REPLACEMENT FOR TF KABLE NSHTÖU-J | 0.6/1 kV | NSHTÖU-J, DIN VDE 0250-814 | PCP rubber | article datasheet

FC-NSHTÖU-J 3×70+3G16 0.6/1 kV

Reeling Cable for Cranes and Conveyors – polychloroprene (PCP/CR) rubber compound 5GM5 to DIN VDE 0207-21, black. FeiChun replacement for TF Kable NSHTÖU-J: construction, dimensions, weight, current rating, standards and installation guidance.

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01 Application and Product Overview

FC-NSHTÖU-J 3×70+3G16 is a reeling Cable for Cranes and Conveyors rated 0.6/1 kV and the FeiChun replacement for TF Kable NSHTÖU-J 3×70+3G16. It has an outer diameter of 36.5 – 39.0 mm, weighs about 3,230 kg/km and carries 250 A in free air at 30 °C. The series covers 35 – 240 mm².

Typical applications

- Cable reels of harbour and container cranes, stacker-reclaimers and conveyor trippers
- Mobile power supply of rail-mounted machines with spring-driven or motor-driven reels
- Combined power and signal connections of mobile equipment in ports, mines and tunnels
- Outdoor service with exposure to UV radiation, ozone, oil and seawater spray

Design

Three power cores and three split protective-earth conductors in the interstices give a round, balanced cross-section that winds evenly on a reel.

3×70+3G16	0.6/1 kV	250 A	Ø 39.0 mm
Cross-section	Rated voltage U_0/U	Current at 30 °C	Outer dimension, max

Key features

- Fine-wire class 5 tinned or bare copper conductors to IEC 60228
- EPR rubber compound 3GI3 to DIN VDE 0207-20 insulation
- Travel speed up to 120 m/min, torsion up to ±25 °/m
- Flame-retardant to IEC 60332-1-2; oil, ozone and UV resistant

Replacement reference

REFERENCE PRODUCT	⇄	FEICHUN REPLACEMENT
TF Kable NSHTÖU-J 3×70+3G16 NSHTÖU-J, DIN VDE 0250-814		**FC-NSHTÖU-J 3×70+3G16 0.6/1 kV** Reeling Cable for Cranes and Conveyors

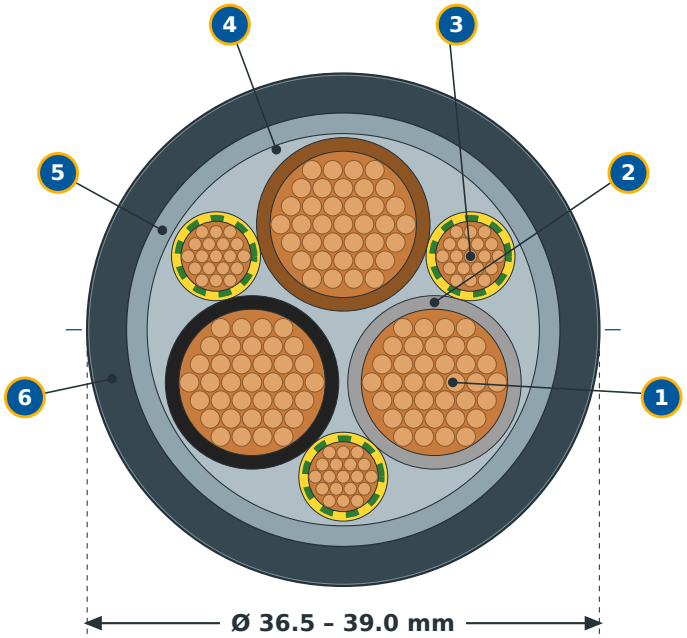
The FeiChun cable has the same core configuration, voltage rating and field of application as the reference product. Dimensions and weights are FeiChun design values; compare them with reels, guides and glands before direct replacement.

02 Construction

FEICHUN · CROSS-SECTION A-A · 0.6/1 kV

FC-NSHTÖU-J

Sample size 3×70+3G16 · Rev 0 · Illustrative, not to scale



No.	Component	Material
1	Conductor	Fine-wire copper, class 5 to IEC 60228
2	Insulation	EPR rubber compound 3GI3 to DIN VDE 0207-20
3	Protective conductor	Green-yellow insulated copper
4	Filler and anti-twist braid	Rubber compound, polyester braid
5	Inner sheath	Rubber or elastomer compound
6	Outer sheath	Polychloroprene (PCP/CR) rubber compound 5GM5 to DIN VDE 0207-21, black

The drawing shows 3×70+3G16. Other sizes have the same construction with scaled dimensions.

