TYPE: TRM · Reeling | 6/10 kV (Um 12 kV) | 3×50 + 2×25/2 + 24FO

Alternative to Ariston reeling cable

Medium-voltage reeling cable with integrated optical fibre element

FC-REEL (N)TSCGEWÖU-FO-PUR 6/10 kV — flexible EPR-insulated, PUR-sheathed hybrid power and data cable for motorised drums on STS cranes, stacker-reclaimers, ship loaders and mining machines

Document no. **FC-TDS-TRM-2026-R4F8** Revision **B** Issued **16 Sep 2026**

Manufacturer **Anhui FeiChun Special Cable Co., Ltd.**

1. Scope and application

This technical data sheet defines a FeiChun cable engineered as a direct functional replacement for the Ariston 6/10 kV reeling cable of construction 3×50 + 2×25/2 + 24FO. Electrical ratings, conductor sizes, earth arrangement and fibre count match the reference design, so the cable fits existing drum, slip-ring and fibre rotary-joint arrangements without re-engineering.

The cable is designed for high mechanical stress in continuous reeling service: monospiral and cylindrical motorised drums, guide rollers and deflection pulleys, with combined tensile, torsional and bending loads at high travel speeds. The integrated 24-fibre element carries PLC, CCTV and remote-control data alongside the power supply.

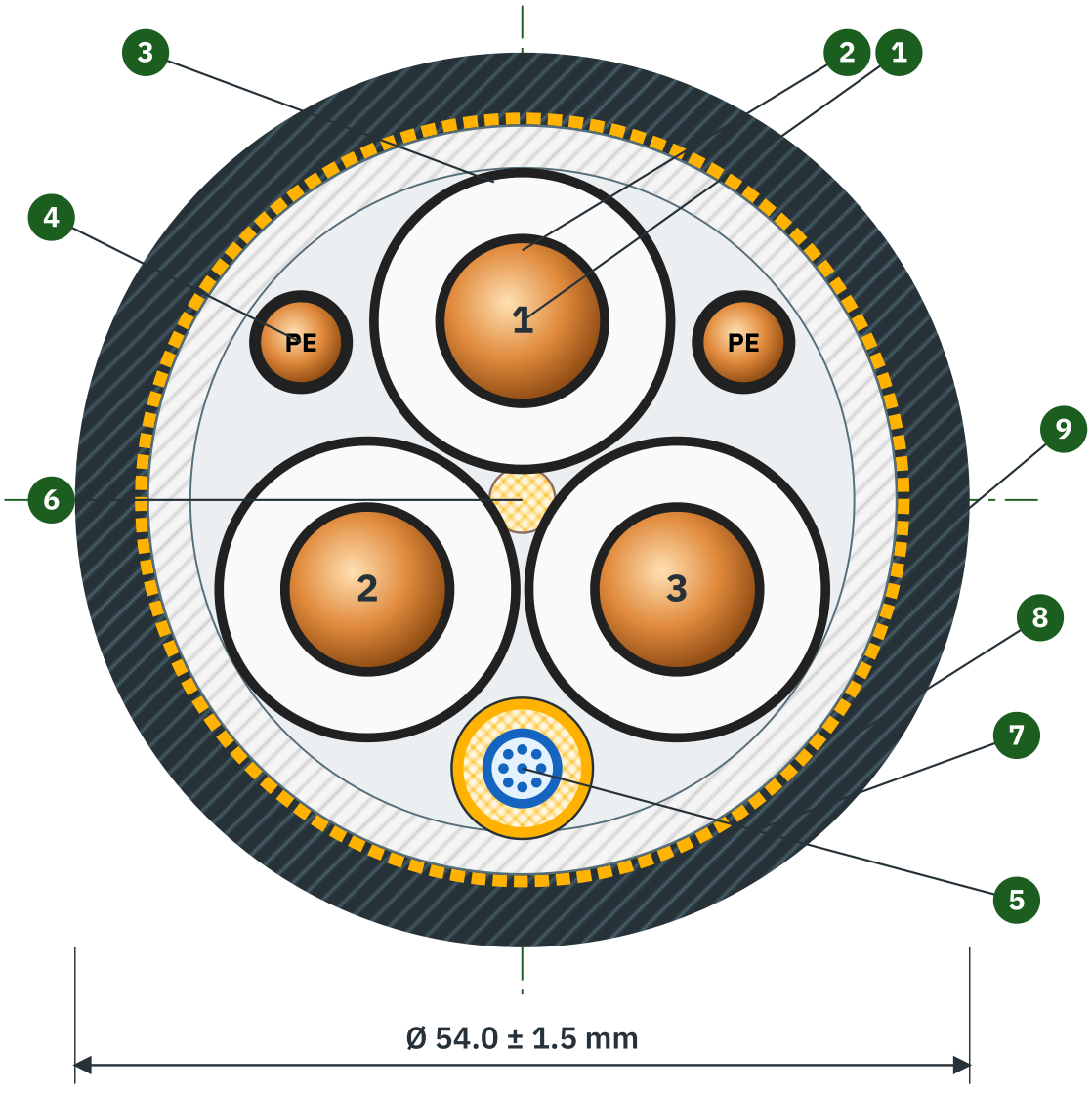
> Type designation
>
> **FC-REEL (N)TSCGEWÖU-FO-PUR 6/10 kV 3×50 + 2×25/2 + 24×G.652.D**
>
> Confirmed configuration: polyurethane (PUR) outer sheath, single-mode G.652.D fibres. Design values estimated on the DIN VDE 0250-813 construction basis.

