TYPE · PUR-SHEATHED REELING CABLE · DRILL RIGS & LHD | 0.6/1 kV

12 VARIANTS | EQUIVALENT TO TROMMELFLEX-M-PUR

FC-TPU-M D2X11Y 0.6/1 kV

Halogen-Free PUR Reeling Cable for Drill Rigs and LHD

Halogen-free PUR-sheathed cable for the cable reels of electric drill rigs and LHD machines — XLPE-insulated cores, split protective conductor, compact and lightweight.

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01 Application and product overview

FC-TPU-M D2X11Y is a compact, lightweight PUR-sheathed cable for the cable reels of electric drill rigs, roof-bolting rigs and LHD machines in underground mines and tunnels.

The XLPE-insulated main cores are stranded with a very short lay length together with the protective conductor, divided into three parts, and, on request, two pilot cores. The halogen-free inner sheath and the tough, flame-retardant polyurethane outer sheath give high resistance to abrasion, cuts and water.

Typical applications

- Electric drill rigs, drilling jumbos and roof-bolting rigs in underground mines and tunnels
- Load-haul-dump (LHD) machines and loaders with cable reels
- Self-propelled equipment in wet workings — water-resistant to 10 m
- Tunnelling equipment where halogen-free cables are required
- Underground hard-rock mines and tunnel construction sites

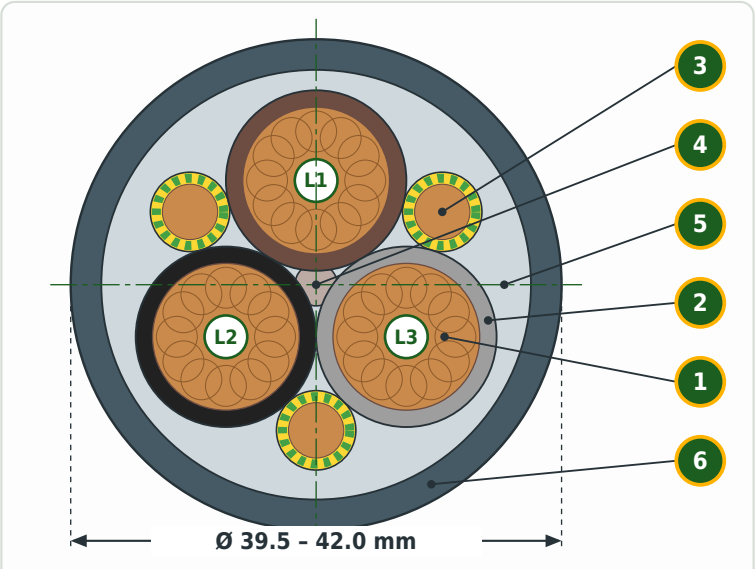
12 variants	20 N/mm²	60 m/min	Halogen-free
Phase conductors 25 – 240 mm²	Max. tensile load on conductors	Travel speed	PUR sheath, flame-retardant

Equivalent reference types

REFERENCE TYPE		FEICHUN EQUIVALENT
TROMMELFLEX-M-PUR D2X11Y 0.6/1 kV	⇄	**FC-TPU-M D2X11Y 0.6/1 kV**

In construction and dimensions equivalent to TROMMELFLEX-M-PUR D2X11Y 0.6/1 kV.

02 Construction



Section A–A · FC-TPU-M D2X11Y 3×95 · first-angle projection · not to scale

No.	Element	Material
1	Conductor	Bare annealed fine-wire copper, Class 5 (IEC 60228)
2	Insulation	Cross-linked polyethylene (XLPE), 90 °C; brown, black and grey cores
3	Protective conductor	Divided into three parts (3G), green/yellow, in the interstices
4	Central filler	Halogen-free filler
5	Inner sheath	Halogen-free polymer compound
6	Outer sheath	Halogen-free polyurethane (PUR), flame-retardant, resistant to abrasion, cuts and tearing

Drawing: base size 3×95 mm². Other sizes scale proportionally.

Construction details

Conductor	Fine-wire bare annealed copper, Class 5 to DIN EN 60228 / IEC 60228 / VDE 0295
Core insulation	XLPE to IEC 60502-1, operating temperature 90 °C; main cores brown, black, grey to DIN VDE 0298-300; control cores blue and white
Protective conductor	Divided into three parts (3 G x), green/yellow, in the interstices
Control cores	On request: two control cores (2 x 1 or 2 x 1.5 mm²) in the interstices; combined type with 2 × (10 × 2.5) control bundles and one screened (C) bundle 8 × 1.5 mm²
Stranding and sheaths	Main cores, divided protective conductor and control cores stranded together with a very short lay length; halogen-free inner sheath; halogen-free flame-retardant PUR outer sheath resistant to abrasion, cuts and tearing

03 Electrical, thermal and mechanical characteristics

Electrical

Rated voltage U_0/U (U_m)	0.6/1 (1.2) kV AC
Max. operating voltage, DC	0.9/1.8 kV
Test voltage	2.5 kV AC (power cores); 2 kV AC (control cores)
Current-carrying capacity	To DIN VDE 0298-4, ambient temperature 30 °C

Thermal

Max. conductor temperature	+90 °C
Max. short-circuit temperature	+250 °C
Ambient, fixed installation	−40 °C to +80 °C
Ambient, flexing	−30 °C to +80 °C