Construction details

Conductor	Fine-wire tinned or bare copper, class 5 to IEC 60228 / DIN VDE 0295
Insulation	EPR rubber compound 3GI3 to DIN VDE 0207-20
Protective conductor	Split into three parts in the interstices, green-yellow
Core identification	Colour coded to HD 308 / DIN VDE 0293
Inner sheath	Rubber or elastomer compound
Outer sheath	Polychloroprene (PCP/CR) rubber compound 5GM5 to DIN VDE 0207-21, black

Sheath material

Polychloroprene (PCP/CR) rubber 5GM5 is the classic heavy-duty sheath of DIN VDE 0250 cables: flame-retardant, resistant to oil, weather, ozone and UV radiation, and elastic under repeated bending.

03 Electrical, Thermal and Mechanical Data

Electrical data

Rated voltage U_0/U	0.6/1 kV AC
Test voltage	3.5 kV AC, 5 min
Current-carrying capacity	DIN VDE 0298-4, 30 °C ambient; see table
Conductor resistance	Maximum at 20 °C, class 5 to IEC 60228

Thermal and mechanical data

Maximum conductor temperature	+90 °C
Short-circuit temperature	+250 °C
Ambient temperature, fixed	-40 ... +80 °C
Ambient temperature, moving	-25 ... +80 °C
Minimum bending radius, moving	See table (6 × D)
Maximum tensile load	20 N/mm² of copper cross-section of the power cores
Maximum travel speed	120 m/min
Maximum torsion	±25 °/m
Flame propagation	IEC 60332-1-2
Halogen-free sheath	No
Oil, ozone and UV resistance	Resistant

04 Dimensions, Weights and Ratings

The highlighted row is 3×70+3G16; the adjacent sizes of the series are shown for comparison.

Type designation	Article no.	Conductor Ø max mm	Outer Ø min mm	Outer Ø max mm	Min. bend radius mm	Weight approx. kg/km	Max. pull N	R_{20} max Ω/km	Rated current A	I_k (1 s) kA
3×50+3G10	FC-TF0899-3503G10	9.2	32.0	34.0	204	2,360	3,000	0.386	202	7.15
3×70+3G16	**FC-TF0899-3703G16**	**10.8**	**36.5**	**39.0**	**292**	**3,230**	**4,200**	**0.272**	**250**	**10.01**
3×95+3G16	FC-TF0899-3953G16	12.6	40.5	43.0	322	4,080	5,700	0.206	302	13.59

Current-carrying capacity: design values to DIN VDE 0298-4, free air, 30 °C ambient. Pull force = 20 N/mm² × copper cross-section of the power cores. Dimensions and weights are nominal design values within manufacturing tolerances.

Ambient temperature factors

°C	20	25	30	35	40	45	50
Factor	1.08	1.04	1.00	0.96	0.91	0.87	0.82

Short-circuit rating

I_k = 0.143 kA/mm² × conductor cross-section for 1 s; for duration t: $I_{k,t} = I_{k,1s} / \sqrt{t}$.

05 Reel Design Data

Rated current for the number of layers on the reel (DIN VDE 0298-4 factors 0.80 / 0.61 / 0.49 / 0.41) and the minimum reel core diameter (2 × bending radius).

Type designation	Outer Ø max, mm	Min. reel core Ø, mm	Copper, kg/km	1 layer, A	2 layers, A	3 layers, A	4 layers, A
3×50+3G10	34.0	408	1,600	162	123	99	83
3×70+3G16	**39.0**	**584**	**2,290**	**200**	**152**	**122**	**102**
3×95+3G16	43.0	644	2,960	242	184	148	124

06 Selection Guide

Typical use: At 3×70+3G16 this size carries main travel and hoist drives, larger pumps and machine feeders up to about 135 kW.

At 400 V and cos φ 0.85, 3×70+3G16 supplies a three-phase load of about 135 kW at 30 °C in free air.

At 690 V and cos φ 0.85, 3×70+3G16 supplies a three-phase load of about 234 kW at 30 °C in free air.

