TYPE · LV SHEARER CABLE · CHAIN OPERATION | 0.6/1 kV | 9 Variants

PROTOMONT (V) NEW Equivalent

FC-PMT-VM NSSHCGEÖU 0,6/1 kV

Low voltage coal-cutter cable for chain operation with concentric monitoring conductor (UELKON) — detects crushing and sheath penetration through the insulation monitoring relay.

Document No. **FC-TDS-PMVN-2026-DBDC** Revision **0** Issue date **12 October 2026**

Language **English (AU)**

01 Application & Product Overview

FC-PMT-VM NSSHCGEÖU 0.6/1 kV is the further-developed chain-operation shearer cable: in addition to the split concentric earth, the steel/tinned-copper spinning acts as a concentric monitoring conductor (UELKON).

Any crushing or penetration of the outer sheath brings the monitoring spinning into contact with live or earthed parts and is detected by the insulation monitoring relay before a dangerous fault develops. The spinning also provides reinforcement and anti-torsion; the semi-conductive NBR core screens are cold-strippable for fast jointing.

Typical applications

- Longwall shearers (coal cutters) in cable handlers — 1,000 V supplies
- Armoured face conveyors, crushers and stage loaders on mobile drives
- Continuous miners and roadheaders
- Underground coal mines with firedamp / coal-dust explosion risk (with approved couplers)
- Earth-fault monitoring through the concentric control/PE elements

9 variants
25 – 240 mm² + UELKON

0.6/1 kV
Rated voltage, 3 kV test

15 N/mm²
Max. tensile load on conductors

UELKON
Concentric monitoring conductor

Cross-reference

REFERENCE TYPE

PROTOMONT (V) NSSHCGEÖU NEW 0,6/1 kV

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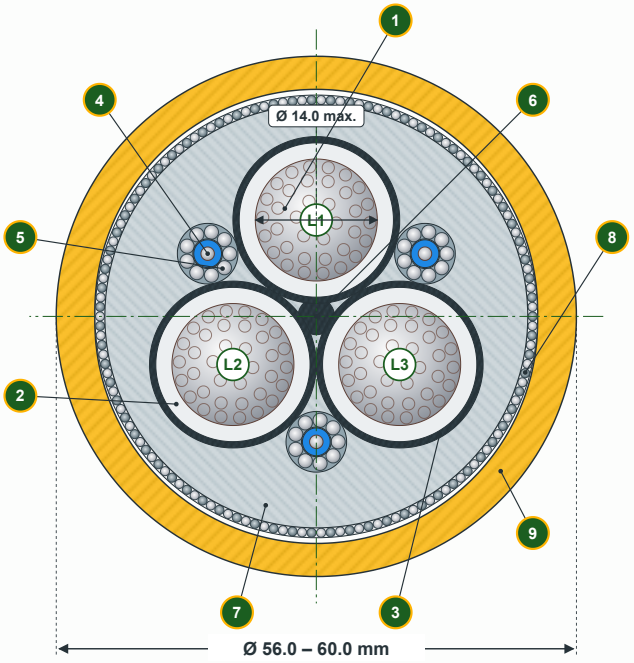
FEICHUN EQUIVALENT

FC-PMT-VM NSSHCGEÖU 0,6/1 kV

Equivalent in construction and dimensions to PROTOMONT (V) NSSHCGEÖU NEW 0,6/1 kV (+UELKON).

02 Construction



FEICHUN · SECTION A–A · 0.6/1 kV

FC-PMT-VM NSSHCGEÖU

Doc. No. FC-TDS-PMVN-2026-DBDC
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	Tinned annealed copper, very finely stranded, class FS (DIN VDE 0295) / class 5 (IEC 60228)
2	Insulation	EPR rubber compound type 3GI3 (DIN VDE 0207-20); main cores black, grey and brown
3	Core screen	Cold-strippable semi-conductive elastomer layer over each main core
4	Control core (ST)	Tinned copper 1.5 mm², EPR 3GI3 insulation, blue
5	Concentric PE conductor (KON)	Tinned copper wires concentric over the control core; protective earth split into three
6	Centre filler	Semi-conductive elastomer
7	Inner sheath	Vulcanised EPR-based rubber compound GM1b (DIN VDE 0207-21)
8	Concentric monitoring conductor (UELKON)	Spinning of galvanised steel and tinned copper wires over the inner sheath — monitoring conductor, reinforcement and anti-torsion

Pos.	Element	Material
9	Outer sheath	Heavy-duty polychloroprene (PCP) compound 5GM5 (DIN VDE 0207-21), abrasion-, notch- and tear-resistant, flame-retardant, oil-resistant, yellow

Drawing: 3×95 mm² reference size.

Construction details

Element	Description
Conductor	Very finely stranded tinned annealed copper, class 5 (class FS) to DIN VDE 0295 / IEC 60228
Power core insulation	EPR rubber compound type 3GI3 to DIN VDE 0207-20
Core screen	Semi-conductive NBR outer layer over each power core, easy-strip (cold-strippable)
Power cores	Three main cores, colours black, grey and brown
Control / earth elements	Three double-concentric elements in the outer interstices: 1.5 mm² tinned copper control core (3GI3, blue) with the protective earth conductor split into three concentric tinned copper wire layers (x/3 KON)
Lay-up	Lay length approx. 6 × core assembly diameter, central filler
Inner sheath	Vulcanised EPR-based rubber compound GM1b to DIN VDE 0207-21
Concentric monitoring conductor (UELKON)	Spinning of galvanised steel / tinned copper wires over the inner sheath, forming the concentric monitoring conductor (detects crushing or sheath penetration via insulation monitoring) and providing reinforcement and anti-torsion
Outer sheath	Polychloroprene (PCP) rubber, special compound 5GM5 to DIN VDE 0207-21, yellow, abrasion- and tear-resistant, flame-retardant, oil-, ozone- and UV-resistant

