FC
FEICHUN SPECIAL CABLES
Anhui FeiChun Special Cable Co., Ltd. · Hefei, China

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TYPE: SUBMERSIBLE MV | DIN VDE 0250-813 | 6/10 kV & 8.7/15 kV | EPR 3GI3 · CR 5GM5 | IEC 60332-1-2

Technical Data Sheet — (N)TSCGEWÖU Medium-Voltage Flexible Cables for Submersible Pumps

3×50+3×25/3 mm² 6/10 kV · 3×25+3×25/3 mm² 8.7/15 kV

Heavy-duty rubber-insulated, semi-conductive screened, strictly round trailing cables for the power supply of submersible pumps operating under permanent immersion in water and in water/oil media of petroleum processing facilities.

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Quantity basis: 2 × 100 m

01 Scope & Offered Items

This document defines the FeiChun offer for the two items enquired and states, point by point, the values proposed against the client's requirement schedule (Section 02).

ITEM 1

(N)TSCGEWÖU 3×50+3×25/3

U_0/U 6/10 kV · U_m 12 kV · for 6 kV AC networks

LENGTH	OUTER DIAMETER
1 × 100 m	47.5 ± 1.5 mm
WEIGHT	**SHORT-CIRCUIT (1 S)**
≈ 3.5 kg/m	7.15 kA

ITEM 2

(N)TSCGEWÖU 3×25+3×25/3

U_0/U 8.7/15 kV · U_m 17.5 kV · client ref. "NTSCGEWTÖU"

LENGTH	OUTER DIAMETER
1 × 100 m	52.0 ± 1.5 mm
WEIGHT	**SHORT-CIRCUIT (1 S)**
≈ 3.8 kg/m	3.58 kA

02 Compliance Matrix — Client Requirements vs FeiChun Proposal

Parameter	Required value	Proposed — Item 1 (6/10 kV)	Proposed — Item 2 (8.7/15 kV)	Status
Type designation	NTSCGEWÖU (DIN VDE 0250-813) or equivalent	FeiChun (N)TSCGEWÖU 6/10 kV 3×50+3×25/3 to DIN VDE 0250-813	FeiChun (N)TSCGEWÖU 8.7/15 kV 3×25+3×25/3 to DIN VDE 0250-813	Complies
Application	Power supply of submersible pumps; long-term operation in water and water/oil media (petroleum processing)	Designed for permanent immersion in fresh, process and mine water and in water/oil emulsions; water-resistant EPR insulation (water absorption test to EN 60811-402); oil- and hydrocarbon-resistant CR outer sheath (EN 60811-404). Also suitable for trailing, reeling and fixed service.		Complies
Rated voltage U_0/U	6/10 kV (6 kV AC network)	6/10 kV · U_m 12 kV · AC test 17 kV	8.7/15 kV · U_m 17.5 kV · AC test 24 kV	Complies
Cores & cross-section	3×50+3×25/3; 3×50+1×25 permitted; earth split or single — total CSA as required	3×50 + 3×25/3 mm² — protective earth split into 3 interstitial conductors (Σ 25 mm²)	3×25 + 3×25/3 mm² — protective earth split into 3 interstitial conductors (Σ 25 mm²)	Complies
Conductor	Tinned or plain high-flex copper; state standard	Tinned annealed electrolytic copper, fine-wire Class 5 to IEC 60228 / EN 60228 / DIN VDE 0295 (tinning chosen for corrosion protection under immersion)		Complies
Core insulation	High-modulus elastomer, compound 3GI3 or equivalent	EPR compound type 3GI3 to DIN VDE 0207-20; nominal thickness 3.4 mm	EPR compound type 3GI3 to DIN VDE 0207-20; nominal thickness 4.5 mm	Complies
Screening	Screen of conductive material	Extruded semi-conductive elastomer conductor screen + extruded semi-conductive insulation screen on every power core (triple extrusion, CCV line); earth conductors embedded in semi-conductive rubber		Complies
Shape & filling	Strictly round; core interstices filled with rubber	Rubber centre filler + interstitial rubber fillers, inner sheath extruded with pressure		Complies

