TYPE · ROUND MV REELING CABLE | 12/20 kV | 9 VARIANTS | EQUIVALENT TO PROTOLON SMRT

FC-SMRT 12/20 kV

Round Medium-Voltage Reeling Cable

Medium-duty round medium-voltage reeling cable for moderate mechanical loads — the same screened EPR core design as XPRT with a lighter 5GM5 sheath and no reinforcement braid.

Document No. **FC-TDS-SMRT1220-2026-DAB8** Revision **0** Issue date **15 October 2026** Language **English**

01 Application and product overview

Medium-duty reeling cable for mobile equipment with moderate mechanical load: mobile crushing and screening plants, gantry and portal cranes, shiploaders and spooling systems.

Same screened EPR phase core design as the XPRT series, with a lighter 5GM5 rubber outer sheath and without reinforcement braid.

Typical applications

- Mobile crushing and screening plants
- Gantry and portal cranes
- Shiploaders
- Spooling systems
- Equipment with moderate mechanical load where a lighter, more economical construction is sufficient

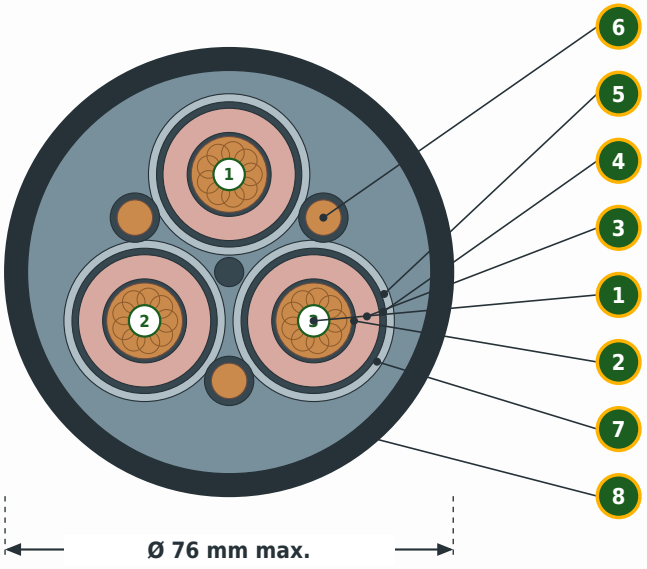
9 variants	12/20 kV	10 × d	EPR · 5GM5
Phase conductor 25 – 240 mm²	Rated voltage U_0/U	Min. bending radius, reeling	Insulation 3GI3 · rubber sheath

Equivalent reference type

REFERENCE TYPE	FEICHUN EQUIVALENT
PROTOLON SMRT (N)TSCGEWOEU 12/20kV	**FC-SMRT 12/20 kV**

Designed as a functional equivalent of the named reference type. The type code follows the reference designation; refer to the relevant DIN VDE part for its meaning.

02 Construction



Section A–A · FC-SMRT 12/20 kV · ref. 3x70/3E
Schematic, 1st-angle, not to scale; other sizes scale proportionally.

No.	Element	Material
1	**Conductor**	Fine-wire tinned copper conductor, class 5 (IEC 60228)
2	**Conductor screen**	Semi-conductive rubber compound
3	**Core insulation**	EPR insulation, compound 3GI3 (DIN VDE 0207-20)
4	**Insulation screen**	Semi-conductive rubber compound
5	**Core screen**	Braid of tinned copper wires over each phase core
6	**Earth conductor**	Fine-wire tinned copper earth conductor with semi-conductive covering
7	**Inner sheath**	Rubber inner sheath, pressure-extruded, filling the interstices
8	**Outer sheath**	Heavy-duty rubber compound 5GM5 (DIN VDE 0207-21), black, oil- and weather-resistant

Core structure: Three phase cores laid up around a central filler; three earth conductors laid in the interstices; phase cores identified by numbers. Earth conductors: total cross-section approx. equal to one phase conductor.

