REPLACEMENT FOR TF KABLE (N)TSKCGEWÖU | 3.6/6 kV | (N)TSKCGEWÖU | PCP rubber | article datasheet

FC-(N)TSKCGEWÖU 3×120+2×70/2+1×16 3.6/6 kV

Medium-Voltage Mining Trailing Cable – polychloroprene (PCP/CR) rubber compound 5GM5 to DIN VDE 0207-21, black. FeiChun replacement for TF Kable (N)TSKCGEWÖU: construction, dimensions, weight, current rating, standards and installation guidance.

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01 Application and Product Overview

FC-(N)TSKCGEWÖU 3×120+2×70/2+1×16 is a medium-Voltage Mining Trailing Cable rated 3.6/6 kV and the FeiChun replacement for TF Kable (N)TSKCGEWÖU 3×120+2×70/2+1×16. It has an outer diameter of 64.5 – 68.5 mm, weighs about 7,710 kg/km and carries 322 A in free air at 30 °C. The series covers 25 – 185 mm².

Typical applications

- Trailing supply of draglines, shovels, drills and dredges in open-cast mines
- Heavy mobile equipment with high mechanical stress and abrasion
- Earth-continuity monitoring with a ground-check or pilot conductor where fitted
- Outdoor service with UV radiation, ozone, mud and water

Design

Three screened power cores rated 3.6/6 kV, a protective conductor split into two parts and one pilot core in the interstices, under an anti-twist braid.

3×120+2×70/2+1×16	3.6/6 kV	322 A	Ø 68.5 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
- Rubber insulation with inner and outer semi-conductive layers extruded in one pass
- Flame-retardant to IEC 60332-1-2; oil, ozone and UV resistant

Replacement reference

REFERENCE PRODUCT		FEICHUN REPLACEMENT
TF Kable (N)TSKCGEWÖU 3×120+2×70/2+1×16 (N)TSKCGEWÖU	⇄	**FC-(N)TSKCGEWÖU 3×120+2×70/2+1×16 3.6/6 kV** Medium-Voltage Mining Trailing Cable

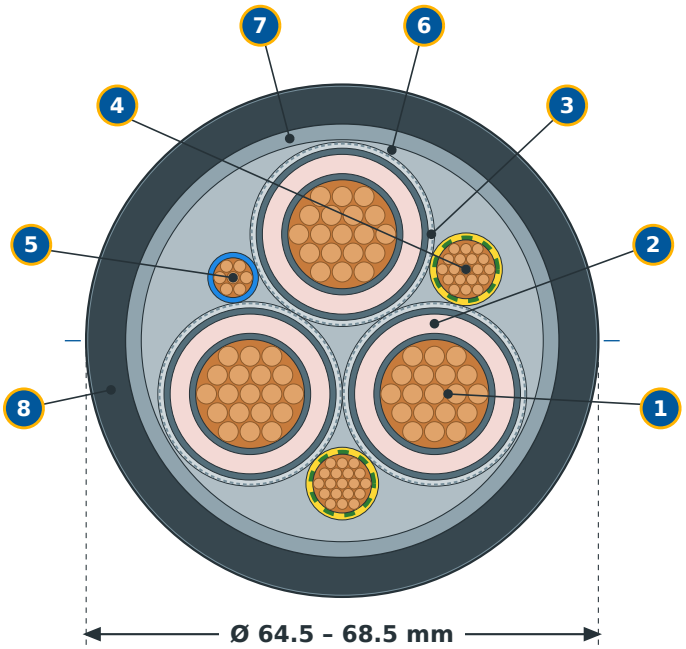
The FeiChun cable has the same core configuration, voltage rating and field of application as the reference product. Dimensions and weights are FeiChun design values; compare them with reels, guides and glands before direct replacement.

02 Construction

FEICHUN · CROSS-SECTION A-A · 3.6/6 kV

FC-(N)TSKCGEWÖU

Sample size 3×120+2×70/2+1×16 · Rev 0 · Illustrative, not to scale



No.	Component	Material
1	Conductor	Fine-wire copper, class 5 to IEC 60228
2	Insulation and semi-conductive layers	Rubber insulation between inner and outer semi-conductive layers
3	Core screen	Copper wire braid
4	Protective conductor	Green-yellow insulated copper
5	Pilot cores	Insulated copper, blue/white
6	Filler and anti-twist braid	Rubber compound, polyester braid
7	Inner sheath	Rubber or elastomer compound
8	Outer sheath	Polychloroprene (PCP/CR) rubber compound 5GM5 to DIN VDE 0207-21, black

