REPLACES AEIN WIRE & CABLE (N)TSCGEWÖU FO | 6/10 kV | (N)TSCGEWÖU | 6G62.5 | PCP rubber, red

# FC-NTS-FO 3×150+2×70/2+6G62.5

# 6/10 kV

Replacement for Aein Wire & Cable (N)TSCGEWÖU FO 3×150+2×70/2+6G62.5. Medium-Voltage Reeling Cable with Integrated Optical Fibres with 6 multimode fibres G62.5/125 (OM1) – construction, dimensions, weight, current rating, fibre data, standards and installation guidance.

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## 01 Application and Product Overview

FC-NTS-FO 3×150+2×70/2+6G62.5 is a medium-Voltage Reeling Cable with Integrated Optical Fibres rated 6/10 kV and the FeiChun replacement for Aein Wire & Cable (N)TSCGEWÖU FO 3×150+2×70/2+6G62.5. It has an outer diameter of 67.5 – 71.5 mm, weighs about 8,320 kg/km and carries 370 A in free air at 30 °C. The series covers 25 – 150 mm².

### Design

Three power cores rated 6/10 kV with EPR insulation between inner and outer semi-conductive layers. The protective earth conductor is split into two parts in two outer interstices; the optical element with 6 multimode fibres G62.5/125 (OM1) lies in the third interstice. An anti-torsion braid is vulcanised between inner and outer sheath.

### Typical applications

- Motor-driven monospiral and cylindrical reels of ship-to-shore, RMG, RTG and ASC cranes
- OM1 multimode fibres compatible with existing 62.5/125 networks
- Ship loaders, stackers, reclaimers and bucket-wheel machines on rails
- Power supply and data link (PLC, CCTV, remote operation) in one reeling cable
- Outdoor port service with UV radiation, ozone and seawater spray

| 3×150+2×70/2+6 G62.5 | 6/10 kV | 370 A | Ø 71.5 mm |
|---|---|---|---|
| Cross-section | Rated voltage $U_0/U$ | Current at 30 °C | Outer dimension, max |

### Key features

- Tinned fine-wire class 5 copper conductors to IEC 60228
- EPR insulation with inner and outer semi-conductive layers, cross-linked in one process
- Optical element: 6 multimode fibres G62.5/125 (OM1) in gel-filled loose tubes
- Travel speed up to 120 m/min, torsion ±25 °/m
- Anti-torsion braid between inner and outer sheath
- Flame-retardant to IEC 60332-1-2; oil-resistant to EN 60811-404; UV and ozone resistant

### Replacement reference

REFERENCE PRODUCT
**Aein Wire & Cable (N)TSCGEWÖU FO 3×150+2×70/2+6G62.5**
(N)TSCGEWÖU

⇄

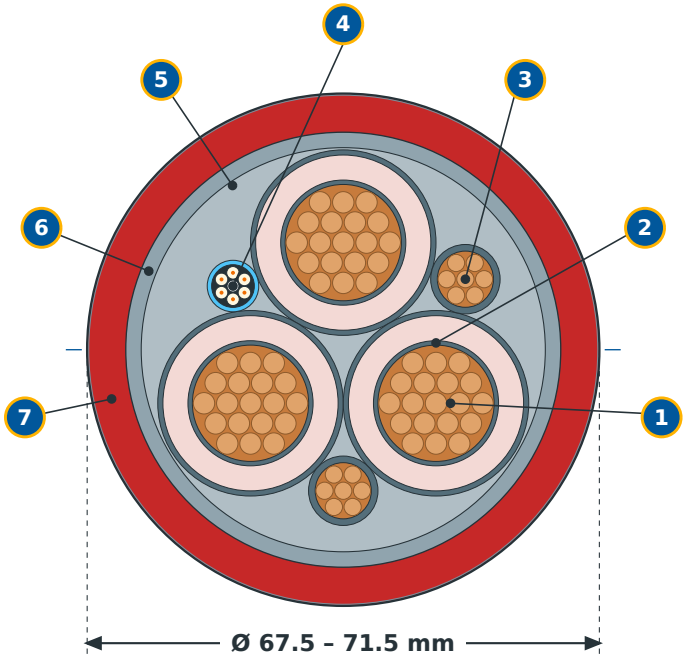
FEICHUN REPLACEMENT
**FC-NTS-FO 3×150+2×70/2+6G62.5 6/10 kV**
Medium-Voltage Reeling Cable with Integrated Optical Fibres

