TYPE · MV SHEARER CABLE · CHAIN OPERATION | 1.8/3 kV | 11 Variants

PROTOMONT (V) Equivalent

FC-PMT-V NTSKCGECWÖU 1,8/3 kV

Medium voltage coal-cutter cable for chain operation — screened EPR cores, split concentric PE with control cores, steel/copper monitoring spinning and red PCP sheath.

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01 Application & Product Overview

FC-PMT-V NTSKCGECWÖU 1.8/3 kV supplies longwall shearers and other mobile face machines on 1.1–3.3 kV networks, running in a cable protection chain that trails behind the machine and takes the tensile forces.

Three EPR main cores with semi-conductive conductor and insulation screens are laid up with three double-concentric control/PE elements. A spinning of galvanised steel and tinned copper wires between the inner and outer sheaths acts as concentric monitoring conductor (UELKON) and gives torsional stability and protection against crushing and impact.

Typical applications

- Longwall shearers (coal cutters) on 1.1 kV and 3.3 kV supplies
- Continuous miners, roadheaders and other mobile face machines
- Underground coal mines with firedamp / coal-dust explosion risk (with approved couplers)
- Gate-end box and mobile substation connections
- Earth-fault and insulation monitoring via ST / UELKON conductors

11 variants
25 – 240 mm², 1 or 2 control cores

1.8/3 kV
Rated voltage, 6 kV test

15 N/mm²
Max. tensile load on conductors

± 25 °/m
Permissible torsional stress

Cross-reference

REFERENCE TYPE

PROTOMONT (V) NTSKCGECWÖU 1,8/3 kV

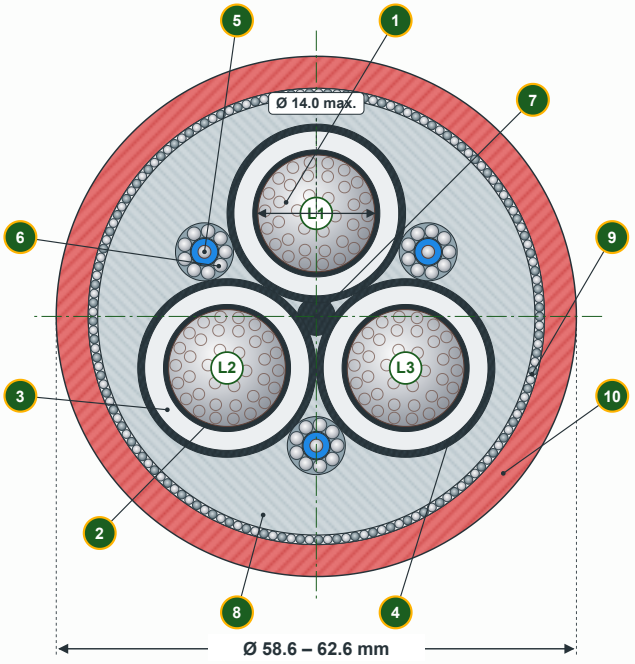
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FEICHUN EQUIVALENT

FC-PMT-V NTSKCGECWÖU 1,8/3 kV

Equivalent in construction and dimensions to PROTOMONT (V) NTSKCGECWÖU 1,8/3 kV — fits existing cable handlers, glands and couplers.

02 Construction



FEICHUN · SECTION A–A · 1.8/3 kV

FC-PMT-V NTSKCGECWÖU

Doc. No. FC-TDS-PMV3-2026-AF38
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	Conductor screen	Extruded semi-conductive EPR layer over the conductor
3	Insulation	EPR rubber compound type 3GI3 (DIN VDE 0207-20), main cores in natural colour with black / grey / brown marking
4	Insulation screen	Semi-conductive NBR layer, cold-strippable ('easy strip')
5	Control core(s) (ST)	Tinned copper 1.5 mm², EPR 3GI3 insulation, blue
6	Concentric PE conductor (KON)	Tinned copper wires laid concentrically over the control core(s); total earth cross-section split into three
7	Centre filler	Semi-conductive elastomer
8	Inner sheath	Special EPR rubber compound GM1b (DIN VDE 0207-21), vulcanised

Pos.	Element	Material
9	Monitoring conductor (UELKON)	Concentric spinning of galvanised steel and tinned copper wires, vulcanised between the sheaths — monitoring conductor, reinforcement and anti-torsion
10	Outer sheath	Heavy-duty polychloroprene (PCP) compound 5GM5 (DIN VDE 0207-21), flame-retardant, oil- and abrasion-resistant, red

Drawing: 3×95 mm² reference size.

