethylene (XLPE) or PVC
Sheath Material	Polyvinyl Chloride (PVC)
Flexibility Grade	Class 5 - High Flexibility
Application Type	General Purpose Power & Control

2. CABLE CONSTRUCTION

CABLE STRUCTURE (Core to Outer Layer)

1. Conductor Core: Fine stranded annealed copper wires (Class 5), 2.5mm² nominal per core

2. Conductor Insulation: XLPE or PVC insulation with color identification

3. Core Assembly: Four insulated cores twisted together

4. Filler (if applicable): Polypropylene or paper filler for roundness

5. Binding Tape: Non-woven tape to secure cores

6. Outer Sheath: PVC compound (Black standard, other colors available)

Component	Material/Description	Technical Details
Conductor	Class 5 flexible stranded copper	Per IEC 60228, wire diameter ≤0.31mm
Number of Strands	Multiple fine copper wires	Approximately 50+ strands per conductor
Copper Purity	Annealed copper	≥99.9% purity
DC Resistance	Maximum at 20°C	≤7.98 Ω/km per conductor
Conductor Diameter	Nominal	Approximately 2.0 - 2.2 mm per core
Insulation Thickness	XLPE or PVC Type	0.6 - 0.8 mm nominal
Core Colors	Standard identification	Brown, Black, Grey, Blue (or as specified)
Sheath Thickness	PVC outer protection	1.2 - 1.8 mm nominal
Overall Diameter	Approximate	11.5 - 13.5 mm

Approximate Weight	Per kilometer	135 - 160 kg/km
Copper Content	Pure copper weight	Approximately 89 kg/km (4 × 2.5mm²)

3. ELECTRICAL CHARACTERISTICS

Parameter	Value	Test Condition / Standard
Rated Voltage (U_0/U)	**0.6/1.1 kV**	AC 50/60 Hz
Maximum Conductor DC Resistance	7.98 Ω/km	At 20°C per IEC 60228
Current Carrying Capacity (Free Air)	**28 - 32 A**	Single cable in free air, 30°C ambient
Current Carrying Capacity (Enclosed)	24 - 27 A	In conduit or trunking, 30°C ambient
Current Carrying Capacity (Bunched)	20 - 24 A	Multiple cables bunched together
AC Voltage Test	3.5 kV for 5 minutes	Between conductors and earth
Insulation Resistance	≥10 MΩ·km	At 20°C
Maximum Operating Temperature	70°C (PVC) / 90°C (XLPE)	Continuous operation
Short Circuit Temperature	160°C (PVC) / 250°C (XLPE)	Maximum 5 seconds duration
Voltage Drop	Approx. 18 mV/A/m	At power factor 0.8
Power Transmission (3-Phase)	Approximately 19-21 kW	At 30A, 400V, 3-phase, 0.8 PF
Power Transmission (Single-Phase)	Approximately 6.6-7.4 kW	At 30A, 230V, single-phase

4. MECHANICAL PROPERTIES

Parameter	Specification	Notes
Flexibility Class	**Class 5 - High Flexibility**	Per IEC 60228
Minimum Bending Radius (Moving)	6 × Overall Diameter (≥75 mm)	For flexible applications

Minimum Bending Radius (Fixed)	4 × Overall Diameter (≥50 mm)	For stationary installation
Tensile Strength	≥12.5 N/mm²	Insulation material
Elongation at Break	≥150%	Before thermal aging
Impact Resistance	Good	Suitable for general installations
Installation Temperature	≥-5°C	Without preheating
Operating Temperature Range	-15°C to +70°C (PVC) -20°C to +90°C (XLPE)	Ambient conditions
Cable Weight	Lightweight - Easy handling	Approximately 140-160 g per meter
Flame Retardant	IEC 60332-1	Single vertical wire flame test

5. TYPICAL APPLICATIONS

Lighting Circuits

General lighting distribution in residential, commercial, and industrial buildings

Power Outlets

Socket outlets and small appliance connections in buildings and facilities

Small Motors

Power supply to small motors, fans, pumps up to 5.5 kW (3-phase)

HVAC Systems

Air conditioning units, ventilation fans, and climate control equipment

Control Panels

Power distribution within control cabinets and electrical panels

Commercial Buildings

Offices, retail spaces, restaurants, and hospitality facilities

Residential Installations

Apartment buildings, houses, and residential complexes

Light Industrial

Workshops, warehouses, and light manufacturing facilities

Temporary Installations

Events, exhibitions, temporary power supplies, and mobile setups

Key Advantages: Excellent flexibility and easy installation | Suitable for current loads up to 30A | Cost-effective solution for general applications | Lightweight and easy to handle | Versatile for multiple uses | Good mechanical properties | Wide temperature range | Complies with international standards | Available in various colors | Long service life

6. INSTALLATION EXAMPLES & LOAD CAPACITY

Application Example	Typical Load	Notes
LED Lighting Circuit	Up to 6.9 kW total	230V, multiple LED fixtures

Office Socket Circuit	Up to 6.9 kW	230V, 30A circuit breaker
Small Air Conditioner	3-5 kW unit	Single-phase or 3-phase
Water Pump (3-phase)	3-5.5 kW motor	400V, 3-phase supply
Ventilation Fan	1-3 kW	Single or 3-phase
Commercial Kitchen Equipment	Up to 20 kW (3-phase)	400V, 3-phase distribution
Conveyor Motor	2-4 kW	Light industrial applications
Electric Heater	Up to 6.9 kW	230V single-phase

Important: Always select cable size based on actual load current, installation method, ambient temperature, and applicable electrical codes. Provide appropriate circuit protection (MCB/MCCB) rated at or below cable capacity. Consider voltage drop for long cable runs.