Parameter	Required value	Proposed — Item 1 (6/10 kV)	Proposed — Item 2 (8.7/15 kV)	Status
	cord filler — no oval deformation	filling all interstices; out-of-roundness ≤ 5 % (in-line laser gauge, 100 % length)		
Outer diameter	— (to be stated)	47.5 ± 1.5 mm	52.0 ± 1.5 mm	Stated
Outer sheath	Abrasion-, oil- and petrol-resistant; flame retardant (single cable) — state standard	Heavy-duty polychloroprene (CR) compound type 5GM5 to DIN VDE 0207-21, with embedded polyester anti-torsion braid. Oil resistance: EN 60811-404 (IRM 902, 24 h / 100 °C); flame retardancy: IEC 60332-1-2 / EN 60332-1-2. Resistant to diesel, petrol (intermittent contact), hydraulic oils, water, ozone and UV.		Complies
Working temperature	— (to be stated)	Conductor max. +90 °C continuous · +250 °C short-circuit (≤ 5 s) · Ambient: fixed −40 to +80 °C, flexing −35 to +80 °C		Stated
Short-circuit current k3	— kA (to be stated)	7.15 kA (1 s) phase conductor · 3.58 kA (1 s) earth	3.58 kA (1 s) phase conductor · 3.58 kA (1 s) earth	Stated

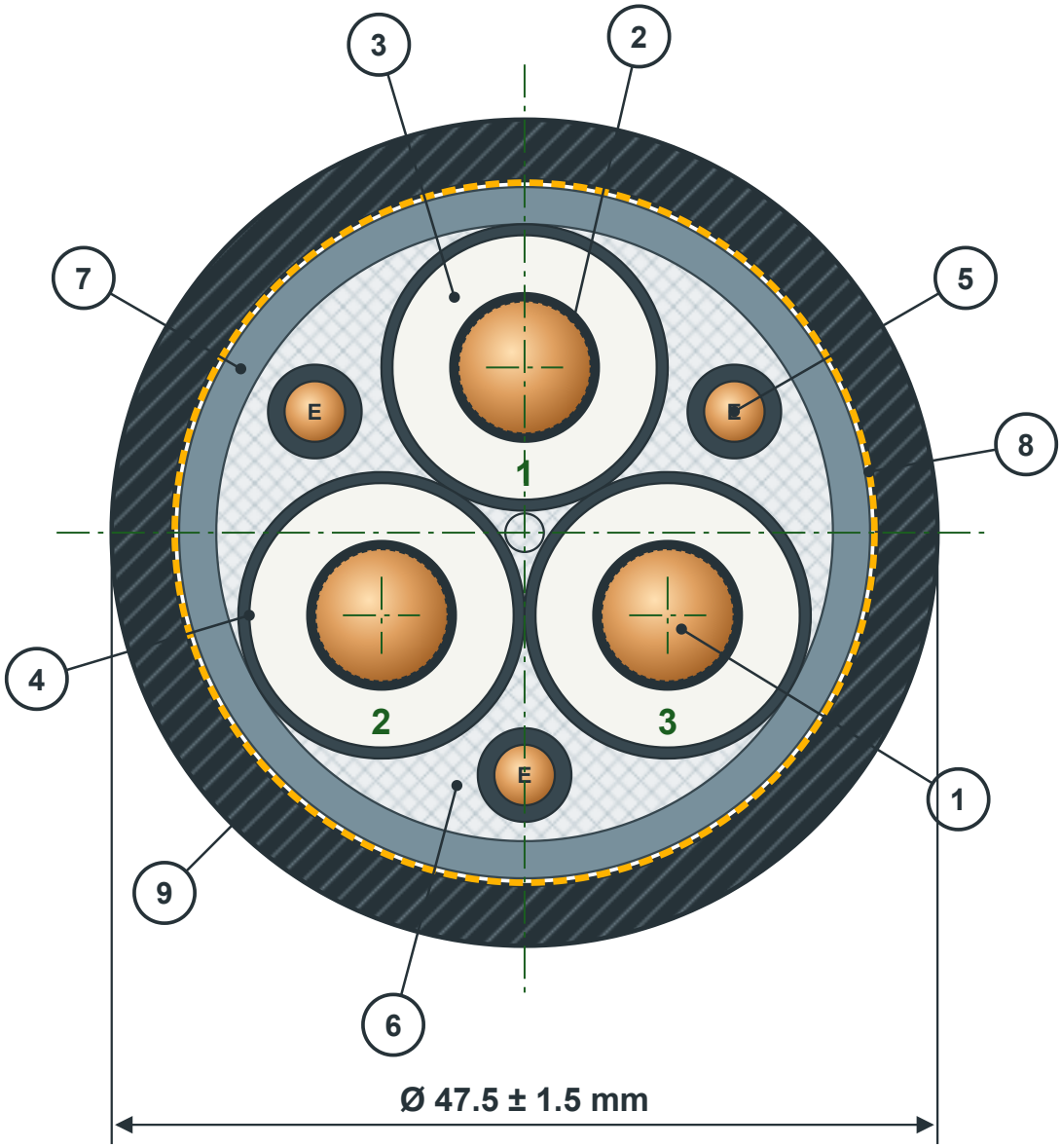
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03 Cable Construction

