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

# FC-NSHTÖU-J 3G2.5 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 3G2.5 is a reeling Cable for Cranes and Conveyors rated 0.6/1 kV and the FeiChun replacement for TF Kable NSHTÖU-J 3G2.5. It has an outer diameter of 13.7 – 14.6 mm, weighs about 249 kg/km and carries 31 A in free air at 30 °C. The series covers 1.5 – 240 mm².

### Design

3 cores laid up with a short lay length, the green-yellow protective core included. Fine-wire class 5 copper conductors and rubber insulation give the flexibility needed for repeated movement.

### 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

| 3G2.5 | 0.6/1 kV | 31 A | Ø 14.6 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

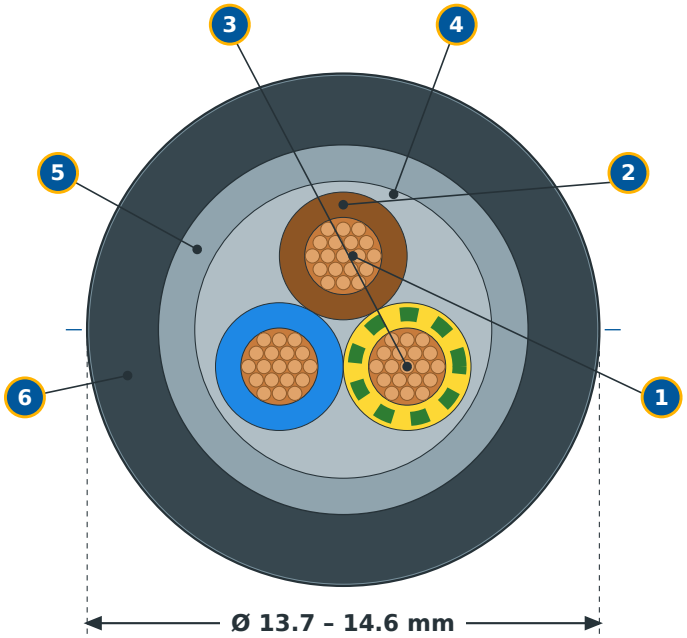
| REFERENCE PRODUCT | ⇄ | FEICHUN REPLACEMENT |
|---|---|---|
| **TF Kable NSHTÖU-J 3G2.5**<br>NSHTÖU-J, DIN VDE 0250-814 | | **FC-NSHTÖU-J 3G2.5 0.6/1 kV**<br>Reeling Cable for Cranes and Conveyors |

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 3G2.5 · 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 3G2.5. 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 |
| **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 (5 × 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 3G2.5; 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 3G1.5 | FC-TF0858-3G15 | 1.7 | 12.6 | 13.4 | 68 | 197 | 90 | 13.3 | 23 | 0.214 |
| **3G2.5** | **FC-TF0858-3G25** | **2.2** | **13.7** | **14.6** | **72** | **249** | **150** | **7.98** | **31** | **0.357** |
| 3G4 | FC-TF0858-3G4 | 2.7 | 15.1 | 16.0 | 80 | 319 | 240 | 4.95 | 42 | 0.572 |

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 |
|---|---|---|---|---|---|---|---|
| 3G1.5 | 13.4 | 136 | 40 | 18 | 14 | 11 | 9 |
| **3G2.5** | **14.6** | **144** | **67** | **25** | **19** | **15** | **13** |
| 3G4 | 16.0 | 160 | 107 | 34 | 26 | 21 | 17 |

## 06 Selection Guide

**Typical use:** At 3G2.5 this size suits auxiliary circuits: brakes, fans, lighting, heaters, limit switches and small motors up to about 17 kW.

For comparison: 3G1.5 has 13.4 mm, 197 kg/km and 23 A; 3G4 has 16.0 mm, 319 kg/km and 42 A. Choose the smallest size whose current, after the temperature and reel-layer factors, covers the load.

**Example.** A circuit carries 24 A at 40 °C ambient. Required table current = 24 / 0.91 = 27 A, so 3G2.5 (31 A) is suitable.

On a reel with 2,500 mm flange diameter, 1,000 mm traverse and 144 mm core, about 20,180 m of 3G2.5 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 3G2.5 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 3G2.5 0.6/1 kV** – replacement for TF Kable NSHTÖU-J 3G2.5, 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 3G2.5 0.6/1 kV

- FC-NSHTÖU-J 3G1.5 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3G4 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3G6 0.6/1 kV – replacement for TF Kable NSHTÖU-J
- FC-NSHTÖU-J 3G10 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 3×35+3G6 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 3G2.5?**

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 3G2.5?

Outer diameter 13.7 – 14.6 mm; minimum bending radius in moving operation 72 mm (5 × D).

### What current can 3G2.5 carry?

31 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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### Document control

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