03 Electrical, Thermal & Mechanical Data

Electrical parameters

Parameter	Value
Rated voltage U_0/U (Um)	0.6/1 (1.2) kV AC; 0.9/1.8 kV DC
Test voltage	3 kV AC (power cores); 2 kV AC (control cores)
Current ratings	Per DIN VDE 0298-4, 30 °C ambient, cable fully unreeled / in chain
Concentric monitoring conductor	Allows continuous monitoring of the outer sheath / reinforcement against mechanical damage by an insulation monitoring relay; earth path remains via the split concentric earth elements

Thermal & mechanical parameters

Parameter	Value
Max. conductor temperature	+90 °C
Max. short-circuit temperature	+250 °C (≤ 5 s)
Ambient temperature, fixed installation	−40 °C to +80 °C
Ambient temperature, fully flexing operation	−20 °C to +60 °C
Max. tensile load on conductors	15 N/mm² (permanent, related to total phase cross-section)
Min. bending radius in cable chain	2.3 × D at tensile load ≤ 5 N/mm² (DIN VDE 0298-3); 5 × D at higher tensile load
Min. distance between S-type direction changes	20 × D
Max. torsional stress	±25 °/m
Flame retardance	EN 60332-1-2 / IEC 60332-1-2
Oil resistance	EN 60811-404 / IEC 60811-404
UV, ozone and weather resistance	Resistant (5GM5 PCP outer sheath)

04 Dimensions, Weights & Ratings — 0.6/1 kV (9 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)
3×25+3×(1.5STKON+16/3KON)+UELKON	FC-PMVN-001	7.1	38.4	41.4	95	2,900	1,125	0.795	131	3.57
3×35+3×(1.5STKON+16/3KON)+UELKON	FC-PMVN-002	8.4	41.0	44.0	100	3,520	1,575	0.565	162	5.00
3×50+3×(1.5STKON+25/3KON)+UELKON	FC-PMVN-003	10.1	45.4	48.4	110	4,300	2,250	0.393	202	7.15
3×70+3×(1.5STKON+35/3KON)+UELKON	FC-PMVN-004	11.9	48.8	52.8	120	5,400	3,150	0.277	250	10.01
3×95+3×(1.5STKON+50/3KON)+UELKON	FC-PMVN-005	14.0	56.0	60.0	140	7,020	4,275	0.210	301	13.58
3×120+3×(1.5STKON+70/3KON)+UELKON	FC-PMVN-006	15.5	60.3	64.3	150	8,600	5,400	0.164	352	17.16
3×150+3×(1.5STKON+70/3KON)+UELKON	FC-PMVN-007	17.2	66.7	70.7	165	10,310	6,750	0.132	404	21.45
3×185+3×(1.5STKON+95/3KON)+UELKON	FC-PMVN-008	19.1	71.7	75.7	175	12,300	8,325	0.108	461	26.45
3×240+3×(1.5STKON+120/3KON)+UELKON	FC-PMVN-009	22.0	80.1	85.1	195	15,400	10,800	0.0817	540	34.32

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: 2.3 × D in the cable protection chain at ≤ 5 N/mm² tensile load. 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 0250-812	Basis of design — flexible mining cables, low voltage
DIN VDE 0295 / IEC 60228	Conductors, class FS / 5 — class 5, tinned
DIN VDE 0207-20	Insulating compound 3GI3 — 3GI3

Routine & type tests

- AC voltage test 3 kV on every drum (main cores); 2 kV on control cores
- Conductor resistance, dimensional and continuity checks of PE, control and monitoring conductors
- Insulation resistance and screen / semi-conductive layer resistance
- Bending, torsion and tensile tests in a cable protection chain (type test)
- Flame retardance (IEC 60332-1-2) and oil resistance (IEC 60811-404) of the outer sheath

Standard	Scope
DIN VDE 0207-21	Sheathing compounds — GM1b, 5GM5
DIN VDE 0298-3	Use of cables — bending radii, tensile load
DIN VDE 0298-4	Current-carrying capacity
EN 60332-1-2 / IEC 60332-1-2	Flame propagation, single cable
EN 60811-404 / IEC 60811-404	Oil resistance of sheath
DIN VDE 0118	Electrical installations in underground mining

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.

06 Installation, Marking & Delivery

Installation notes

- Guide the cable in the cable protection chain (cable handler) — the chain takes the tensile forces; minimum bending radius 2.3 × D at ≤ 5 N/mm² tensile load.
- Keep at least 20 × D between S-type direction changes and keep torsion within the stated limit.
- Do not exceed the permanent tensile load of 15 N/mm² on the main conductors, including start-up and braking peaks.
- Unwind tangentially from the delivery drum — never pull off over the flange; lay out and relax the cable before fitting it into the chain.
- Connect all three PE parts at both ends; connect control and monitoring conductors to the earth-fault / insulation monitoring relay of the shearer supply.
- Use flameproof (Ex d) or increased-safety plugs and couplers suited to the cable diameter and approved for the mine.

Sheath marking

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FEICHUN FC-PMT-VM NSSHCGEÖU
[size]+UELKON 0,6/1 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

Item	Standard
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. 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. 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

PROTOMONT® and the type designation PROTOMONT (V) NSSHCGEÖU NEW 0,6/1 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-PMT-VM is a FeiChun product designed to equivalent functional performance.

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Document Control

Doc. No. FC-TDS-PMVN-2026-DBDC

Revision 0 — first issue

Date 12 October 2026

Product FC-PMT-VM NSSHCGEÖU 0,6/1 kV

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

FEICHUN CABLE