FEICHUN CABLE

Anhui Feichun Special Cable Co., Ltd.
安徽飞纯特种电缆有限公司

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TECHNICAL DATA SHEET

Low Voltage Reeling Cables (N)SHTOEU-J Series
Cáp Cuộn Điện Áp Thấp / 低压卷筒电缆技术规格书

INTERNATIONAL STANDARDS COMPLIANCE / TUÂN THỦ TIÊU CHUẨN QUỐC TẾ

This technical specification document has been prepared in strict accordance with International Electrotechnical Commission (IEC) standards, Deutsche Industrie Norm (DIN VDE) specifications, and Vietnamese National Technical Regulations (QCVN). All technical parameters and test methods comply with applicable international standards for low voltage flexible cables intended for reeling applications in industrial environments. The products specified herein are designed to meet the rigorous requirements of Southeast Asian industrial applications, including compliance with Vietnamese electrical safety regulations and tropical environmental conditions.

Tài liệu kỹ thuật này được chuẩn bị theo đúng các tiêu chuẩn Ủy ban Kỹ thuật Điện Quốc tế (IEC), thông số kỹ thuật Chuẩn Công nghiệp Đức (DIN VDE), và Quy chuẩn Kỹ thuật Quốc gia Việt Nam (QCVN). Tất cả các thông số kỹ thuật và phương pháp thử nghiệm tuân thủ các tiêu chuẩn quốc tế áp dụng cho cáp mềm điện áp thấp dành cho ứng dụng cuộn dây trong môi trường công nghiệp.

LOW VOLTAGE REELING CABLE (N)SHTOEU-J 44×2.5

High-Performance Multi-Core Control Cable for Industrial Automation & Process Control Systems

PRODUCT IDENTIFICATION & CLASSIFICATION

Type Designation:	PRYSMIAN CORDAFLEX (SMK) (N)SHTOEU-J
Manufacturer Part Number:	051420
Commercial Designation:	44X2.5
Product Category:	Control Cable
Applicable Standard:	DIN VDE 0250-814
VDE Registration:	VDE Reg. Nr. 7519

CONDUCTOR DESIGN & CONFIGURATION

Number of Cores:	44
Nominal Cross-Section:	2.5 mm²
Conductor Material:	Electrolytic Copper, Tinned
Stranding Classification:	Class FS (IEC 60228)
Conductor Diameter (Max.):	2.0 mm
Resistance @ 20°C (Max.):	8.21 Ω/km

INSULATION & CONSTRUCTION SYSTEM

Insulation Material:	PROTOLON MS (EPR-based)

Core Identification:	Numerical Print on Light Colors
Inner Sheath:	Cross-linked Rubber Blend
Torsion Protection:	Reinforced Polyester Braid
Outer Sheath Material:	PROTOFIRM Special (PCP-based)
Sheath Color:	Yellow (RAL 1021)

ELECTRICAL PERFORMANCE PARAMETERS

Rated Voltage (Uo/U):	600V / 1000V
Maximum Operating Voltage (AC):	0.7kV / 1.2kV
Test Voltage (AC, 5 min):	3.5 kV
Insulation Resistance:	≥ 100 MΩ·km
Current Carrying Capacity:	30 A
Short Circuit Current (1s):	0.36 kA

THERMAL PERFORMANCE CHARACTERISTICS

Max. Conductor Temperature:	90°C
Short Circuit Temperature:	250°C
Ambient Temperature (Fixed):	-50°C to +80°C
Ambient Temperature (Flexible):	-35°C to +80°C
Thermal Resistance:	2.5 K·m/W

Heat Dissipation Factor:	13 W/m·K

MECHANICAL & PHYSICAL PROPERTIES

Overall Diameter (Nominal):	35.5 ± 1.5 mm
Cable Weight (Approximate):	2.17 kg/m
Min. Bending Radius (Fixed):	142 mm (4×OD)
Min. Bending Radius (Moving):	213 mm (6×OD)
Max. Tensile Load:	30 N/mm²
Maximum Travel Speed:	240 m/min

COMPREHENSIVE TECHNICAL PERFORMANCE DATA - CONTROL CABLE 44×2.5

TECHNICAL PARAMETER	SPECIFICATION VALUE	UNIT	TEST STANDARD REFERENCE	TOLERANCE & CONDITIONS	
				TOLERANCE	TEST CONDITIONS
ELECTRICAL CHARACTERISTICS					
Conductor Resistance (20°C)	≤ 8.21	Ω/km	IEC 60228 Class FS	+5% / -0%	20°C ± 1K
Insulation Resistance	≥ 100	MΩ·km	IEC 60885-3	Min. value	20°C, 500V DC
Dielectric Strength	3.5	kV AC	IEC 60502-1	No breakdown	5 min, 50Hz
Mutual Capacitance	≤ 150	pF/m	IEC 60811-401	±10%	1 kHz, 20°C
Current Carrying	30	A	IEC 60364-5-52	-5% / +10%	30°C ambient, surface