2. Standards

Standard	Subject
DIN VDE 0250-813 (reference)	Construction basis for (N)TSCGEWÖU flexible MV reeling cables
IEC 60228 / DIN VDE 0295	Conductors — Class 5 flexible, tinned copper

DIN VDE 0207-20 / IEC 60502-2	EPR insulation compound (3GI3) and MV test regime
DIN VDE 0207-21	Sheath compounds (inner sheath 5GM5); PUR outer sheath per DIN VDE 0282-10 / EN 50363-10-2 basis
DIN VDE 0298-4	Current-carrying capacity and rating factors
IEC 60332-1-2	Flame propagation, single cable
IEC 60811-404 / EN 60811-2-1	Oil resistance of sheath
ITU-T G.652.D / IEC 60794-1-2	Single-mode fibre and optical cable mechanical tests
2014/35/EU, 2011/65/EU	Low Voltage Directive, RoHS

3. Cable construction



FEICHUN CABLES — SECTION A–A · 6/10 kV 3×50+2×25/2+24FO		
Doc no. FC-TDS-TRM-2026-R4F8	Rev. B	Scale: NTS
Projection: first angle (ISO 128)	Units: mm	Drawn: FC-TD

Pos.	Element	Material / design
1	Power conductor 1–3	Tinned annealed copper, Class 5, 50 mm²
2	Conductor screen	Extruded semi-conductive EPR
3	Insulation + insulation screen	EPR 3GI3, 3.4 mm nom.; strippable semi-conductive EPR
4	Earth conductors 2×25/2	2 × 12.5 mm² tinned Cu Class 5, semi-conductive covering
5	Optical element	24 fibres G.652.D in gel-filled loose tube(s), aramid strength member, PUR sheath (Ø ≈ 11 mm)
6	Central filler	Semi-conductive elastomer supporting core
7	Inner sheath	Special rubber compound 5GM5, ≈ 2.5 mm
8	Anti-torsion braid	High-tenacity polyester braid, vulcanised between sheaths
9	Outer sheath	Polyurethane (PUR, TMPU), black, ≈ 4.0 mm; abrasion-, cut- and oil-resistant

Core identification: power cores by printed numbers 1–2–3 on the outer semi-conductive layer. Stranding: short-lay reeling-optimised helix, direction and lay length matched to drum winding direction. Monospiral drums require left-hand or right-hand lay to be confirmed on order.

4. Dimensions and weights

Parameter	Value	Unit
Power conductor cross-section	3 × 50	mm²
Conductor diameter (approx.)	9.3	mm
Insulation thickness, nominal	3.4	mm
Power core diameter (approx.)	18.6	mm
Earth conductors	2 × 25/2	mm²

Optical fibres	24	—
Overall diameter	54.0 ± 1.5	mm
Copper weight (approx.)	1,590	kg/km
Cable weight (approx.)	4,700	kg/km

Dimensions and weights are nominal design values. Final values are confirmed in the as-built test report of each production batch.

5. Electrical characteristics

Parameter	Value	Unit
Rated voltage U_0/U (Um)	6/10 (12)	kV
AC test voltage	17	kV, 5 min
Max. DC conductor resistance at 20 °C (tinned, Class 5)	0.393	Ω/km
Max. DC resistance per earth conductor 12.5 mm² (approx.)	1.59	Ω/km
Partial discharge at 1.73 U_0	⩽ 10	pC
Current rating, 30 °C ambient, in free air	181	A
Short-circuit current, 1 s (90 → 200 °C)	7.2	kA
Max. conductor temperature, continuous	90	°C
Max. conductor temperature, short circuit	200	°C

Rating factors for drum operation (DIN VDE 0298-4)

Wound layers on drum	1	2	3	4	Monospiral
Factor	0.80	0.61	0.49	0.42	0.90

Ambient temperature correction

Ambient (°C)	25	30	35	40	45	50
Factor	1.04	1.00	0.96	0.91	0.87	0.82

6. Optical fibre characteristics (G.652.D)

Parameter		Value	Unit
Fibre count / type		24 / 9/125 SM	—
Attenuation at 1310 nm		⩽ 0.40	dB/km
Attenuation at 1550 nm		⩽ 0.30	dB/km
Mode field diameter at 1310 nm		9.2 ± 0.4	µm
Cladding diameter		125 ± 0.7	µm
Coating diameter		245 ± 10	µm
Colour code	IEC 60304 / TIA-598		—
Fibre strain in max. operating tension		⩽ 0.2	%

7. Mechanical and thermal characteristics

Parameter	Value
Max. travel speed	120 m/min
Max. acceleration	0.4 m/s²
Max. tensile stress on copper	20 N/mm² (3,000 N)
Max. torsional stress	± 25 °/m
Min. bending radius, reeling	10 × D (540 mm)
Min. bending radius, deflection pulleys	12.5 × D (675 mm)
Min. bending radius, fixed installation	6 × D (324 mm)
Change of bending direction (S-type)	⩾ 20 × D between pulleys

Parameter	Value
Operating temperature, flexing	−25 to +80 °C
Operating temperature, fixed	−40 to +80 °C
Flame retardance	IEC 60332-1-2

Oil resistance	EN 60811-404 (PUR, excellent)
UV and ozone resistance	Yes
Abrasion and tear resistance	Very high (PUR)
Water resistance	AD8 (temporary immersion)
Suitable for outdoor use, port/marine atmosphere	Yes
Halogen-free	Yes (PUR outer sheath)