ANHUI FEICHUN SPECIAL CABLE CO., LTD.
安徽飞纯特种电缆有限公司

INDUSTRIAL POWER & CONTROL CABLE SOLUTIONS · WWW.FEICHUNCABLES.COM

PRODUCT SPECIFICATION SERIES – FLAT RUBBER AND ROUND PVC POWER CONTROL CABLES FOR INDUSTRIAL MOBILE AND FIXED INSTALLATIONS

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CLASS Product Data Sheet | Power Control Cables
STANDARD IEC 60245 | VDE 0250 | HD 21 Series

FLGOU-J/JZ • STN-JZ Series

FLGOU-J Flat Rubber Cables (8×1.5 / 12×1.5) | NGFLGöu Type for Crane & Hoist Applications
STN-JZ Round PVC Cables (8×1.5 / 12×1.5) | General Industrial Control & Fixed Installation
300/500 V Rated (0.5 kV) | 16 AWG Conductors | With Ground Protection Conductor (J/JZ)

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POWER CONTROL | FLAT RUBBER (MOBILE) | ROUND PVC (FIXED) | 300/500 V | WITH GROUND

VARIANT 1	VARIANT 2	VARIANT 3	VARIANT 4
FLGOU-J 8×1.5 0.5kV	**STN-JZ 8×1.5 0.5kV**	**FLGOU-JZ 12×1.5 0.5kV**	**STN-JZ 12×1.5 0.5kV**
Flat / 8-Core	Round / 8-Core	Flat / 12-Core	Round / 12-Core

⚙ FLGOU-J/JZ SERIES: FLAT RUBBER CONTROL CABLES

The FLGOU-J series represents specialized flat rubber control cables designed for demanding mobile applications where frequent flexing and mechanical stress are constant operating conditions. These cables are commonly designated as NGFLGöu type in European standards and are engineered specifically for overhead crane systems, traveling hoists, conveyor belt drives, and stacker systems where traditional round cables would experience premature failure due to twisting and tangling. The flat configuration allows conductors to be arranged in a single plane, which provides superior heat dissipation compared to bundled round cables and prevents the cable from coiling or kinking during repetitive bending cycles in festoon systems and cable trolleys.

FLGOU-J 8×1.5 SPECIFICATIONS

FLGOU-J 8×1.5 MM² (FLAT RUBBER CABLE)	
Type designation	FLGOU-J 8×1.5 / NGFLGöu-J
Cable geometry	Flat profile (rectangular)
Core configuration	8 × 1.5 mm² (7 power + 1 PE)
AWG equivalent	16 AWG
Physical dimensions	Thickness: 6.2 – 6.4 mm Width: 31.0 – 32.0 mm
Copper weight	≈ 115 kg/km
Total cable weight	340 – 370 kg/km
Rated voltage (U_0/U)	300 / 500 V (0.5 kV)
Current capacity (reference)	≈ 18 A (single layer flat)
Jacket material	Neoprene / Chloroprene Rubber
Environmental resistance	Oil, weather, UV, abrasion
Min. bending radius (moving)	5 × thickness ≈ 31 mm
Temperature range	−25°C to +60°C (moving)

⚙ STN-JZ Series: Round PVC Control Cables The STN-JZ series designation represents standard round PVC control cables commonly equivalent to YSLY-JZ or H05VV5-F classifications in European cable nomenclature. These cables are engineered for general industrial control applications where fixed installation or limited mechanical flexing is required. The round cross-section provides efficient material usage and compact outer diameter, making these cables ideal for conduit and cable tray installations in control panels, machine wiring, and building automation systems. The designation STN in this context denotes Standard configuration, indicating these cables follow conventional construction methods optimized for cost-effectiveness and ease of installation rather than extreme mechanical durability.

STN-JZ 8×1.5 SPECIFICATIONS

STN-JZ 8×1.5 MM² (ROUND PVC CABLE)	
Type designation	STN-JZ 8×1.5 / YSLY-JZ equiv.
Cable geometry	Round profile (cylindrical)
Core configuration	8 × 1.5 mm² (7 power + 1 PE)
AWG equivalent	16 AWG
Physical dimensions	Outer diameter: 10.6 – 12.0 mm
Copper weight	≈ 115 kg/km
Total cable weight	190 – 220 kg/km
Rated voltage (U_0/U)	300 / 500 V (0.5 kV)
Current capacity (reference)	10 – 12 A (bundled installation)
Jacket material	PVC compound (standard grade)
Environmental resistance	Standard oil resistance
Min. bending radius (moving)	15 × diameter ≈ 165 mm
Temperature range	−5°C to +70°C (fixed install)

STN-JZ 12×1.5 SPECIFICATIONS

8-CORE CABLE COMPARISON

PARAMETER	FLGOU-J 8×1.5	STN-JZ 8×1.5
Cable Geometry	Flat	Round
Cross-Section	6.3 × 31 mm	Ø 11 mm
Weight (kg/km)	355	205
Jacket Material	Rubber	PVC
Current Capacity	18 A	11 A
Bend Radius (mov.)	31 mm	165 mm
Primary Use	Mobile/Crane	Fixed/Control

