TYPE · FLAT MV REELING | 8.7/15 kV | Based on DIN VDE 0250-813 | PROTOLON (FL) Equivalent

FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

Medium voltage flat reeling cable — EPR insulated, split concentric earth, red CR outer sheath — for fast-moving container cranes, gantries, large mobile equipment and excavators.

Document No. **FC-TDS-FLR-2026-25B2** Revision **0** Issue date **10 October 2026** Language **English (AU)**

01 Application & Product Overview

FC-FLR is a flexible medium voltage flat reeling cable for high mechanical stresses — dynamic tensile loads, frequent directional changes within one plane and continuous running over rollers and guides.

The parallel (flat) core arrangement gives a low stacking height on monospiral reeling drums and in flat-cable guiding systems, while the split concentric earth conductor around each core ensures symmetrical field distribution and reliable fault-current return. Where data transmission is required, the fibre-optic version FC-FLR-LWL is available.

Typical applications

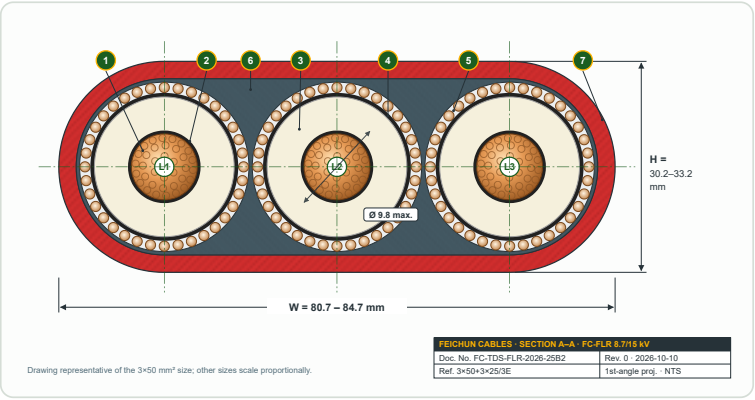
- STS / ship-to-shore and RMG container cranes on monospiral drums
- Stacker-reclaimers, ship loaders and bulk handling gantries
- Large mobile equipment and mining excavators
- Outdoor and indoor use — resistant to ozone, UV, moisture and oil
- Feeder cables for mobile substations and transfer cars

8.7/15 kV	120 m/min	15 N/mm²	−35 / +80 °C
Rated voltage U_0/U	Travel speed (reeling)	Max. tensile load on conductor	Ambient, fully flexible operation

Cross-reference

REFERENCE TYPE	FEICHUN EQUIVALENT
PROTOLON (FL) (N)TSFLCGEWÖU 8,7/15 kV	FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

02 Construction



Pos.	Element	Material
1	Phase conductor	Tinned annealed Cu, finely stranded, class 5 (IEC 60228) / class F (DIN VDE 0295)
2	Inner semiconductive layer	Extruded semiconductive EPR
3	Insulation	High-grade EPR, min. 3GI3 (DIN VDE 0207-20), natural colour
4	Outer semiconductive layer	Modified EPR, black, strippable (warm)
5	Earth conductor	Tinned Cu wires, split & concentrically applied around each core
6	Inner sheath / bedding	Rubber compound, black, filling the inter-core spaces
7	Outer sheath	Polychloroprene (CR), min. 5GM5, red

Design features

Item	Description
Core arrangement	Three power cores laid in parallel (flat); earth conductor split into equal parts and concentrically distributed around each power core
Electrical field control	Triple-extruded inner semicon / EPR insulation / outer semicon, cured in one continuous process
Core identification	Natural insulation with black semiconductive layer; numbered tapes L1, L2, L3
Separation	Rubber bedding fills the inter-core spaces, holding the cores in a fixed parallel position under tension and on the drum
Data transmission	Fibre-optic version available as FC-FLR-LWL (6–24 fibres, G50 / G62.5 / E9)
Sheath colour	Red (standard); yellow or black on request

03 Electrical, Thermal & Mechanical Data

Electrical parameters

Parameter	Value
Rated voltage U_0/U	8.7/15 kV
Max. operating voltage AC	10.4/18 kV
Max. operating voltage DC	13.5/27 kV
AC test voltage	24 kV, 5 min
Partial discharge	≤ 10 pC at 1.73 U_0
Current rating basis	DIN VDE 0298-4; reeled in 1 layer, 30 °C ambient
Short-circuit duration basis	1 s, from 90 °C to 250 °C

Thermal & mechanical parameters

Parameter	Value
Max. conductor temperature	+90 °C
Short-circuit temperature	+250 °C (max. 5 s)
Ambient – fixed installation	−50 °C to +80 °C
Ambient – fully flexible	−35 °C to +80 °C
Max. tensile load	15 N/mm² of total phase conductor cross-section
Min. bending radius	Per DIN VDE 0298-3 — see table §04 (based on D = 1.5 × flat cable height)
S-type direction changes	Min. spacing 20 × D
Travel speed	Up to 120 m/min (gantry, reeling)
Torsional stress	Not permitted