TECHNICAL PARAMETER	SPECIFICATION VALUE	UNIT	TEST STANDARD REFERENCE	TOLERANCE & CONDITIONS	
				TOLERANCE	TEST CONDITIONS
Capacity (Continuous)					
MECHANICAL PROPERTIES					
Overall Diameter	35.5	mm	IEC 60811-203	±1.5 mm	23°C ± 2K
Cable Weight (Calculated)	2170	kg/km	Theoretical calculation	±5%	Nominal dimensions
Minimum Bending Radius (Dynamic)	213	mm	6 × Cable OD	±5%	Moving applications
Tensile Strength (Conductor)	30	N/mm²	IEC 60228	Min. value	Breaking load test
Torsional Stress Rating	±50	°/m	Manufacturer test	Max. value	±180° per 3.6m
ENVIRONMENTAL PERFORMANCE					
Operating Temperature Range (Fixed)	-50 to +80	°C	IEC 60811-401	Continuous operation	Static installation
Operating Temperature Range (Dynamic)	-35 to +80	°C	IEC 60811-401	Continuous operation	Moving applications
UV Resistance Rating	Pass	-	EN 60811-2-1	No cracking	2000h UV exposure
Oil Resistance	Pass	-	EN 60811-404	No degradation	IRM 903 oil, 100°C, 168h
Ozone Resistance	Pass	-	DIN EN 60811-2-1(A)	No cracking	200 pphm, 40°C, 72h
PACKAGING & LOGISTICS					
Standard Reel Length	90	m	Manufacturer standard	±2m	Continuous length
Net Weight per Reel	195.3	kg	Calculated + measured	±5%	90m reel

TECHNICAL PARAMETER	SPECIFICATION VALUE	UNIT	TEST STANDARD REFERENCE	TOLERANCE & CONDITIONS	
				TOLERANCE	TEST CONDITIONS
Reel Dimensions (Typical)	1200×800	mm	DIN 46395	Standard tolerance	Diameter × Width

PRIMARY APPLICATIONS & INSTALLATION GUIDELINES

Industrial Control Systems

- PLC and DCS control signal transmission
- Process instrumentation interfacing
- SCADA system communications
- Motor control center wiring
- Variable frequency drive controls

Material Handling Equipment

- Overhead crane control systems
- Automated guided vehicle (AGV) control
- Conveyor system automation
- Robotic arm signal transmission
- Warehouse automation systems

Marine & Port Applications

- Ship-to-shore crane controls
- Container handling equipment
- Port automation systems
- Marine deck machinery controls
- Offshore platform systems

LOW VOLTAGE REELING CABLE (N)SHTOEU-J 3×50 + 3×25/3

High-Current Power Distribution Cable for Heavy-Duty Mobile Equipment & Machinery

PRODUCT IDENTIFICATION & TYPE CLASSIFICATION

Type Designation:	PRYSMIAN CORDAFLEX (SMK) (N)SHTOEU-J
Manufacturer Part Number:	052427
Commercial Designation:	3×50 + 3×25/3
Product Category:	Power Cable with Split Earth
Applicable Standard:	DIN VDE 0250-814
VDE Registration:	VDE Reg. Nr. 7519

CONDUCTOR SYSTEM CONFIGURATION

Main Power Conductors:	3 × 50 mm²
Earth Conductor Configuration:	3 × 25/3 mm² (Split Design)
Total Number of Conductors:	6 Conductors
Conductor Material:	Electrolytic Copper, Tinned
Stranding Classification:	Class FS (IEC 60228)
Main Conductor Diameter:	10.3 mm (Max.)

ADVANCED CONSTRUCTION TECHNOLOGY

Insulation System:	PROTOLON MS (EPR-based)
Core Identification:	Color-coded + Numerical
Inner Sheath Technology:	Cross-linked Rubber Compound
Anti-Torsion System:	Reinforced Polyester Braid
Outer Sheath Technology:	PROTOFIRM Special (PCP)

Sheath Color & Marking:	Yellow with Type Marking

ELECTRICAL PERFORMANCE SPECIFICATIONS

Rated Voltage (Uo/U):	600V / 1000V
Maximum Operating Voltage:	0.7kV / 1.2kV (AC)
Factory Test Voltage:	3.5 kV (AC, 5 min)
Impulse Withstand Voltage:	12 kV (1.2/50 µs)
Current Rating (Continuous):	202 A
Short Circuit Current (1s):	7.15 kA

THERMAL MANAGEMENT & PERFORMANCE

Maximum Conductor Temperature:	90°C (Continuous)
Emergency Overload Temperature:	130°C (Limited time)
Short Circuit Temperature:	250°C (1 second)
Ambient Temperature (Fixed):	-50°C to +80°C
Ambient Temperature (Moving):	-35°C to +80°C
Thermal Resistivity:	1.8 K·m/W