03 Electrical, thermal and mechanical characteristics

Electrical

Rated voltage U_0/U	12/20 kV
Max. operating voltage U_m	24 kV
Test voltage (AC, 5 min)	30 kV (2.5 × U_0)
Max. conductor temperature	+90 °C
Semi-conductive layers	Conductor screen and insulation screen on every phase core
Earth conductors	3 conductors, total cross-section approx. equal to one phase conductor

Thermal, mechanical and environmental

Temperature, flexing / reeling	−30 °C to +90 °C
Temperature, fixed installation	−40 °C to +90 °C
Bending radius, reeling operation	min. 10 × d
Tensile load	max. 15 N/mm² (sum of copper cross-sections)
Flame retardance	IEC 60332-1-2
Oil / weather resistance	Oil-resistant; resistant to UV, ozone and weathering
Halogen-free	No (chlorine-containing rubber sheath)
Lead-free / REACH	RoHS II (2011/65/EU); REACH (EC) No. 1907/2006

04 Dimensions, weights and ratings — 12/20 kV (9 variants)

Cores × cross-section mm²	FeiChun part no.	Earth conductors mm²	Outer diameter max. mm	Copper index kg/km	Weight approx. kg/km	Max. tensile load kN	Min. bending radius mm
3×25/3E	FC-SMRT-1220-001	3×10	65	933	4,901	1.6	625
3×35/3E	FC-SMRT-1220-002	3×10	67	1,200	5,458	2.0	650
3×50/3E	FC-SMRT-1220-003	3×16	72	1,760	6,456	3.0	690
3×70/3E	FC-SMRT-1220-004	3×25	76	2,534	7,693	4.3	735
3×95/3E	FC-SMRT-1220-005	3×35	81	3,467	9,227	5.8	785
3×120/3E	FC-SMRT-1220-006	3×35	85	4,134	10,400	7.0	825
3×150/3E	FC-SMRT-1220-007	3×50	89	5,334	12,065	9.0	865
3×185/3E	FC-SMRT-1220-008	3×70	94	6,801	14,103	11.5	910
3×240/3E	FC-SMRT-1220-009	3×70	101	8,268	16,626	13.9	980

Dimensions, copper index, weight, tensile load and bending radius are calculated reference values (tensile load 15 N/mm² of total copper cross-section; bending radius for reeling operation); final values are confirmed in the product data sheet at order.

Max. phase conductor resistance at 20 °C (Ω/km): 25: 0.795; 35: 0.565; 50: 0.393; 70: 0.277; 95: 0.21; 120: 0.164; 150: 0.132; 185: 0.108; 240: 0.0817.

05 Standards and testing

Standard	Scope
DIN VDE 0250 series	Design basis of the cable
DIN VDE 0207-20	EPR insulation compound 3GI3
DIN VDE 0207-21	Rubber sheath compound 5GM5
IEC 60228	Conductors, class 5
IEC 60332-1-2	Flame propagation, single cable
2011/65/EU · (EC) 1907/2006	RoHS II · REACH

Routine and type tests

- AC voltage test, 30 kV for 5 min (2.5 × U_0)
- Conductor resistance and dimensional check
- Continuity of earth conductors
- Winding, bending and torsion tests (type test)
- Flame retardance (IEC 60332-1-2)

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 and supply

Installation notes

- Observe the minimum bending radius of 10 × d in reeling operation; the drum core should not be smaller than this radius allows.
- Keep tensile load within 15 N/mm² of the total copper cross-section.
- Pay off from the shipping drum tangentially — never pull it over the flange; avoid loops and kinks.
- Protect against machine run-over and crushing; inspect the sheath regularly.
- Connect the earth conductors at both ends.

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 with the end user or local distributor where required. Certificate copies are available on request.

08 Trademark notice and intellectual property

PROTOLON® and the reference type designations are given to identify the reference product of Prysmian Group, the trademark owner. They are used solely for technical comparison; FeiChun Cables is not affiliated with, or endorsed by, the trademark owner. FC-SMRT is a FeiChun product developed with equivalent functional characteristics.

© 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 by the Copyright Law and the Anti-Unfair Competition Law of the People's Republic of China and by the Copyright Act 1968 (Cth) of Australia. Reproduction, distribution or modification in whole or in part without written consent is prohibited. Technical data may change without notice as part of continuous product improvement.

Technical and commercial contacts

Anhui FeiChun Special Cable Co., Ltd.
International Business Department
Park No. 1, Private Science and Technology Park, Hefei National Economic and Technological Development Zone, Hefei, Anhui, China
Technical support: Tech@feichuncables.com
Mining and 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

Document No. FC-TDS-SMRT1220-2026-DAB8
Revision 0 — first issue
Date 15 October 2026
Product FC-SMRT 12/20 kV
Source FC-CAT-MVR-2026-C202-EN