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 · 6/10 kV**

**FC-NTS-FO**
Sample size 3×150+2×70/2+6G62.5 · Rev 0 · Illustrative, not to scale




| No. | Component | Material |
|---|---|---|
| 1 | Conductor | Tinned fine-wire copper, class 5 to IEC 60228 |
| 2 | Insulation and semi-conductive layers | EPR rubber 3GI3 between inner and outer semi-conductive layers |
| 3 | Protective earth conductor | Copper, semi-conductive rubber covering |
| 4 | Optical element | 6 multimode fibres G62.5/125 (OM1); ETFE tubes around GRP support |
| 5 | Filler and anti-torsion braid | Rubber filler; polyester braid |
| 6 | Inner sheath | Rubber compound 5GM3 |
| 7 | Outer sheath | Polychloroprene rubber compound 5GM5 to DIN VDE 0207-21, red |

The drawing shows 3×150+2×70/2+6G62.5. Other sizes have the same construction with scaled dimensions.

### Construction details

| | |
|---|---|
| **Construction basis** | FeiChun standard construction for (N)TSCGEWÖU reeling cables with integrated optical fibres, designed to DIN VDE 0250-813. The core configuration, voltage rating and optical element match the reference type. |
| **Conductor** | Tinned copper, very finely stranded, class 5 to IEC 60228 / DIN VDE 0295 |
| **Insulation** | EPR compound 3GI3 to DIN VDE 0207-20, with inner and outer semi-conductive rubber layers extruded and cross-linked in one process; the outer layer strips easily |
| **Core identification** | Natural-coloured insulation under black semi-conductive layer; cores numbered 1–3 |
| **Protective earth** | Copper, class 5, with semi-conductive rubber covering, split into two parts in two outer interstices |
| **Optical element** | 6 multimode fibres G62.5/125 (OM1); located in an outer interstice |
| **Inner sheath** | Rubber compound 5GM3 to DIN VDE 0207-21, also acting as water barrier |
| **Anti-torsion braid** | Polyester (synthetic thread) braid, vulcanised between inner and outer sheath |
| **Outer sheath** | Polychloroprene rubber compound 5GM5 to DIN VDE 0207-21, red; resistant to oil (EN 60811-404), UV radiation and ozone |
| **Marking** | FEICHUN FC-NTS-FO 3×150+2×70/2+6G62.5 6/10 kV, metre marking |

### Optical fibre data

| | |
|---|---|
| **Fibre type** | Multimode G62.5/125 µm OM1, IEC 60793-2-10 A1b |
| **Attenuation, cabled** | ≤ 3.5 dB/km at 850 nm; ≤ 1.5 dB/km at 1300 nm |
| **Typical link reach** | 1 Gbit/s Ethernet up to 275 m |
| **Optical element** | Six gel-filled ETFE buffer tubes (1–4 fibres each) stranded around a central GRP support element, with a rubber element sheath; 250 µm coated fibres |
| **Fibre identification** | Colour code to IEC 60304 / DIN VDE 0888; tubes colour-coded |
| **Fibre strain** | Fibres lie with excess length in the tubes so that reeling strain is not transferred to the fibres |
| **Optical test** | Attenuation of every fibre measured by OTDR after cabling; values in the test certificate |

### Sheath material

The red polychloroprene (CR) outer sheath, compound 5GM5 to DIN VDE 0207-21, is abrasion- and tear-resistant, flame-retardant and resistant to oil, weather, ozone and UV radiation. The red colour identifies medium-voltage cables on site.

## 03 Electrical, Thermal and Mechanical Data

### Electrical data

| | |
|---|---|
| **Rated voltage $U_0/U$** | 6/10 kV AC |
| **Test voltage** | 17 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** | -35 … +80 °C |
| **Minimum bending radius, moving** | See table (12 × 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 3×150+2×70/2+6G62.5; 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 3×120+2×70/2+6G62.5 | FC-FO1841-312027026G | 14.2 | 63.5 | 67.5 | 810 | 7,170 | 7,200 | 0.161 | 322 | 17.16 |
| **3×150+2×70/2+6G62.5** | **FC-FO1841-315027026G** | **15.8** | **67.5** | **71.5** | **858** | **8,320** | **9,000** | **0.129** | **370** | **21.45** |

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 |
|---|---|---|---|---|---|---|---|
| 3×120+2×70/2+6G62.5 | 67.5 | 1,620 | 3,820 | 258 | 196 | 158 | 132 |
| **3×150+2×70/2+6G62.5** | **71.5** | **1,716** | **4,620** | **296** | **226** | **181** | **152** |

## 06 Selection Guide

**Typical use:** 3×150+2×70/2+6G62.5 is a heavy MV feeder for ship-to-shore cranes, draglines, shovels and dredgers of about 6.4 MVA.

