TECHNICAL DATA SHEET | 8.7/15 kV | 3×70 + 2×35 E | 12 fibres | RHEYFIRM equivalent

FC-REELFLEX™ MV-FO

MV reeling cable 3×70 + 2×35 E mm² + 12 OFE · 8.7/15 kV

Screened EPR medium-voltage reeling cable with integrated optical unit, equivalent to RHEYFIRM (N)TSCGEWÖU type.

Doc. no. FC-TDS-MVR-2026-4C44 Rev. 00 Issued 22 September 2026

Rated voltage	Conductors	Optical fibres	Overall Ø	Weight approx.
8.7/15 kV	3×70 + 2×35 E	12 × OM1	66.0 mm	6,500 kg/km

1 Product description

FC-REELFLEX™ MV-FO is a heavy-duty 8.7/15 kV reeling cable combining three screened power cores, two earth conductors and a 12-fibre optical unit. It is engineered as a direct replacement for RHEYFIRM type (N)TSCGEWÖU cables with integrated OFE.

Triple-extruded semiconductive screens and EPR insulation give stable electrical performance under continuous flexing. The vulcanised anti-torsion braid between inner and outer sheath keeps the cable round and twist-free on motorised reels.

Typical applications

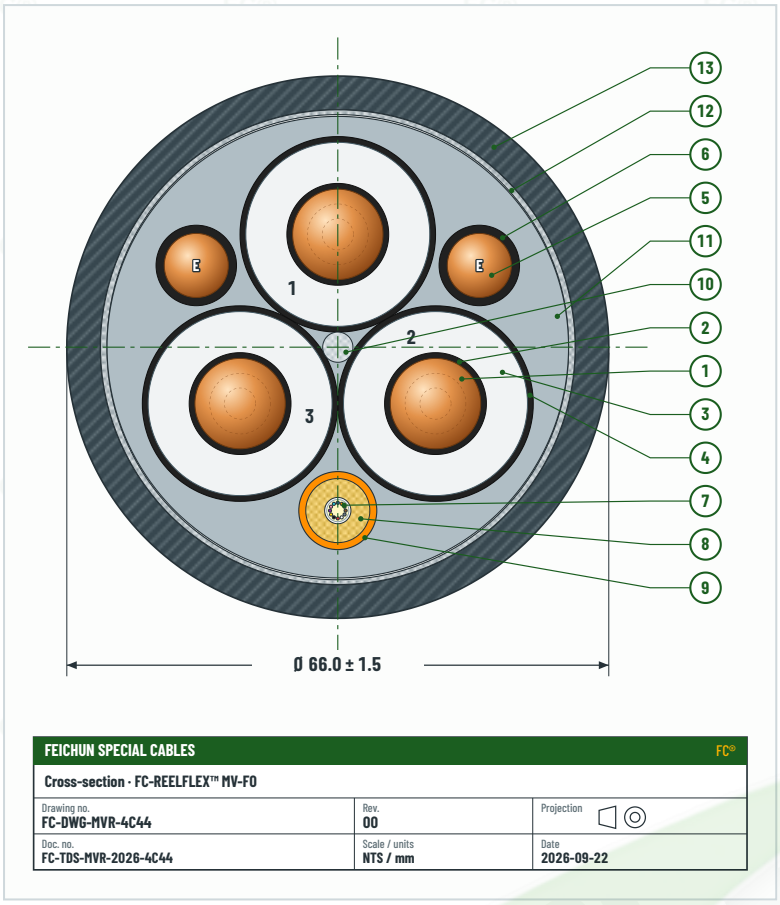
- MV supply to STS and ship-to-shore cranes, RTGs and RMGs
- Stacker/reclaimers, ship loaders and bucket-wheel excavators
- Mining shovels, draglines and mobile crushers on reeling drums
- PLC, CCTV and Ethernet communication via the integrated fibres
- Outdoor duty with high mechanical and weather stress

2 Construction

Pos.	Element	Material	Specification
1	Phase conductor	Tinned annealed copper, flexible, Class 5 to IEC 60228	70 mm²; Ø approx. 11.0 mm
2	Conductor screen	Extruded semiconductive EPR	Nominal 0.7 mm