Pos.	Element	Design / material	Item 1	Item 2
1	**Phase conductor**	Tinned annealed Cu, Class 5 fine-wire, IEC 60228	50 mm² · Ø ≈ 9.6 mm	25 mm² · Ø ≈ 7.0 mm
2	**Conductor screen**	Extruded semi-conductive elastomer	≈ 0.6 mm	≈ 0.8 mm
3	**Insulation**	EPR type 3GI3 (DIN VDE 0207-20)	3.4 mm nom.	4.5 mm nom.
4	**Insulation screen**	Extruded semi-conductive elastomer, strippable	≈ 0.6 mm	≈ 0.8 mm
—	**Core identification**	Printed numbers 1 – 2 – 3 on cores	1 · 2 · 3	
5	**Protective earth**	3 × (25/3) mm² tinned Cu Class 5, each covered with semi-conductive rubber, laid in the outer interstices	Σ 25 mm²	
6	**Fillers**	Rubber centre filler + interstitial rubber fillers; cores laid up with short lay length	Round, ovality ≤ 5 %	
7	**Inner sheath**	Special rubber compound, pressure-extruded into all interstices	≈ 1.2 mm	≈ 1.6 mm
8	**Reinforcement**	High-tenacity polyester anti-torsion braid, vulcanised between sheaths	Integral	
9	**Outer sheath**	Polychloroprene (CR) type 5GM5 (DIN VDE 0207-21) — black (red / yellow on request)	≈ 2.2 mm	≈ 3.4 mm

04 Cross-Section Drawings

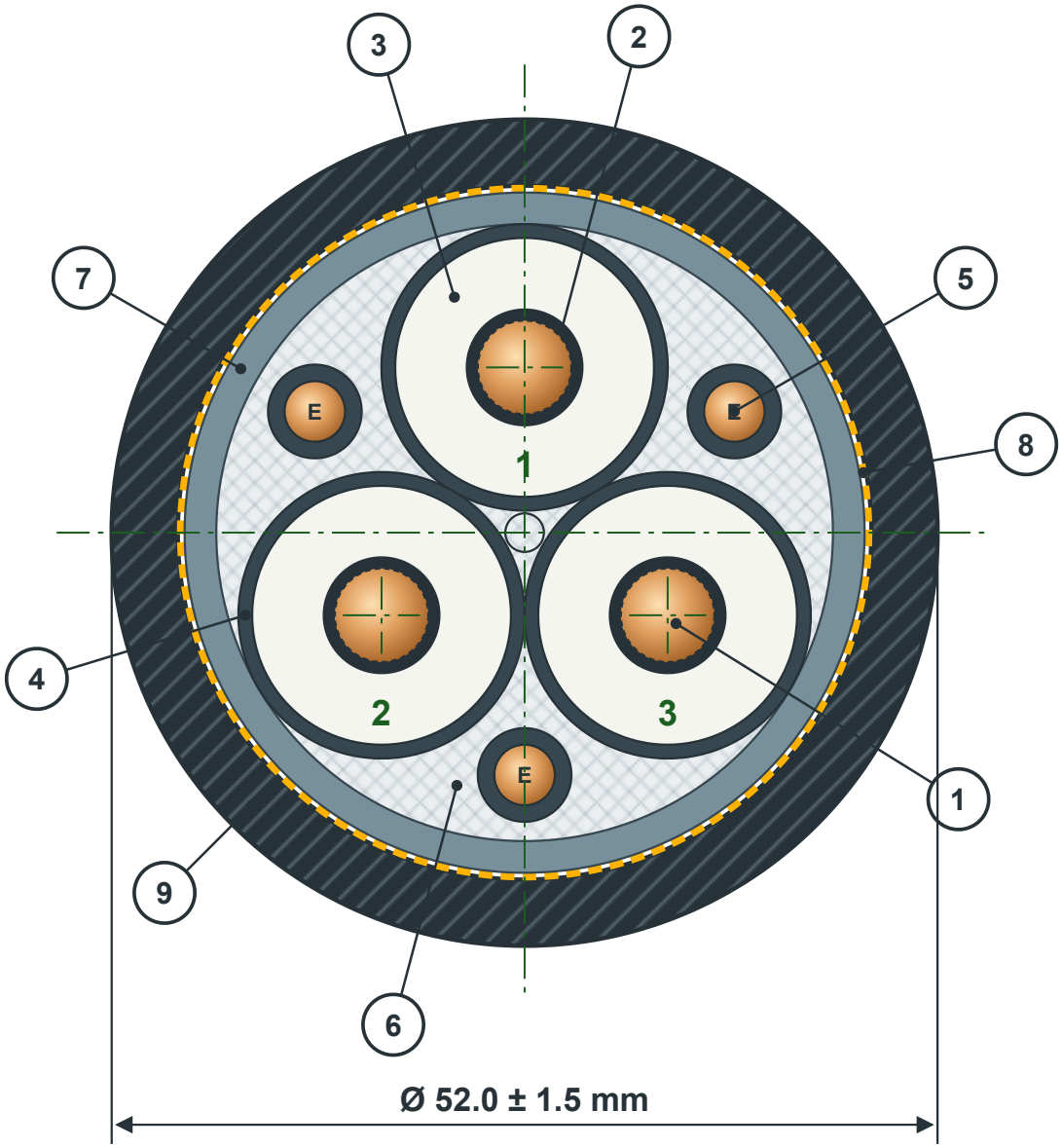
Fig. 1 — Item 1: (N)TSCGEWÖU 6/10 kV 3×50+3×25/3