12-CORE CABLE COMPARISON

PARAMETER	FLGOU-JZ 12×1.5	STN-JZ 12×1.5
Cable Geometry	Flat	Round
Cross-Section	6.7 × 47 mm	Ø 13 mm
Weight (kg/km)	565	290
Current Capacity	15 A	10 A
Bend Radius (mov.)	33 mm	195 mm

APPLICATION SELECTION GUIDE

✓ FLGOU-J/JZ: MOBILE HEAVY-DUTY APPLICATIONS

Flat rubber cables excel in demanding mobile applications where extreme mechanical stress and frequent flexing occur continuously during normal operation. The primary applications include overhead traveling cranes and gantry systems where the cable must follow the bridge movement along rails, electric hoists and chain hoists requiring vertical cable management with consistent bending cycles, conveyor belt systems with moving carriages or trolleys traveling extended distances, automated storage and retrieval systems with high-speed horizontal and vertical motion, and stacker cranes in warehouse facilities operating around the clock. The flat profile

FLGOU-JZ 12×1.5 SPECIFICATIONS

FLGOU-JZ 12×1.5 MM² (FLAT RUBBER CABLE)	
Type designation	FLGOU-JZ 12×1.5 / NGFLGöu-JZ
Cable geometry	Flat profile (rectangular)
Core configuration	12 × 1.5 mm² (11 power + 1 PE)
Physical dimensions	Thickness: 6.5 – 6.9 mm Width: 46.5 – 47.6 mm
Copper weight	≈ 173 kg/km
Total cable weight	510 – 620 kg/km
Current capacity (reference)	≈ 15 A (single layer flat)
Min. bending radius (moving)	5 × thickness ≈ 33 mm

CABLE PROFILE COMPARISON



FLAT PROFILE
FLGOU Series

ROUND PROFILE
STN Series

FLAT CABLE ADVANTAGES

The flat profile arrangement places all conductors side-by-side in a single plane rather than bundled in a circular cross-section. This configuration provides several engineering advantages for mobile installations. Heat dissipation is significantly improved because each conductor has direct exposure to ambient air rather than being insulated by surrounding conductors in a bundle. The flat geometry prevents cable twisting and coiling during motion, which extends mechanical life in festoon systems where the cable must follow curved paths. Installation in specialized flat cable carriers and trolleys is simplified, and the cable naturally lies flat without requiring additional support hardware to prevent rotation.

CONSTRUCTION FEATURES

- **Conductor material:** Fine-stranded bare copper conductors with cross-section of one point five square millimeters per core. The stranding class is optimized for repeated flexing with strand counts typically exceeding Class five requirements to ensure fatigue resistance.
- **Core insulation:** Synthetic rubber compound provides mechanical resilience and maintains electrical integrity through millions of bending cycles. Color coding follows standard conventions with black numbered cores and green-yellow protective earth conductor.
- **Core arrangement:** All conductors are arranged in parallel within a single horizontal plane. This flat configuration is maintained by embedding the cores in rubber filler material that prevents individual conductor movement during flexing.
- **Outer jacket:** Heavy-duty chloroprene rubber compound (commonly known as Neoprene) provides exceptional resistance to mineral oils, cutting fluids, weathering, ozone, and mechanical abrasion. The jacket thickness significantly exceeds that of standard round PVC cables to withstand harsh industrial environments.
- **Weight characteristics:** The flat cable construction requires substantially more rubber material for mechanical integrity and conductor positioning compared to round cables. The total weight approaches double that of an equivalent round cable, which must be considered in mechanical load calculations for crane and hoist systems.

STN-JZ 12×1.5 MM² (ROUND PVC CABLE)	
Type designation	STN-JZ 12×1.5 / YSLY-JZ equiv.
Cable geometry	Round profile (cylindrical)
Core configuration	12 × 1.5 mm² (11 power + 1 PE)
Physical dimensions	Outer diameter: 12.7 – 13.5 mm
Copper weight	≈ 173 kg/km
Total cable weight	280 – 300 kg/km
Current capacity (reference)	9 – 11 A (bundled installation)
Min. bending radius (moving)	15 × diameter ≈ 195 mm

CONSTRUCTION FEATURES

- **Conductor material:** Fine-stranded bare copper conductors meeting Class five flexibility requirements per IEC sixty thousand two hundred twenty-eight. The stranding provides adequate flexibility for fixed installation and occasional repositioning.
- **Core insulation:** Standard PVC insulation compound with color coding for conductor identification. The insulation thickness meets voltage rating requirements while maintaining compact overall cable diameter.
- **Core arrangement:** Conductors are stranded together in layers around a central filler or core to create a cylindrical bundle. This round geometry optimizes material usage and provides uniform mechanical properties in all radial directions.
- **Outer jacket:** Standard grade PVC compound provides adequate protection for fixed installations and limited exposure to oils and chemicals. The jacket thickness is substantially less than rubber flat cables, contributing to lighter weight and smaller diameter.
- **Installation characteristics:** The round profile fits standard cable glands, conduit fittings, and support hardware without requiring specialized mounting accessories. The compact diameter and lighter weight simplify handling during installation in cable trays and conduit systems.

