TYPE · MV SEMI-FIXED · ARMOURED | 20/35 kV | 4 Variants | SUPROMONT Equivalent

FC-SPM (N)3GHSSYCY 20/35 kV

Rubber-insulated MV flexible cable for semi-fixed underground use — individually screened EPR cores, control cores, monitoring layer, steel-wire braid and red PVC sheath.

Document No. **FC-TDS-SY35-2026-5401** Revision **0** Issue date **12 October 2026** Language **English (AU)**

01 Application & Product Overview

FC-SPM (N)3GHSSYCY is an armoured medium voltage flexible cable for semi-fixed installation in underground mines — feeders to mobile substations and face equipment that are relocated as mining advances.

Three EPR cores with inner and cold-strippable outer semi-conductive layers each carry a concentric copper-wire earth screen. Three control cores fill the outer interstices; a PVC inner sheath, an overall copper monitoring layer (UEL), an intermediate sheath, a galvanised steel-wire braid and a red PVC outer sheath complete the cable.

Typical applications

- Mobile substations and MV distribution in underground mines
- Supply of longwall and development-face equipment via gate-end boxes
- Semi-fixed MV feeders that are relocated as the face advances
- Shaft and roadway installations, including vertical runs
- Underground coal and hard-rock mines (with approved terminations)

4 variants
Conductor range 50 – 120 mm²

20/35 kV
Rated voltage, AC test 50 kV

Steel braid
Mechanical protection

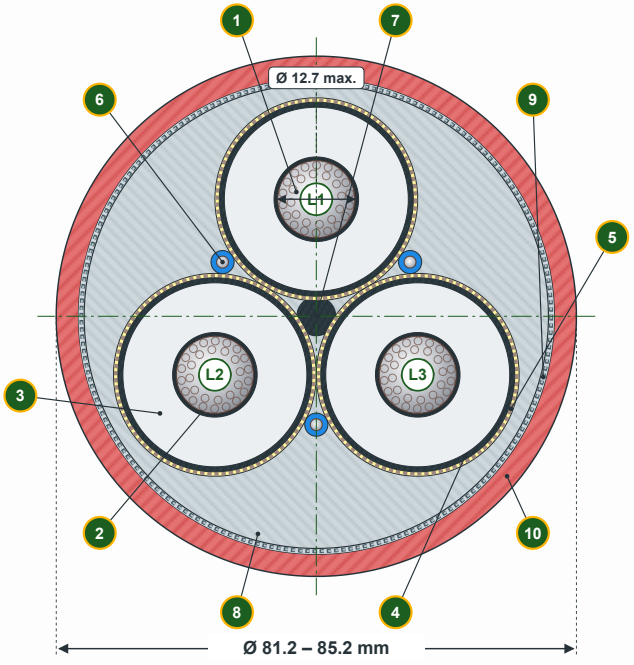
UEL
Concentric monitoring layer

Cross-reference

REFERENCE TYPE	FEICHUN EQUIVALENT
SUPROMONT (N)3GHSSYCY 20/35 kV	FC-SPM (N)3GHSSYCY 20/35 kV

Equivalent in construction and dimensions to SUPROMONT (N)3GHSSYCY 20/35 kV.

02 Construction



FEICHUN · SECTION A–A · 20/35 kV

FC-SPM (N)3GHSSYCY

Doc. No. FC-TDS-SY35-2026-5401
Ref. 3×95 mm²
Rev. 0 · 2026-10-12 · 1st-angle · NTS

Drawing representative of the reference size; other sizes scale proportionally.

Pos.	Element	Material
1	Conductor	Annealed copper, finely stranded, class 5 (IEC 60228)
2	Inner semi-conductive layer	Semi-conductive layer over the conductor
3	Insulation	EPR compound exceeding 3GI3 (DIN VDE 0207-20)
4	Outer semi-conductive layer	Cold-strippable semi-conductive layer
5	Core screen / earth (E)	Concentric copper wires over each main core
6	Control cores (ST)	3 × 2.5 mm² EPR-insulated control cores in the outer interstices
7	Centre filler	Rubber filler
8	Inner sheath / monitoring layer	PVC YM5 sheath with concentric copper monitoring layer (UEL)
9	Armour	Galvanised steel-wire braid
10	Outer sheath	PVC compound DMV6, red

Drawing: 3×95 mm² reference size.

Construction details

Element	Description
Conductor	Plain annealed electrolytic copper, flexible stranded, class 5 to IEC 60228 / DIN VDE 0295
Inner semi-conductive layer	Semi-conductive tape over the conductor plus extruded semi-conductive rubber compound (conductor screen)
Insulation	EPR rubber compound, better than type 3GI3 to DIN VDE 0207-20; main cores natural colour, black over the semi-conductive layer
Outer semi-conductive layer	Extruded semi-conductive rubber compound, cold-strippable (double screen technology), bonded under the earth screen
Protective earth conductor (/3E)	Plain copper wires applied concentrically over each main core (one earth screen per core); the three screens together form the protective earth of the stated total cross-section
Pilot (control) cores	3 x 2.5 mm^2 flexible class 5 copper, EPR type 3GI3 insulation, black with white printed digits 1-2-3, one in each outer interstice
Lay-up and centre	Three main cores laid up around a central filler of rubber compound on a polyester textile support, pilot cores in the outer interstices
Inner sheath	PVC compound type YM5
Monitoring conductor (UEL / ÜL)	Semi-conductive tape, overall concentric layer of plain copper wires, synthetic binder tape — insulated overall monitoring layer
Intermediate sheath	PVC compound type DMV6 to DIN VDE 0276-603
Armour	Braid of galvanised steel wires (approx. 75 % coverage)
Outer sheath	PVC compound type DMV6 to DIN VDE 0276-603, flame retardant; colour red (black on request)