FEICHUN CABLES · FIG. 1	Doc. FC-TDS-SUB-2026-N6S3	Rev. 0 · 20.10.2026
(N)TSCGEWÖU 6/10 kV 3×50+3×25/3 mm²	Section A–A · Scale NTS Projection: ISO-E (1st angle)	Dimensions in mm Drawn: FC Tech Dept.

Pos.	Element	Material
1	Phase conductor 50 mm² (cores 1–3)	Tinned Cu, Class 5
2	Conductor screen	Semi-conductive elastomer
3	Insulation 3.4 mm	EPR 3GI3
4	Insulation screen	Semi-conductive elastomer
5	Earth conductor 3×25/3 (E)	Tinned Cu + semi-con. rubber
6	Centre & interstitial fillers	Rubber cord / compound
7	Inner sheath	Special rubber
8	Anti-torsion braid	Polyester, high tenacity
9	Outer sheath	Polychloroprene 5GM5

Fig. 2 — Item 2: (N)TSCGEWÖU 8.7/15 kV 3×25+3×25/3



FEICHUN CABLES · FIG. 2	Doc. FC-TDS-SUB-2026-N6S3	Rev. 0 · 20.10.2026
(N)TSCGEWÖU 8.7/15 kV 3×25+3×25/3 mm²	Section B–B · Scale NTS Projection: ISO-E (1st angle)	Dimensions in mm Drawn: FC Tech Dept.

Pos.	Element	Material
1	Phase conductor 25 mm² (cores 1–3)	Tinned Cu, Class 5
2	Conductor screen	Semi-conductive elastomer
3	Insulation 4.5 mm	EPR 3GI3
4	Insulation screen	Semi-conductive elastomer
5	Earth conductor 3×25/3 (E)	Tinned Cu + semi-con. rubber
6	Centre & interstitial fillers	Rubber cord / compound
7	Inner sheath	Special rubber
8	Anti-torsion braid	Polyester, high tenacity
9	Outer sheath	Polychloroprene 5GM5

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05 Technical Data

Characteristic	Item 1 · 6/10 kV 3×50+3×25/3	Item 2 · 8.7/15 kV 3×25+3×25/3
DIMENSIONS & MASS		
Outer diameter	47.5 ± 1.5 mm	52.0 ± 1.5 mm
Nominal cable weight	≈ 3,500 kg/km	≈ 3,800 kg/km
Copper weight (calculation basis)	1,560 kg/km	890 kg/km
Delivery length	1 × 100 m	1 × 100 m
ELECTRICAL		
Rated voltage U_0/U (U_m)	6/10 kV (12 kV)	8.7/15 kV (17.5 kV)
AC test voltage, 50 Hz, 5 min	17 kV	24 kV
Partial discharge at 1.73 U_0	≤ 20 pC	≤ 20 pC
Max. DC resistance at 20 °C — phase	0.403 Ω/km	0.795 Ω/km
Max. DC resistance at 20 °C — earth (Σ)	0.795 Ω/km	0.795 Ω/km
Operating capacitance (approx.)	0.34 µF/km	0.23 µF/km
Inductance (approx.)	0.33 mH/km	0.36 mH/km
Current rating, in air 30 °C (DIN VDE 0298-4)	197 A	131 A
THERMAL		
Max. conductor temperature	+90 °C continuous · +250 °C short-circuit	
Ambient temperature — fixed	−40 °C to +80 °C	
Ambient temperature — flexing / moving	−35 °C to +80 °C	
MECHANICAL		
Min. bending radius — fixed installation	6 × D ≈ 285 mm	6 × D ≈ 312 mm
Min. bending radius — flexing / over sheaves	10 × D ≈ 475 mm	10 × D ≈ 520 mm
Max. tensile load on conductors (15 N/mm²)	2,625 N	1,500 N
Max. travel speed (trailing use)	120 m/min	