CURRENT CAPACITY CONSIDERATIONS

⚠ BUNDLING AND THERMAL DERATING

The current capacity values provided represent reference values for typical installation conditions. Round cables with multiple conductors bundled together experience reduced heat dissipation compared to flat cables where conductors are arranged in a single plane. When multiple cables are installed in close proximity or in enclosed conduit, derating factors must be applied according to IEC sixty thousand two hundred sixty-four or national electrical codes. The bundling factor for eight-core cables in typical industrial installations approaches zero point six five, while twelve-core configurations may require derating to approximately zero point five three of the rated capacity. Flat cables generally permit higher current loading under equivalent installation conditions due to superior thermal characteristics.

DESIGNATION CODE EXPLANATION

J / JZ	Indicates inclusion of protective earth conductor (Ground). J typically denotes single ground wire, while JZ may indicate ground wire plus additional system ground in some nomenclatures. The ground conductor is color-coded green-yellow per IEC standards.
O / OZ	Indicates cable configuration without dedicated protective earth conductor. All cores are power or signal conductors with color-coded identification. These variants are used where ground connection is provided separately or not required by the application.

✓ GROUND CONDUCTOR CONFIGURATION

All cables specified in this document include the J or JZ designation, confirming the presence of a dedicated protective earth conductor with green-yellow insulation. This ground prevents cable rotation and tangling in festoon systems and C-track cable carriers, while the heavy rubber jacket withstands impacts from moving machinery components and exposure to industrial oils and cutting fluids.

✓ STN-JZ: FIXED AND LIGHT-DUTY APPLICATIONS

Round PVC cables provide cost-effective solutions for fixed installations and applications with minimal mechanical stress. These cables are ideal for permanent wiring in control cabinets and electrical panels connecting programmable logic controllers and instrumentation, machine tool internal wiring where the cable remains stationary during operation, building automation systems with infrequent maintenance access requirements, production line equipment connections in fixed positions, and general industrial control circuits where flexibility requirements are modest. The compact round profile and standard termination hardware reduce installation time and cost in conduit and cable tray systems. While these cables can accommodate occasional repositioning during maintenance, they are not suitable for continuous flexing applications where flat cables are required.

CRITICAL INSTALLATION FACTORS

FLGOU WIDTH	WEIGHT RATIO	BEND FACTOR
47 mm	≈ 2:1	5.3×
12-core maximum	Flat vs Round	Flat advantage

⚠ MECHANICAL DESIGN CONSIDERATIONS

Engineers specifying flat cables must account for several critical factors in mechanical system design. The substantial width of flat cables requires specialized mounting hardware including flat cable festoon systems, C-track cable carriers designed for rectangular profiles, and clamps specifically engineered for flat cable geometry. Standard circular cable glands cannot accommodate flat cables, necessitating specialized flat cable entry systems at junction boxes and equipment enclosures. The significantly higher weight per unit length of flat cables compared to round cables must be incorporated into structural load calculations for crane bridges, trolley systems, and support structures. The superior current capacity of flat cables due to improved heat dissipation allows higher power delivery in the same conductor cross-section, potentially enabling more compact electrical system designs in mobile equipment.

APPLICABLE STANDARDS

- IEC 60245 / HD 21 series – Rubber insulated cables rated voltages up to 450/750 V
- VDE 0250 – German national standard for flexible cables and cords
- IEC 60228 – Conductors of insulated cables (stranding requirements)
- IEC 60332-1-2 – Tests on electric cables under fire conditions (single cable)
- IEC 60811 series – Common test methods for insulating and sheathing materials
- IEC 60204-1 – Safety of machinery, electrical equipment (application guidance)

300/500 V	16 AWG	Rubber/PVC	With Ground (J/JZ)
8-Core	12-Core	Mobile/Fixed	Industrial Grade

ORDER REFERENCE & TECHNICAL SUPPORT

For inquiries and orders, please reference complete product codes:
FLGOU-J 8×1.5 0.5kV (Flat Rubber, 8-core with ground)
STN-JZ 8×1.5 0.5kV (Round PVC, 8-core with ground)
FLGOU-JZ 12×1.5 0.5kV (Flat Rubber, 12-core with ground)
STN-JZ 12×1.5 0.5kV (Round PVC, 12-core with ground)
Contact: **Tech@feichuncables.com** | **+86 138 5512 3218**
Custom core counts available · OZ variants without ground conductor · Consult factory for special length requirements and armored versions.

conductor provides essential personnel safety by ensuring bonding of metal enclosures and equipment frames to the system ground. The ground conductor must be connected at all junction points and terminations to maintain continuous earth continuity throughout the electrical installation. For applications not requiring ground conductor, specify the O or OZ

All electrical and mechanical specifications are nominal values subject to standard manufacturing tolerances. Current capacity ratings are provided as reference values and must be verified for specific installation conditions including ambient temperature, bundling arrangements, and duty cycle. Installation must comply with applicable national electrical codes and machinery safety standards. Flat