04 Dimensions, Weights & Ratings – 8.7/15 kV

Cores × cross-section mm²	FeiChun part no.	Conductor Ø max. mm	Height (H)		Width (W)		Min. bending radius mm	Weight approx. kg/km	Max. tensile force N	R_{20} max. Ω/km	Current rating A	Short-circuit current kA (1 s)
			min. mm	max. mm	min. mm	max. mm						
3×25+3×25/3E	FC-FLR15-02525	6.9	27.7	30.7	73.3	77.3	461	3,390	1,125	0.795	111	3.58
3×35+3×25/3E	FC-FLR15-03525	8.3	28.7	31.7	76.2	80.2	476	3,820	1,575	0.565	138	5.01
3×50+3×25/3E	FC-FLR15-05025	9.8	30.2	33.2	80.7	84.7	498	4,440	2,250	0.393	172	7.15
3×70+3×35/3E	FC-FLR15-07035	11.4	33.3	36.3	87.5	92.5	545	5,610	3,150	0.277	212	10.01
3×95+3×50/3E	FC-FLR15-09550	13.3	35.3	38.3	93.5	98.5	575	6,700	4,275	0.210	255	13.59
3×120+3×70/3E	FC-FLR15-12070	15.1	37.3	40.3	99.5	104.5	605	8,000	5,400	0.164	297	17.16

Current rating: nominal value for rubber-insulated cables reeled in one layer at 30 °C ambient (DIN VDE 0298-4). Larger sizes, alternative sheath colours and fibre-optic versions (FC-FLR-LWL) are manufactured to order — dimensions confirmed with the order acknowledgement.

Ambient temperature correction factors (90 °C conductor)

Ambient °C	10	15	20	25	30	35	40	45	50
Factor	1.15	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82

05 Standards, Tests & Resistance Properties

Standard	Scope
DIN VDE 0250-813	Basis of design (flat MV trailing / reeling cable)
DIN VDE 0295 / IEC 60228	Conductors, class 5 / F
DIN VDE 0207-20 / -21	Insulation (3GI3) and sheath (5GM5) compounds
DIN VDE 0298-3 / -4	Bending radii, current ratings
DIN EN 60811-404	Oil resistance of sheath
HD 22.16 / EN 50525-1	Water resistance; general requirements
IEC 60502-2 (ref.)	Partial discharge and electrical type-test methods

Routine & type tests

- AC voltage test 24 kV on every drum, partial discharge measurement
- Conductor resistance and dimensional checks
- Insulation resistance and semiconductive layer strippability
- Reversed bending test and reeling test (type test)
- Ozone, UV and weathering resistance — unrestricted outdoor use
- Oil resistance per DIN EN 60811-404

Test documentation: each delivery is accompanied by a FeiChun in-house laboratory inspection certificate (electrical and dimensional). Third-party witnessed testing can be arranged at the buyer's cost.

06 Installation, Marking & Delivery

Installation notes

- Use monospiral reeling drums sized for flat cable; drum core diameter ≥ 2 × minimum bending radius.
- Unwind tangentially from the delivery drum — never pull off over the flange; avoid loops and twisting.
- Torsion is not permitted; maintain at least 20 × D between S-type direction changes.
- Keep tensile force within the tabulated limit,

Sheath marking

```
FEICHUN FC-FLR (N)TSFLCGEWÖU 3×50+3×25/3E 8,7/15 kV 2026 [serial no.] [metre mark]
```

Packing & delivery

Item	Standard
Drum	Steel or fumigated wooden drums, ends sealed with heat-shrink caps
Lengths	To order, single continuous length (no joints)
Production lead time	2–3 weeks after technical confirmation
Warranty	Min. 3 years against manufacturing defects
Drum label	Type, size, length, gross/net weight, batch no., drum no.

including acceleration and deceleration peaks.

- Lay out and relax the cable before the first reeling; check tension-control settings at commissioning.

Terminations: use stress-control terminations rated for 8.7/15 kV EPR cables (17.5 kV equipment class) and connect each split earth conductor at both ends. Remove the outer semiconductive layer only in warm condition with suitable stripping tools.

07 Certifications & Quality

CE — LVD 2014/35/EU

Attestation No. M.2025.206.C116598 · EN 50525-1:2011+A1:2022 · UDEM International Certification · valid to 01.04.2030

EAC — TR CU 004/2011

Certificate No. EAЭC KG417/052.CN.02.15390 · GOST 31996-2012, GOST 31565-2012 · valid 24.10.2025–23.10.2030

UKCA — Verification

No. ICR/VC/HS2508110 · BS EN 50525-1:2011+A1:2022 · ICR Polska · valid to 17.08.2030

FeiChun also holds ATEX (Directive 2014/34/EU) documentation verification and IECEx / VDE related approvals for designated product families. Certificate copies are available on request.

08 Trademark Notice & Intellectual Property

PROTOLON® and PROTOLON (FL) are trademarks of their respective owner (Prysmian Group). They are cited solely to identify the reference type for technical cross-referencing; FeiChun Cables has no affiliation with, and is not endorsed by, the trademark owner. FC-FLR is a FeiChun product designed to equivalent functional performance.

© 2026 Anhui FeiChun Special Cable Co., Ltd. — All rights reserved. This document, including its drawings, tables and layout, is the intellectual property of FeiChun and is protected under the Copyright Law and the Anti-Unfair Competition Law of the People's Republic of China and the Copyright Act 1968 (Cth) of Australia. Reproduction, redistribution or modification in whole or in part without written consent is prohibited. Technical data are subject to change without notice as part of continuous product development.

Technical & Sales Contact

Anhui FeiChun Special Cable Co., Ltd.

International Business Department

No. 1 Park, Private Science & Technology Park, Hefei National ETDZ, Hefei, Anhui, China

Technical: Tech@feichuncables.com

Mining & 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

Doc. No. FC-TDS-FLR-2026-25B2

Revision 0 — first issue

Date 10 October 2026

Product FC-FLR (N)TSFLCGEWÖU 8,7/15 kV

Prepared — Technical Dept.	Checked — QA	Approved — Intl. Business

FEICHUN CABLES