At 10 kV, 3×150+2×70/2+6G62.5 transmits about 6.41 MVA continuously in free air at 30 °C (one layer on a reel: about 5.13 MVA).

For comparison: 3×120+2×70/2+6G62.5 has 67.5 mm, 7,170 kg/km and 322 A; 3×150+2×70/2+6G62.5 has 71.5 mm, 8,320 kg/km and 370 A. Choose the smallest size whose current, after the temperature and reel-layer factors, covers the load.

**Example.** A circuit carries 296 A at 40 °C ambient. Required table current = 296 / 0.91 = 326 A, so 3×150+2×70/2+6G62.5 (370 A) is suitable.

On a reel with 2,500 mm flange diameter, 1,000 mm traverse and 1,716 mm core, about 380 m of 3×150+2×70/2+6G62.5 can be wound (indicative).

## 07 Standards and Testing

| Standard | Scope |
|---|---|
| **DIN VDE 0250-813** | Design reference for the construction |
| **IEC 60228 / DIN VDE 0295** | Conductors, class 5 |
| **DIN VDE 0207-20 / -21** | Insulation and sheath compounds |
| **DIN VDE 0298-3 / -4** | Bending radii, tensile loads and current ratings |
| **IEC 60332-1-2** | Flame propagation, single cable |
| **EN 60811-404** | Mineral oil resistance |
| **IEC 60793-2-10** | Multimode optical fibres (A1a OM2 / A1b OM1) |
| **IEC 60794-1-21** | Optical cables – mechanical test methods |
| **IEC 60502-2 (method)** | Partial-discharge and voltage tests |

### Routine and type tests

- AC voltage test on every delivery length: 17 kV, 5 min
- Conductor resistance, dimensions and insulation thickness
- Continuity of all conductors and fibres
- Partial-discharge test of the power cores (IEC 60502-2 method)
- 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.
- Use MV terminations and couplers suitable for screened flexible cores; connect all earth conductors at both ends.

### Sheath marking

```
FEICHUN FC-NTS-FO 3×150+2×70/2+6G62.5 6/10 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-NTS-FO 3×150+2×70/2+6G62.5 6/10 kV** – replacement for Aein Wire & Cable (N)TSCGEWÖU FO 3×150+2×70/2+6G62.5, 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

- FC-NTS-FO 3×150+2×70/2+12E9 6/10 kV – replaces Aein Wire & Cable (N)TSCGEWÖU FO
- FC-NTS-FO 3×120+2×70/2+6G62.5 6/10 kV – replaces Aein Wire & Cable (N)TSCGEWÖU FO
- FC-NTS-FO 3×120+2×70/2+12E9 6/10 kV – replaces Aein Wire & Cable (N)TSCGEWÖU FO
- FC-NTS-FO 3×95+2×50/2+6G62.5 6/10 kV – replaces Aein Wire & Cable (N)TSCGEWÖU FO
- FC-NTS-FO 3×25+2×25/2+6G62.5 6/10 kV – replaces TEBAOFLEX (N)TSCGEWÖU FO
- FC-NTS-FO 3×25+2×25/2+12G62.5 6/10 kV – replaces Huadong Cable (N)TSCGEWÖU FO

Library overview: FeiChun replacements for Aein Wire & Cable fibre-optic reeling cables

### Frequently asked questions

**Can FC-NTS-FO 3×150+2×70/2+6G62.5 replace Aein Wire & Cable (N)TSCGEWÖU FO 3×150+2×70/2+6G62.5?**
Yes. It has the same core configuration, voltage rating, optical-fibre type and count, and field of application. Compare outer dimension, bending radius, weight and the fibre-optic rotary joint (FORJ) channels with your reel before ordering; FeiChun confirms suitability on request.

**What are the outer diameter and minimum bending radius of 3×150+2×70/2+6G62.5?**
Outer diameter 67.5 – 71.5 mm; minimum bending radius in moving operation 858 mm (12 × D).

**Which optical fibres are included?**
6 multimode fibres G62.5/125 (OM1). Other fibre counts and types (E9/125, G50/125, G62.5/125 or combinations) are available on request.

**How are the fibres connected on the reel?**
Through a fibre-optic rotary joint (FORJ) on the reel axis, normally combined with the slip-ring assembly. Match the FORJ channels and fibre type (single-mode or multimode) to the fibres in use and keep spare fibres for later expansion.

**What current can 3×150+2×70/2+6G62.5 carry?**
370 A in free air at 30 °C. Apply the temperature factors and, on reels, the layer factors in this datasheet.

## 11 Trademark Notice and Intellectual Property

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### Document control

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