Mechanical and environmental

Min. bending radius	4 × D fixed; 8 × D on cable reel (DIN VDE 0298-3)
Max. tensile load	20 N/mm² continuous, on total copper cross-section of main cores
Max. torsional load	±50 °/m
Max. travel speed	60 m/min (underground reel winding)
Flame retardance	DIN EN 60332-1-2 / IEC 60332-1-2
Halogen-free	Yes (insulation, inner and outer sheath)
UV and ozone resistance	Resistant
Max. immersion depth	10 m

04 Dimensions, weights and ratings — 0.6/1 kV (12 variants)

Type designation cores × mm²	FeiChun item no.	Cond. Ø max. mm	Outer Ø min. mm	Outer Ø max. mm	Min. bend radius mm	Weight kg/km	Max. pull N	R_{20} max. Ω/km	Current A	Short-circ. kA (1 s)
Three main cores + divided protective conductor + two control cores										
3×25+3G6+2×1	FC-TMP-001	6.2	22.5	24.0	192	1,130	1,500	0.780	131	3.57
3×35+3G6+2×1.5	FC-TMP-002	7.8	26.5	28.0	224	1,530	2,100	0.554	162	5.00
3×50+3G10+2×1.5	FC-TMP-003	9.6	30.0	32.0	256	2,160	3,000	0.386	202	7.15
3×70+3G16+2×1.5	FC-TMP-004	11.1	35.0	37.0	296	3,050	4,200	0.272	250	10.01
3×95+3G16+2×1.5	FC-TMP-005	12.6	39.5	42.0	336	3,690	5,700	0.206	302	13.58
3×120+3G25+2×1.5	FC-TMP-006	14.8	44.0	46.5	372	4,810	7,200	0.161	352	17.16
3×150+3G25+2×1.5	FC-TMP-007	16.0	49.0	52.0	416	5,780	9,000	0.129	404	21.45
3×185+3G35+2×1.5	FC-TMP-008	17.7	53.5	56.0	448	7,300	11,100	0.106	461	26.45
3×240+3G50+2×1.5	FC-TMP-009	20.2	61.5	64.5	516	9,600	14,400	0.0801	540	34.32
Four-core										
4×50	FC-TMP-010	9.6	33.0	35.0	280	2,450	4,000	0.386	202	—
4×70	FC-TMP-011	11.1	38.1	40.6	325	3,300	5,600	0.272	250	—
Combined design: power + control cores (screened control bundle)										
4G70+2×(10×2.5)+1×(8×1.5)C	FC-TMP-012	11.1	62.0	66.0	528	5,300	5,600	0.272	250	—

Current-carrying capacity: values to DIN VDE 0298-4 for flexible rubber cables at 30 °C ambient — for other ambient temperatures, grouping and multi-layer winding apply the factors below. Bending radius: 8 × D. Tensile force: 20 N/mm² × total cross-section of the phase conductors. Other sizes and special designs are made to order.

Ambient temperature factors (conductor 90 °C)

°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 current rating

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

05 Standards and testing

Standard	Scope
DIN EN 60228 / IEC 60228 / VDE 0295	Conductors, Class 5
DIN VDE 0298-300	Application of cables — core identification
IEC 60502-1	Insulation compound
DIN VDE 0298-3	Application of cables — bending radii, tensile load
DIN VDE 0298-4	Current-carrying capacity
DIN EN 60332-1-2 / IEC 60332-1-2	Flame propagation, single cable

Routine and type tests

- 3 kV AC voltage test of every drum
- Conductor resistance and dimensional check
- Continuity of earth and control cores
- Winding, bending and torsion tests (type test)
- Flame retardance (IEC 60332-1-2) and confirmation of halogen-free materials

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

06 Installation, marking and supply

Installation notes

- Use a motor-driven or spring-driven cable reel with a core diameter of at least 2 × the minimum bending radius (8 × D).
- Pay off from the shipping drum tangentially — never pull it over the flange; avoid loops and kinks.
- Keep torsion within ±50 °/m and tensile force within the tabulated value.
- Suitable for wet conditions and temporary immersion to a depth of 10 m.
- Protect against machine run-over and crushing; inspect the sheath regularly.
- Connect all parts of the protective conductor at both ends.

Sheath marking

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FEICHUN FC-TPU-M D2X11Y [size] 0.6/1 kV
[year] [serial no.] [metre mark]
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Packaging and supply

Drum	Steel or fumigated wooden drums; ends sealed with heat-shrink caps
Delivery lengths	To order, in one continuous length (no joints)
Lead time	2–3 weeks after technical approval
Warranty	At least 3 years against manufacturing defects
Drum label	Type, size, length, gross/net weight, batch no., drum no.

07 Certification and quality

CE — LVD 2014/35/EU

Certificate No. M.2025.206.C116598 · EN 50525-1:2011+A1:2022 · UDEM International Certification · valid until 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 until 17.08.2030

FeiChun also holds confirmation of documentation review for ATEX (Directive 2014/34/EU) and IECEx / VDE approvals for certain product groups. Approvals for specific mines are arranged together with the end user or local distributor where required. Certificate copies are available on request.

08 Trademark notice and intellectual property

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