The drawing shows 3×120+2×70/2+1×16. 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, with semi-conductive layers
Core screen	Copper wire braid, coverage ≥ 80 %
Protective conductor	Split into two parts in the interstices, green-yellow
Pilot / ground-check	1 × 16 mm², blue/white insulation
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	3.6/6 kV AC
Test voltage	11 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 (12 × D)
Maximum tensile load	20 N/mm² of copper cross-section of the power cores
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 3×120+2×70/2+1×16; 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
3×95+2×50/2+1×16	FC-TF0995-3952502116	12.6	61.0	64.5	774	6,540	5,700	0.206	278	13.59
3×120+2×70/2+1×16	**FC-TF0995-3120270211**	**14.2**	**64.5**	**68.5**	**822**	**7,710**	**7,200**	**0.161**	**322**	**17.16**
3×150+2×70/2+1×16	FC-TF0995-3150270211	15.8	68.5	72.5	870	8,900	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 Selection Guide

Typical use: 3×120+2×70/2+1×16 is a heavy MV feeder for ship-to-shore cranes, draglines, shovels and dredgers of about 3.3 MVA.

At 6 kV, 3×120+2×70/2+1×16 transmits about 3.35 MVA continuously in free air at 30 °C (one layer on a reel: about 2.68 MVA).

For comparison: 3×95+2×50/2+1×16 has 64.5 mm, 6,540 kg/km and 278 A; 3×150+2×70/2+1×16 has 72.5 mm, 8,900 kg/km and 370 A. Choose the smallest size whose current, after the temperature factors, covers the load.

Example. A circuit carries 257 A at 40 °C ambient. Required table current = 257 / 0.91 = 283 A, so 3×120+2×70/2+1×16 (322 A) is suitable.

06 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 0250-813	Design reference for the construction
IEC 60502-2	Extruded insulation 6 kV to 30 kV, test methods
IEC 60811-404	Mineral oil resistance

Routine and type tests

- AC voltage test on every delivery length: 11 kV, 5 min
- Conductor resistance, dimensions and insulation thickness
- Continuity of all conductors
- 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.

07 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.
- Protect trailing cables from being run over; use cable bridges or hangers where vehicles cross.
- Use MV terminations and couplers suitable for screened flexible cores; connect all earth conductors at both ends.

Sheath marking

FEICHUN FC-(N)TSKCGEWÖU 3×120+2×70/2+1×16 3.6/6 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-(N)TSKCGEWÖU 3×120+2×70/2+1×16 3.6/6 kV – replacement for TF Kable (N)TSKCGEWÖU 3×120+2×70/2+1×16, 500 m on one drum. State type, cross-section, voltage, length per piece and installation conditions when requesting a quotation.

08 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.

09 Related Datasheets

This datasheet in Russian: FC-(N)TSKCGEWÖU 3×120+2×70/2+1×16 3.6/6 kV

- FC-(N)TSKCGEWÖU 3×95+2×50/2+1×16 3.6/6 kV – replacement for TF Kable (N)TSKCGEWÖU
- FC-(N)TSKCGEWÖU 3×150+2×70/2+1×16 3.6/6 kV – replacement for TF Kable (N)TSKCGEWÖU
- FC-(N)TSKCGEWÖU 3×70+2×35/2+1×16 3.6/6 kV – replacement for TF Kable (N)TSKCGEWÖU
- FC-(N)TSKCGEWÖU 3×185+2×95/2+1×16 3.6/6 kV – replacement for TF Kable (N)TSKCGEWÖU
- FC-(N)TMCGETMPU 3×70+2×35/2+10 6/10 kV – replacement for TF Kable (N)TMCGETMPU
- FC-(N)TMCETMPU 3×50+2×25/2+10 6/10 kV – replacement for TF Kable (N)TMCETMPU
- FC-(N)TMCGETMPU 3×70+2×35/2+10 8.7/15 kV – replacement for TF Kable (N)TMCGETMPU
- FC-(N)TMCETMPU 3×50+2×25/2+10 8.7/15 kV – replacement for TF Kable (N)TMCETMPU

Library overview: FeiChun replacements for TF Kable

Frequently asked questions

Can FC-(N)TSKCGEWÖU replace TF Kable (N)TSKCGEWÖU 3×120+2×70/2+1×16?
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 3×120+2×70/2+1×16?
Outer diameter 64.5 – 68.5 mm; minimum bending radius in moving operation 822 mm (12 × D).

What current can 3×120+2×70/2+1×16 carry?
322 A in free air at 30 °C ambient. Apply the temperature factors in section 04.

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

10 Trademark Notice and Intellectual Property

TF Kable is a trademark of Grupa TF Kable. Type designations such as (N)TSCGEWÖU or NSHTÖU are standard designations. They are named only to identify the reference product for technical comparison. FeiChun Cables is not affiliated with or endorsed by the trademark owners.

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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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