03 Electrical, Thermal & Mechanical Data

Electrical parameters

Parameter	Value
Rated voltage U_0/U (Um)	20/35 (42) kV
Max. permissible operating voltage AC	42 kV (phase-to-phase)
Max. permissible operating voltage DC	31.5/63 kV
AC test voltage	50 kV
Short-circuit current rating	0.143 kA per mm^2 phase cross-section for 1 s (e.g. 3x95 mm^2: 13.6 kA)
Current ratings	At 30 °C ambient, single cable laid in free air; apply DIN VDE 0298-4 derating factors for other ambient temperatures and grouping

Thermal & mechanical parameters

Parameter	Value
Max. permissible conductor temperature	+90 °C
Max. short-circuit conductor temperature	+250 °C (max. 5 s)
Ambient temperature, fixed installation	−40 °C to +80 °C
Ambient temperature, occasional movement	+5 °C to +60 °C
Min. bending radius	Fixed installation 6 x D; occasional flexing / relocation 10 x D (DIN VDE 0298-3)
Max. tensile load on conductors	15 N/mm^2 (related to total phase conductor cross-section)
Torsional stress	±25 °/m
Mode of operation	Fixed and semi-fixed installation; not designed for reeling or continuous trailing
Flame retardance	IEC 60332-1-2 / EN 60332-1-2
Weather resistance	Resistant to ozone and moisture; suitable for underground wet locations and outdoor use

04 Dimensions, Weights & Ratings — 20/35 kV (4 variants)

Type designation cores × mm²	FeiChun part no.	Conductor Ø max. mm	Outer diameter min. mm	Outer diameter max. mm	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)
3×50+3×25/3E+3×2.5ST+UEL	FC-SY35-001	9.1	72.0	76.0	760	7,630	2,250	0.386	216	7.15
3×70+3×35/3E+3×2.5ST+UEL	FC-SY35-002	10.8	76.2	80.2	800	8,930	3,150	0.272	265	10.01
3×95+3×50/3E+3×2.5ST+UEL	FC-SY35-003	12.7	81.2	85.2	850	10,230	4,275	0.206	319	13.58
3×120+3×70/3E+3×2.5ST+UEL	FC-SY35-004	14.3	85.1	89.1	890	11,660	5,400	0.161	371	17.16

Current rating: DIN VDE 0298-4 values for flexible rubber cables at 30 °C ambient — apply the factors below for other ambient temperatures, grouping and multi-layer laying. Bending radius: 10 × D when moved, 6 × D fixed. Tensile force: 15 N/mm² × total phase cross-section. Further sizes and special designs are manufactured to order.

Ambient temperature factors (90 °C conductor)

°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

Permissible short-circuit current for 1 s: $I_k = 0.143$ kA/mm² × phase cross-section (EPR, 90 °C → 250 °C, tinned copper). For other durations t: $I_{k,t} = I_{k,1s} / \sqrt{t}$ (0.1 s ≤ t ≤ 5 s).

05 Standards & Tests

Standard	Scope
DIN VDE 0250-605	design basis
DIN VDE 0250-1	general requirements
DIN VDE 0295 / IEC 60228	Conductors, class FS / 5 — conductor class 5
DIN VDE 0207-20	Insulating compound 3GI3 — EPR insulation, type 3GI3
DIN VDE 0276-603	PVC sheath compound DMV6
DIN VDE 0298-3	Use of cables — bending radii, tensile load — guide to use, bending radii
DIN VDE 0298-4	Current-carrying capacity

Routine & type tests

- AC voltage test 50 kV on every drum
- Conductor resistance and dimensional checks
- Continuity of earth, screen and control conductors
- Partial discharge test on main cores
- Flame retardance (IEC 60332-1-2) and oil resistance (IEC 60811-404) of the outer sheath

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

Standard	Scope
DIN VDE 0118	Electrical installations in underground mining
IEC 60332-1-2 / EN 60332-1-2	Flame propagation, single cable

06 Installation, Marking & Delivery

Installation notes

- Semi-fixed installation: lay or hang the cable on supports and hooks without sharp edges; the cable may be relocated as the face or heading advances.
- Observe the minimum bending radius during installation and relocation (see table).
- Unwind tangentially from the delivery drum — never pull off over the flange; avoid loops and kinks.
- Keep tensile force within 15 N/mm² of the total conductor cross-section; support vertical runs at regular intervals.
- Connect all earth conductors and screens at both ends; connect control / monitoring conductors to the protection relay.
- Use terminations, plugs and couplers approved for the mine and suited to the rated voltage.

Sheath marking

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FEICHUN FC-SPM (N)3GHSSYCY [size] 20/35 kV [year] [serial no.] [metre mark]
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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.

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. ЕАЭС 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. Mine-specific approvals are arranged with the end user or local distributor where required. Certificate copies are available on request.

08 Trademark Notice & Intellectual Property

SUPROMONT® and the type designation SUPROMONT (N)3GHSSYCY 20/35 kV are cited to identify the reference product of Prysmian Group, the trademark owner. They are used solely for technical cross-referencing; FeiChun Cables has no affiliation with, and is not endorsed by, the trademark owner. FC-SPM is a FeiChun product designed to equivalent functional performance.

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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

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

FEICHUN CABLE