Pos.	Element	Material	Specification
3	Insulation	EPR rubber compound type 3GI3	Nominal 5.0 mm (min. average 4.5 mm)
4	Insulation screen	Extruded semiconductive EPR, triple-extruded with Pos. 2–3	Nominal 0.7 mm; core Ø approx. 23.8 mm
5	Earth conductors	Tinned annealed copper, Class 5	2 × 35 mm², laid in two outer interstices
6	Earth covering	Semiconductive elastomer	Earth element Ø approx. 9.8 mm
7	Optical fibres	12 × multimode 62.5/125 µm OM1 in gel-filled PBT loose tube	Tube Ø 3.2 mm; see Section 6
8	FO strength member	Aramid yarn	Strain relief for the fibres
9	FO unit sheath	Thermoplastic polyurethane (TPU), orange	Unit Ø 9.5 mm, laid in the third outer interstice
10	Central filler	Textile / elastomer core	Supports the round lay-up
–	Lay-up	3 phase cores + 2 earth elements + 1 FO unit	Short lay length optimised for reeling
11	Inner sheath	Elastomer compound, pressure-extruded into interstices	Nominal 2.5 mm
12	Anti-torsion braid	High-tenacity polyester braid, vulcanised between sheaths	–
13	Outer sheath	Heavy-duty polychloroprene (PCP) 5GM5, black	Nominal 4.0 mm; red or yellow on request
–	Marking	Embossed/printed: FEICHUN FC-REELFLEX MV-FO 8.7/15kV 3×70+2×35E+12×OM1 + year + metre mark	Metre marking every 1 m

3 Cross-section drawing



FEICHUN SPECIAL CABLES		FC®
Cross-section · FC-REELFLEX™ MV-FO		
Drawing no. FC-DWG-MVR-4C44	Rev. 00	Projection
Doc. no. FC-TDS-MVR-2026-4C44	Scale / units NTS / mm	Date 2026-09-22

Pos.	Element	Material
1	Phase conductor	Tinned Cu, Class 5
2	Conductor screen	Semiconductive EPR
3	Insulation	EPR 3GI3
4	Insulation screen	Semiconductive EPR
5	Earth conductor (2×)	Tinned Cu, Class 5
6	Earth covering	Semiconductive elastomer
7	Optical fibres + loose tube	12 × 62.5/125 OM1, PBT
8	FO strength yarn	Aramid
9	FO unit sheath	TPU, orange
10	Central filler	Textile / elastomer
11	Inner sheath	Elastomer, extruded filling
12	Anti-torsion braid	Polyester, high tenacity
13	Outer sheath	Polychloroprene 5GM5, black

Phase cores identified by printed numbers 1, 2, 3 on the insulation screen. E = earth element. Engineering drawing, not to scale.

4 Core identification

- Phase cores: black semiconductive screen, numbered 1 · 2 · 3
- 2 earth elements: black semiconductive covering
- FO unit: orange TPU sheath

5 Electrical data

Parameter	Value
Rated voltage U_0/U (U_m)	**8.7/15 (17.5) kV**
Test voltage (routine)	**30.5 kV AC, 5 min (3.5 U_0)**
Partial discharge at 1.73 U_0	**≤ 10 pC**
Max. DC resistance at 20 °C, phase 70 mm²	**0.277 Ω/km**
Max. DC resistance at 20 °C, earth 35 mm² (each / 2 in parallel)	**0.565 / 0.283 Ω/km**
AC resistance at 90 °C, 50 Hz, phase	**approx. 0.354 Ω/km**
Operating capacitance	**approx. 0.28 µF/km**
Charging current at U_0, 50 Hz	**approx. 0.77 A/km**
Inductance / reactance at 50 Hz	**approx. 0.34 mH/km / 0.108 Ω/km**
Current rating, free air 30 °C, 1 layer unwound	**245 A**
Max. conductor temperature, operation	**+90 °C**
Max. conductor temperature, short circuit (≤ 5 s)	**+250 °C**
Permissible short-circuit current, 1 s	**10.0 kA (phase) · 10.0 kA (2 × 35 mm² earth)**

Ambient temperature correction (conductor 90 °C)

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

Cylindrical drum correction (DIN VDE 0298-4)

Layers on drum	1	2	3	4	5
Factor	0.80	0.61	0.49	0.42	0.38

Monospiral drums: apply 0.85 for normal ventilation. For basket or free-hanging systems use the free-air value.