Characteristic	Item 1 · 6/10 kV 3×50+3×25/3	Item 2 · 8.7/15 kV 3×25+3×25/3
RESISTANCE PROPERTIES		
Water	Permanent immersion — fresh, process and mine water	
Oils & fuels	EN 60811-404 (mineral oil); resistant to diesel, hydraulic oil; petrol — intermittent contact	
Flame retardancy	IEC 60332-1-2 / EN 60332-1-2 (single cable)	
Ozone · UV · weathering	Resistant (EN 50396 ozone test; outdoor service)	
Abrasion · tear · notch	Heavy-duty CR 5GM5 with vulcanised anti-torsion braid	

06 Short-Circuit Withstand (k3)

Adiabatic calculation to IEC 60949: $I_k = k \cdot S/\sqrt{t}$ with k = 143 $A \cdot s^{1/2}/mm^2$ (copper, EPR, 90 °C → 250 °C).

Duration t	Item 1 · 6/10 kV		Item 2 · 8.7/15 kV	
	Phase 50 mm²	Earth Σ 25 mm²	Phase 25 mm²	Earth Σ 25 mm²
0.2 s	15.99 kA	7.99 kA	7.99 kA	7.99 kA
0.5 s	10.11 kA	5.06 kA	5.06 kA	5.06 kA
1.0 s (reference)	**7.15 kA**	**3.58 kA**	**3.58 kA**	**3.58 kA**
3.0 s	4.13 kA	2.06 kA	2.06 kA	2.06 kA

07 Standards, Testing & Certification

Applicable standards

- DIN VDE 0250-813 — (N)TSCGEWÖU heavy-duty MV flexible cables
- IEC 60228 / EN 60228 / DIN VDE 0295 — conductors, Class 5
- DIN VDE 0207-20 (EPR 3GI3) · DIN VDE 0207-21 (CR 5GM5)
- DIN VDE 0298-3 / -4 — usage guide & current ratings
- IEC 60332-1-2 / EN 60332-1-2 — flame propagation
- EN 60811 series — non-electrical tests (incl. -402, -404)

- IEC 60949 — short-circuit calculation

Routine & sample tests (every length)

- Conductor DC resistance
- AC voltage test 17 kV / 24 kV, 5 min
- Partial-discharge test (≤ 20 pC at 1.73 U_0)
- Dimensional check, OD & ovality, sheath thickness
- Hot-set test of insulation & sheath (sample)
- Water-immersion insulation resistance (sample)
- In-house laboratory test report supplied with each drum

Product certification covering (N)TSCGEWÖU: CE — attestation of conformity No. M.2025.206.C116598 (UDEM International Certification, LVD 2014/35/EU, valid to 01.04.2030) · EAC — certificate of conformity No. EAЭC KG417/052.CN.02.15390 (TR CU 004/2011, valid to 23.10.2030). Factory additionally holds IECEx/ATEX, VDE, UKCA and Russian fire-safety approvals.

08 Marking, Packing & Installation Notes

Sheath marking (embossed / printed, every 1 m)

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FEICHUN (N)TSCGEWÖU 3×50+3×25/3 6/10 kV DIN VDE 0250-813 CE 2026 ▪ 000 m
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FEICHUN (N)TSCGEWÖU 3×25+3×25/3 8.7/15 kV DIN VDE 0250-813 CE 2026 ▪ 000 m
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Packing	Item 1	Item 2
Drum type	Fumigated wooden drum, ISPM-15	Fumigated wooden drum, ISPM-15
Drum size (flange × width / barrel)	Ø 1,400 × 900 mm / Ø 1,000 mm	Ø 1,600 × 900 mm / Ø 1,050 mm
Gross weight per drum (approx.)	≈ 530 kg	≈ 610 kg
End protection	Both ends sealed with heat-shrink water-tight end caps; inner end accessible; drum lagged with battens	

Submersible service notes: keep end caps fitted until termination to prevent water ingress into conductors · use water-tight MV terminations / pump cable entries rated for the submersion depth · respect the minimum bending radius at the pump cable entry and over guide sheaves · support the cable with strain-relief grips so the tensile load stays within the values in Section 05 · terminate the semi-conductive screens and bond all three earth conductors together at both ends.

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