For comparison: 3×50+3G10 has 34.0 mm, 2,360 kg/km and 202 A; 3×95+3G16 has 43.0 mm, 4,080 kg/km and 302 A. Choose the smallest size whose current, after the temperature and reel-layer factors, covers the load.

Example. A circuit carries 200 A at 40 °C ambient. Required table current = 200 / 0.91 = 220 A, so 3×70+3G16 (250 A) is suitable.

On a reel with 2,500 mm flange diameter, 1,000 mm traverse and 584 mm core, about 2,580 m of 3×70+3G16 can be wound (indicative).

07 Standards and Testing

Standard	Scope
IEC 60228 / DIN VDE 0295	Conductors, class 5
DIN VDE 0298-3	Bending radii and tensile loads
DIN VDE 0298-4	Current-carrying capacity
IEC 60332-1-2	Flame propagation, single cable
DIN VDE 0250-814	Design reference for the construction
IEC 60811-404	Mineral oil resistance

Routine and type tests

- AC voltage test on every delivery length: 3.5 kV, 5 min
- Conductor resistance, dimensions and insulation thickness
- Continuity of all conductors
- Flame propagation, IEC 60332-1-2 (type test)

Test documentation: every delivery comes with a test certificate from FeiChun's own laboratory; third-party witnessed tests can be arranged at the buyer's cost.

08 Installation, Marking and Delivery

Installation guidance

- Unwind the cable tangentially from the drum; avoid loops, kinks and pulling over the drum flange.
- Keep the bending radius and tensile load within the values in this datasheet.
- Use a reel core diameter of at least twice the minimum bending radius; fit a guide so that turns do not cross.
- Before first operation, let the cable relax at full length to release torsion from transport.
- Connect the protective conductor at both ends before the other cores.

Sheath marking

FEICHUN FC-NSHTÖU-J 3×70+3G16 0.6/1 kV [year] [metre mark]

Packing and delivery

Packing	Steel or fumigated wooden drums; cable ends sealed
Delivery length	As ordered, in one continuous length
Lead time	2–3 weeks after technical approval
Warranty	1 year, covering failures not caused by human factors
Terms	FCA buyer's nominated forwarder's warehouse in China (Incoterms 2020); prices subject to LME copper

Order example: FC-NSHTÖU-J 3×70+3G16 0.6/1 kV – replacement for TF Kable NSHTÖU-J 3×70+3G16, 500 m on one drum. State type, cross-section, voltage, length per piece and installation conditions when requesting a quotation.

09 Certification and Quality

FeiChun holds CE (Low Voltage Directive), EAC and UKCA certificates and an ATEX documentation verification for defined product groups. Whether a certificate scope covers this construction is confirmed per project. All cable is routine-tested over 100 % of the delivered length.

10 Related Datasheets

This datasheet in Russian: FC-NSHTÖU-J 3×70+3G16 0.6/1 kV

- FC-NSHTÖU-J 3×50+3G10 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3×95+3G16 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3×35+3G6 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3×120+3G25 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3G1.5 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 4G1.5 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 5G1.5 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 7G1.5 0.6/1 kV – replacement for TF Kable NSHTÖU-J

Library overview: FeiChun replacements for TF Kable

Frequently asked questions

Can FC-NSHTÖU-J replace TF Kable NSHTÖU-J 3×70+3G16?

Yes. It is designed with the same core configuration, voltage rating and field of application. Compare the outer diameter, bending radius and weight with your reel, guides or glands before ordering; FeiChun confirms suitability on request.

What are the outer diameter and minimum bending radius of 3×70+3G16?

Outer diameter 36.5 – 39.0 mm; minimum bending radius in moving operation 292 mm (7.5 × D).

What current can 3×70+3G16 carry?

250 A in free air at 30 °C ambient. Apply the temperature factors in section 04 and the layer factors when wound on a reel.

Is the cable halogen-free?

No. The PCP rubber sheath contains halogen; a halogen-free PUR version can be offered.

11 Trademark Notice and Intellectual Property

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Technical and commercial contacts

Anhui FeiChun Special Cable Co., Ltd.
International Business Department · Hefei National Economic and Technological Development Zone, Hefei, Anhui, China
Technical support: Tech@feichuncables.com
Mining and heavy industry: mining@feichuncables.com
Zihao Yang, Global Sales Manager: zihao.yang@feichuncables.com
WhatsApp: +86 138 5512 3218
Web: www.feichuncables.com

Document control

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