Construction details

Element	Description
Conductor	Very finely stranded tinned annealed copper, class FS (finer than class 5) to DIN VDE 0295 / IEC 60228
Main core insulation	EPR rubber, special compound type 3GI3 to DIN VDE 0207-20
Electrical field control	Semi-conductive layer over the insulation of each main core (semi-conductive NBR, cold-strippable 'easy strip')
Main core identification	Natural colour (black / grey / brown marking)
Control / PE elements	One double-concentric element in each of the three outer interstices: blue EPR-insulated tinned copper 1.5 mm² control core(s) (ST) surrounded by a concentric protective-earth conductor of tinned copper wires (KON, total earth cross-section split /3 across the three elements)
Lay-up	Three main cores and three control/PE elements laid up together over a central semi-conductive elastomer filler, short lay length for chain operation
Inner sheath	Special EPR rubber compound type GM1b, vulcanised
Monitoring conductor / reinforcement (UELKON)	Concentric spinning of galvanised steel and tinned copper wires vulcanised between inner and outer sheath; acts as concentric monitoring conductor and provides torsional stability and mechanical protection
Outer sheath	Heavy-duty polychloroprene (PCP) rubber compound type 5GM5 to DIN VDE 0207-21, flame retardant, oil and abrasion resistant; standard colour red, other colours on request

03 Electrical, Thermal & Mechanical Data

Electrical parameters

Parameter	Value
Rated voltage U_0/U (Um)	1.8/3 (3.6) kV
AC test voltage	6 kV
AC test voltage, control cores	2 kV
Current-carrying capacity	DIN VDE 0298-4, Table 15 (rubber trailing cables, 30 °C ambient); derate for grouping and ambient temperature in the chain
Monitoring	Concentric UELKON spinning allows continuous earth / insulation monitoring between control circuit and monitoring conductor

Thermal & mechanical parameters

Parameter	Value
Max. permissible conductor temperature	+90 °C
Max. short-circuit conductor temperature	+250 °C
Ambient temperature, fixed installation	−40 °C to +80 °C
Ambient temperature, flexible operation	−20 °C to +60 °C
Min. bending radius in cable protection chain	2.3 × D at max. 5 N/mm² tensile load
Min. distance between S-type direction changes	20 × D
Max. permanent tensile load on conductors	15 N/mm² (based on total main conductor cross-section)
Max. torsional stress	±25 °/m
Flame retardance	IEC 60332-1-2 / EN 60332-1-2
Oil resistance	IEC 60811-404

Parameter	Value
Ozone and UV resistance	Resistant

04 Dimensions, Weights & Ratings — 1.8/3 kV (11 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)
Control/PE elements with 1 × 1.5 mm² control core (1,5STKON)										
3×25+3×(1.5STKON+16/3KON)+UELKON	FC-PMV3-001	7.1	40.1	43.1	99	3,100	1,125	0.795	131	3.57
3×35+3×(1.5STKON+25/3KON)+UELKON	FC-PMV3-002	8.4	44.3	47.3	109	3,970	1,575	0.565	162	5.00
3×50+3×(1.5STKON+25/3KON)+UELKON	FC-PMV3-003	10.1	49.7	52.7	121	4,900	2,250	0.393	202	7.15
3×70+3×(1.5STKON+35/3KON)+UELKON	FC-PMV3-004	11.9	53.2	57.2	132	6,020	3,150	0.277	250	10.01
3×95+3×(1.5STKON+50/3KON)+UELKON	FC-PMV3-005	14.0	58.6	62.6	144	7,450	4,275	0.210	301	13.58
3×120+3×(1.5STKON+70/3KON)+UELKON	FC-PMV3-006	15.5	62.9	66.9	154	9,060	5,400	0.164	352	17.16
3×150+3×(1.5STKON+70/3KON)+UELKON	FC-PMV3-007	17.2	69.0	73.0	168	10,820	6,750	0.132	404	21.45
3×185+3×(1.5STKON+95/3KON)+UELKON	FC-PMV3-008	19.1	73.2	77.2	178	12,530	8,325	0.108	461	26.45
3×240+3×(1.5STKON+120/3KON)+UELKON	FC-PMV3-009	22.0	80.7	85.7	197	15,700	10,800	0.0817	540	34.32
Control/PE elements with 2 × 1.5 mm² control cores (2x1,5ST)										
3×50+3×(2×1.5ST+25/3KON)+UELKON	FC-PMV3-010	10.1	50.2	53.2	122	4,950	2,250	0.393	202	7.15
3×70+3×(2×1.5ST+35/3KON)+UELKON	FC-PMV3-011	11.9	54.9	58.9	136	6,100	3,150	0.277	250	10.01

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 0250-813	Basis of design — flexible mining cables, medium voltage
DIN VDE 0295 / IEC 60228	Conductors, class FS / 5 — class FS, tinned
DIN VDE 0207-20	Insulating compound 3GI3 — insulation 3GI3
DIN VDE 0207-21	Sheathing compounds — sheath 5GM5
DIN VDE 0298-4	Current-carrying capacity
IEC 60332-1-2 / EN 60332-1-2	Flame propagation, single cable
IEC 60811-404	Oil resistance of sheath

Routine & type tests

- AC voltage test 6 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

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-V NTSKCGECWÖU [size]
1,8/3 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)

Item	Standard
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

PROTOMONT® and the type designation PROTOMONT (V) NTSKCGECWÖU 1,8/3 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-V is a FeiChun product designed to equivalent functional performance.

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

FEICHUN CABLE