7. TECHNICAL STANDARDS & COMPLIANCE

Standard	Description
IEC 60502-1	Power cables with extruded insulation for rated voltages from 1 kV to 30 kV
IEC 60228	Conductors of insulated cables - Class 5 flexible conductors
IEC 60332-1	Tests on electric cables under fire conditions - Single vertical wire flame test
IEC 60364-5-52	Low-voltage electrical installations - Selection and erection of electrical equipment
GB/T 12706	Chinese National Standard for power cables (0.6/1kV to 26/35kV)
BS 7671	UK Wiring Regulations (Reference standard)
RoHS Directive	Restriction of Hazardous Substances - Environmental compliance
CE Marking	European Conformity (where applicable)

8. INSTALLATION GUIDELINES

Installation Parameter	Requirement
Cable Handling	Lightweight - Can be handled manually with care
Cable Support Spacing (Vertical)	Maximum 0.4 - 0.6 meters

Cable Support Spacing (Horizontal)	Maximum 1.0 - 1.5 meters
Conduit Size	Minimum 25mm (1") for single cable
Cable Tray	Minimum 50mm width, suitable for multiple cables
Pulling Force	Maximum 50 N/mm² of conductor area (~125N per core)
Cable Termination	Use cable lugs or ferrules rated for 2.5mm² (M4 or M5 stud)
Stripping Tools	Standard cable strippers suitable for 2.5mm² cable
Crimping Tools	Manual or ratchet crimping tools for 2.5mm² lugs
Cable Glands	Use M20 or M25 cable glands as appropriate
Circuit Protection	MCB/MCCB rated at 25-32A maximum (based on installation method)
Earth Connection	Proper earthing required per local codes

Installation Tips: This cable is easy to install due to its flexibility and lightweight construction. Can be pulled through conduits easily. Suitable for surface mounting with appropriate clips. Ensure proper strain relief at terminations. Use cable ties or clips every 300-600mm for neat installation. Avoid sharp bends and mechanical damage during installation.

9. VOLTAGE DROP CALCULATIONS

Example voltage drop calculations for common applications:

Scenario	Current	Distance	Voltage Drop	% Drop
Lighting Circuit (230V)	10 A	30 m	5.4 V	2.3%
Socket Outlet (230V)	20 A	20 m	7.2 V	3.1%
Small Motor (400V 3-phase)	10 A	50 m	9.0 V	2.3%
Air Conditioner (400V 3-phase)	15 A	30 m	8.1 V	2.0%

Voltage Drop Guidelines: IEC standards recommend maximum 3% voltage drop for lighting circuits and 5% for power circuits. For long cable runs exceeding these limits, consider larger conductor sizes (4mm² or 6mm²). Always perform voltage drop calculations for your specific installation.

10. QUALITY ASSURANCE & TESTING

Each cable batch undergoes comprehensive testing:

- **Conductor resistance test:** Verified ≤7.98 Ω/km at 20°C
- **High voltage test:** 3.5 kV AC for 5 minutes
- **Insulation resistance test:** Minimum 10 MΩ·km at 20°C
- **Dimensional verification:** Conductor size, insulation thickness, overall diameter
- **Flexibility test:** Bending test per IEC 60228 Class 5
- **Mechanical strength:** Tensile and elongation testing
- **Flame test:** Per IEC 60332-1 flame retardancy
- **Visual inspection:** Complete construction and marking verification

> **Quality Certification:** Manufactured under ISO 9001:2015 quality management system. Test reports and certificates of conformity provided with each delivery. Third-party testing available upon request.

11. PACKAGING & DELIVERY

Item	Details
Standard Length	100m, 200m, 500m, or customized length
Packaging Type	Wooden drum, steel drum, or coil (for shorter lengths)
Cable Marking	Sequential meter marking every 1 meter on outer sheath
Marking Information	Manufacturer name, cable specification, voltage rating, date code
Documentation	Test certificate, certificate of conformity, packing list
Storage Conditions	Store in cool, dry place away from direct sunlight
Shelf Life	24 months under proper storage conditions
Lead Time	10-20 working days after order confirmation
Minimum Order Quantity	500 meters (negotiable for trial orders)

12. AVAILABLE OPTIONS & CUSTOMIZATION

Option	Available Choices
Insulation Type	PVC (70°C), XLPE (90°C)
Sheath Color	Black (standard), Grey, White, Orange, or custom colors
Core Colors	Standard (Brown, Black, Grey, Blue) or custom configuration

Fire Performance	Standard, Low Smoke (LS), Low Smoke Zero Halogen (LSZH)
UV Resistance	Standard outdoor grade or enhanced UV protection
Oil Resistance	Standard PVC or oil-resistant compound
Special Requirements	Consult technical department for custom specifications

Important Notes:

- This specification is for reference purposes and subject to technical modifications
- Always select appropriate circuit protection devices based on installation method and load requirements
- Perform voltage drop calculations for cable runs exceeding 30 meters
- Installation must comply with IEC 60364, local electrical codes, and safety regulations
- Use qualified electricians for installation and commissioning
- For outdoor installations, ensure UV-resistant sheath or appropriate protection
- For installations in areas with chemicals or oils, specify oil-resistant sheath
- Consult technical department for applications not covered in this specification

飞纯电缆

FEICHUN SPECIAL CABLES

Website Address www.reelingcable.com www.feichuncables.com
Whatsapp Account + 86 13855123218
Email Address Zihao.yang@feichuncables.com & Ziyu.huang@feichuncables.com