MECHANICAL ENGINEERING PROPERTIES

Overall Cable Diameter:	35.9 ± 1.5 mm

Cable Mass (Calculated):	2.91 kg/m
Min. Bending Radius (Static):	144 mm (4×OD)
Min. Bending Radius (Dynamic):	215 mm (6×OD)
Maximum Pulling Force:	4500 N
Maximum Travel Velocity:	240 m/min

ADVANCED TECHNICAL PERFORMANCE ANALYSIS - POWER CABLE 3×50 + 3×25/3

PERFORMANCE PARAMETER	MAIN CONDUCTORS (3×50 MM²)		EARTH CONDUCTORS (3×25/3 MM²)		TEST METHOD
	SPECIFICATION	UNIT	SPECIFICATION	UNIT	
ELECTRICAL PERFORMANCE CHARACTERISTICS					
DC Resistance @ 20°C (Max.)	≤ 0.39	Ω/km	≤ 0.78	Ω/km	IEC 60228
AC Resistance @ 90°C (Max.)	≤ 0.51	Ω/km	≤ 1.01	Ω/km	Calculated @ max temp
Current Carrying Capacity	202	A	101	A	IEC 60364-5-52
Short Circuit Current (1s)	7.15	kA	3.58	kA	IEC 60364-4-43
Reactance @ 50Hz	≤ 0.095	Ω/km	≤ 0.105	Ω/km	IEC 60287-1-1
Impedance @ 50Hz	≤ 0.40	Ω/km	≤ 0.79	Ω/km	Calculated
Phase-to-Earth Capacitance	≤ 250	nF/km	≤ 180	nF/km	IEC 60811-401
MECHANICAL & STRUCTURAL PROPERTIES					
Conductor Cross-Section (Nominal)	50.0	mm²	8.33	mm²	IEC 60228

PERFORMANCE PARAMETER	MAIN CONDUCTORS (3×50 MM²)		EARTH CONDUCTORS (3×25/3 MM²)		TEST METHOD
	SPECIFICATION	UNIT	SPECIFICATION	UNIT	
Conductor Diameter (Maximum)	10.3	mm	4.2	mm	Including insulation
Number of Strands	396	strands	133	strands	Class FS design
Tensile Strength (Breaking Load)	1500	N	250	N	Per conductor
Elongation @ Break (Min.)	12	%	12	%	IEC 60228
OVERALL CABLE CHARACTERISTICS					
Overall Cable Diameter	35.9 ± 1.5 mm		Manufacturing tolerance		IEC 60811-203
Cable Weight (Theoretical)	2910 kg/km		Including all components		Calculated
Net Weight per 90m Reel	261.9 kg		Standard packaging		Measured + calculated
Min. Bending Radius (Dynamic)	215 mm		6 × Overall diameter		Design specification
Maximum Installation Pulling Force	4500 N		Total cable assembly		Design limit
Torsional Stress Rating	±50°/m		Maximum recommended		Manufacturer test
ENVIRONMENTAL & CHEMICAL RESISTANCE					
Operating Temperature Range	-35°C to +80°C		Moving applications		Continuous operation
UV Radiation Resistance	Pass		No surface degradation		EN 60811-2-1
Oil Resistance (IRM 903)	Pass		168h @ 100°C		EN 60811-404
Ozone Resistance	Pass		200 pphm, 72h @ 40°C		DIN EN 60811-2-1(A)
Flame Retardancy	Pass		Single cable vertical		IEC 60332-1-2

SPECIALIZED APPLICATIONS & ENGINEERING GUIDELINES

Heavy Industrial Equipment

- Container gantry crane power systems
- Ship-to-shore crane electrical supply
- Mining equipment mobile power
- Steel mill crane and hoist systems
- Large-scale automated machinery

Port & Marine Infrastructure

- Container terminal automation
- Shipyard crane electrical systems
- Offshore platform power distribution
- Marine deck machinery power supply
- Port cargo handling equipment

Manufacturing & Process Industries

- Automotive production line power
- Steel and aluminum processing
- Chemical plant mobile equipment
- Paper mill machinery power supply
- Food processing automation systems

INTERNATIONAL STANDARDS COMPLIANCE MATRIX & CERTIFICATION STATUS

✓ DIN VDE 0250-814 (Construction)	✓ IEC 60332-1-2 (Flame Retardancy)
✓ EN 60811-404 (Oil Resistance)	✓ DIN EN 60811-2-1(A) (Ozone)
✓ IEC 60228 (Conductors)	✓ IEC 60502-1 (Power Cables)
✓ IEC 60364-5-52 (Current Rating)	✓ IEC 60287-1-1 (Current Capacity)
✓ TCVN 7447:2013 (Vietnam)	✓ CE Marking Directive