6 Optical fibre data

Parameter	Value
Fibre type	Multimode graded-index 62.5/125 µm, category OM1 (IEC 60793-2-10, A1b)
Number of fibres	12
Core / cladding diameter	62.5 ± 2.5 µm / 125.0 ± 1.0 µm
Primary coating diameter	245 ± 10 µm (UV-cured acrylate)
Numerical aperture	0.275 ± 0.015
Max. attenuation, cabled	≤ 3.5 dB/km at 850 nm · ≤ 1.5 dB/km at 1300 nm
Min. modal bandwidth (OFL)	≥ 200 MHz·km at 850 nm · ≥ 500 MHz·km at 1300 nm
Fibre colour code	IEC 60304 / TIA-598 sequence (see below)
Loose tube	PBT, filled with thixotropic water-blocking gel
Optical routine test	OTDR trace at 850 / 1300 nm on every fibre, every drum

Fibre colour sequence

1 Blue · 2 Orange · 3 Green · 4 Brown · 5 Slate · 6 White · 7 Red · 8 Black · 9 Yellow · 10 Violet · 11 Rose · 12 Aqua

7 Mechanical and thermal data

Parameter	Value
Application	Motorised cable reels, reeling drums and trailing duty on mobile MV equipment
Max. travel speed	120 m/min
Max. tensile load in operation	4,200 N (15 N/mm² of total Cu cross-section)
Torsional stress	± 25 °/m
Min. bending radius, fixed installation	6 × D = 396 mm
Min. bending radius, reeling / flexing	10 × D = 660 mm
Ambient temperature, flexing	–25 °C to +80 °C

Parameter	Value
Ambient temperature, fixed	**–40 °C to +80 °C**
Flame propagation	**Flame retardant to IEC 60332-1-2**
Oil resistance	**Mineral oil, EN 60811-404**
Weather resistance	**UV, ozone and weather resistant (EN 50396); suitable for mining and port duty**

8 Dimensions and weight

Type	Conductors	Fibres	Overall Ø (mm)	Weight approx. (kg/km)	Copper content (kg/km)
FC-RFM-FO	3×70 + 2×35 E	12 × OM1	66.0 ± 1.5	6,500	2,492

Weights and diameters are nominal values subject to manufacturing tolerance.

9 Standards and testing

Standard	Scope
IEC 60228	Conductors of insulated cables – Class 5
IEC 60502-2	Electrical test requirements for 8.7/15 kV extruded-insulation cables
DIN VDE 0250-813	Construction guideline for (N)TSCGEWÖU MV reeling/trailing cables
HD 22.1 / DIN VDE 0207-20 / -21	Insulation 3GI3 and sheath 5GM5 compounds
IEC 60885-3	Partial discharge measurement
EN 50395 / EN 50396	Electrical and non-electrical test methods
IEC 60332-1-2	Flame propagation, single vertical cable

Standard	Scope
IEC 60793-2-10 (A1b)	Multimode fibre 62.5/125 µm
IEC 60794-1-21 / -22	Optical cable mechanical and environmental tests
DIN VDE 0298-4	Current-carrying capacity and correction factors
ISO 9001:2015	Quality management system

Routine tests on every drum: conductor resistance, 30.5 kV AC voltage test, partial discharge measurement, dimensional check and OTDR attenuation of all 12 fibres. Test certificate and OTDR traces are supplied with each delivery. Type test reports are available on request.

10 Packing and ordering

Supplied on steel-reinforced wooden drums or steel drums sized for the ordered length, in single continuous lengths without joints. Cable ends are sealed with heat-shrink caps; the fibre ends are protected and accessible at both ends for acceptance testing.

Ordering designation

FC-REELFLEX™ MV-FO 8.7/15 kV 3×70 + 2×35 E + 12 OFE 62.5/125 · black · length in metres

Options: fibre count 6/12/24; OM2/OM3/OM4 or single-mode G.652.D/G.657.A1; red or yellow outer sheath; pilot/monitoring cores on request.

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Document control

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