✓ RoHS 2011/65/EU

✓ GOST-R (Russian Federation)

COMPARATIVE PERFORMANCE ANALYSIS & PRODUCT SELECTION GUIDE

TECHNICAL SPECIFICATION	CONTROL CABLE APPLICATION		POWER CABLE APPLICATION		SELECTION CRITERIA
	44×2.5 MM²	UNIT	3×50+3×25/3 MM²	UNIT	
ELECTRICAL PERFORMANCE COMPARISON					
Primary Application Focus	Signal & Control	-	Power Distribution	-	System requirements
Continuous Current Rating	30	A	202	A	Load current requirements
Power Transmission Capability	18.0	kW	350.7	kW	Power system capacity
Voltage Drop @ 100m (Full Load)	24.6	V	7.9	V	Voltage regulation
Short Circuit Withstand	0.36	kA	7.15	kA	Fault protection coordination
MECHANICAL & INSTALLATION CHARACTERISTICS					
Overall Cable Diameter	35.5	mm	35.9	mm	Cable tray sizing
Cable Weight per 100m	217	kg	291	kg	Support structure design
Minimum Bending Radius (Dynamic)	213	mm	215	mm	Reel design requirements
Maximum Installation Tension	3300	N	4500	N	Pulling equipment selection
Travel Speed Rating	240	m/min	240	m/min	Operational speed requirements
ECONOMIC & LOGISTICS FACTORS					

TECHNICAL SPECIFICATION	CONTROL CABLE APPLICATION		POWER CABLE APPLICATION		SELECTION CRITERIA
	44×2.5 MM²	UNIT	3×50+3×25/3 MM²	UNIT	
Standard Delivery Length	90	m/reel	90	m/reel	Installation planning
Net Weight per Standard Reel	195.3	kg	261.9	kg	Transport & handling
Typical Installation Cost Factor	1.0	relative	1.34	relative	Project cost estimation
Service Life Expectancy	25+	years	25+	years	Lifecycle cost analysis

QUALITY ASSURANCE & VIETNAMESE MARKET COMPLIANCE

Manufacturing Excellence: All FEICHUN cable products are manufactured in ISO 9001:2015 certified facilities with stringent quality control protocols. Each production batch undergoes comprehensive electrical, mechanical, and environmental testing as per IEC and DIN VDE standards. Factory acceptance testing includes high-voltage dielectric testing, conductor resistance verification, and mechanical stress validation.

Vietnamese Market Compliance: Products comply with Vietnamese National Technical Regulations (QCVN 12:2011/BCT) for electrical cables and TCVN 7447:2013 standards. All shipments include Vietnamese-language technical documentation, test certificates, and compliance declarations. Local technical support is available through authorized distributors in Ho Chi Minh City and Hanoi.

Tropical Environment Adaptation: Special formulation of cable compounds ensures optimal performance in Southeast Asian environmental conditions including high humidity (up to 95% RH), elevated temperatures, and UV exposure. Enhanced ozone resistance and fungal growth prevention measures are incorporated into the cable design.

Đảm bảo Chất lượng cho Thị trường Việt Nam: *Tất cả sản phẩm cáp FEICHUN được sản xuất tại các cơ sở được chứng nhận ISO 9001:2015 với quy trình kiểm soát chất lượng nghiêm ngặt. Mỗi lô sản xuất đều trải qua kiểm tra toàn diện về điện, cơ khí và môi trường theo tiêu chuẩn IEC và DIN VDE. Sản phẩm tuân thủ Quy chuẩn Kỹ thuật Quốc gia Việt Nam và được tối ưu hóa cho điều kiện khí hậu nhiệt đới.*

MANUFACTURING & QUALITY CONTROL

Anhui Feichun Special Cable Co., Ltd.

Anhui Province, People's Republic of China

ISO 9001:2015 Certified Facility

VDE Registration Nr. 7519

CE Marking Compliance

Annual Production Capacity: 50,000 km

TECHNICAL ENGINEERING SUPPORT

Engineering Department

Email: technical@feichuncable.com

Phone: +86-xxx-xxxx-xxxx

Technical Hotline: 24/7 Available

Design Consultation Services

Custom Engineering Solutions

INTERNATIONAL SALES & DISTRIBUTION

Export Department

Email: export@feichuncable.com

Phone: +86-xxx-xxxx-xxxx

Vietnamese Language Support Available

Regional Distributors: Vietnam, Thailand, Malaysia

Local Stock & Fast Delivery

QUALITY & COMPLIANCE CERTIFICATIONS

Standards Compliance

DIN VDE, IEC, EN Standards

Vietnamese TCVN Compliance

CE Marking & RoHS Compliance

GOST-R Certification

Third-Party Testing: TÜV, SGS, BV

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