FC® FEICHUN SPECIAL CABLES

TYPE: SPREADER REEL CABLE | 0.6/1 kV | Integrated CAN bus | Technical Data Sheet

FC-CFX™ (SMK)-CAN 37G2.5 + 1×2×0.5 mm² spreader reel cable

Heavy-duty PUR-sheathed reeling cable for container spreaders and port machinery, with 37 power/control cores and an integrated shielded CAN bus pair

TDS No. **FC-TDS-SPR-2026-E5C9** Drawing **FC-DRW-SPR-2026-E5C9** Rev **01**

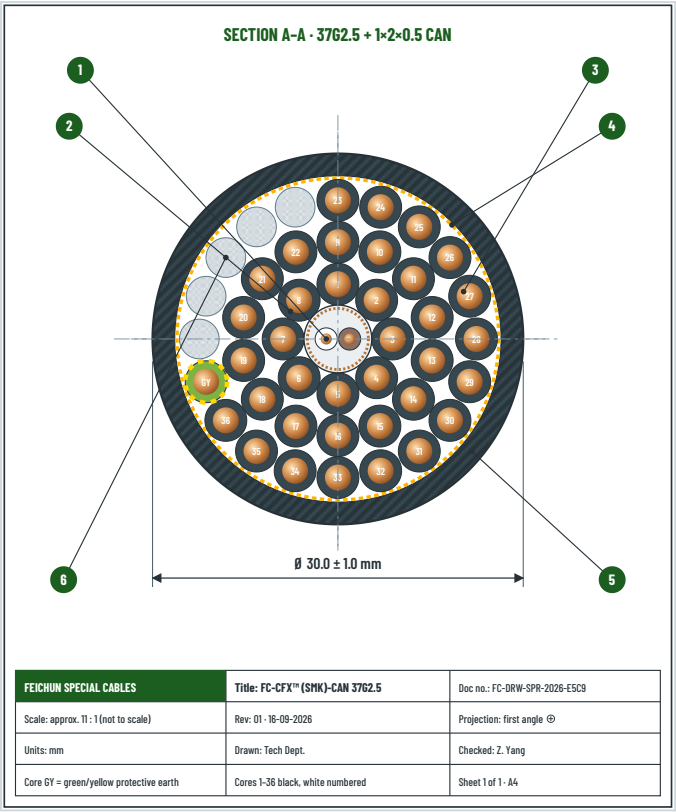
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1 Application

Designed for motorised spreader cable reels on STS/ship-to-shore cranes, RTG/RMG cranes, reach stackers and other port handling machines, where the cable is wound on and off a drum under high tensile and torsional stress. The integrated 120 Ω CAN bus pair carries spreader control and diagnostic data in the same cable, removing the need for a separate data line.

- Central CAN bus element protected from tensile and crushing loads
- Abrasion, oil, UV and ozone resistant PUR outer sheath
- Suitable for dry, damp and wet locations, including coastal port atmosphere
- Anti-torsion textile braid for stable spiral and monospiral reeling
- Fine-wire tinned copper conductors for high flexing life
- Flame retardant to IEC 60332-1-2

2 Cable construction



Pos.	Element	Material / design
1	CAN bus element (centre)	1×2×0.5 mm² twisted pair, tinned Cu class 6, foam-skin PE insulation (white/brown), Al/PET foil + tinned Cu braid ≥ 85 %, TPE jacket; Ø ≈ 5.5 mm
2	Power / control cores	36 × black cores with white numbers 1–36, + 1 × green/yellow; special EPR/TPE compound, Ø ≈ 3.4 mm
3	Conductor	Tinned annealed copper, class 6 extra-fine wire to IEC 60228, 2.5 mm²
6	Fillers	Elastomer fillers in outer layer to keep the bundle round (5 pcs)
4	Anti-torsion braid	High-tenacity polyester / aramid textile braid over the core assembly
5	Outer sheath	Polyurethane (PUR), halogen-free, black (colour on request), nominal wall ≈ 1.8 mm

Stranding: centre CAN element, 8 cores in layer 1, 14 cores in layer 2, 15 cores + 5 fillers in layer 3, short lay length optimised for reeling.

3 Electrical data

Parameter	Value
Rated voltage U_0/U (power cores)	0.6/1 kV AC
Max. permitted operating voltage	0.7/1.2 kV AC · 0.9/1.8 kV DC
Test voltage (power cores)	3.5 kV AC, 5 min
Test voltage (CAN element)	1.5 kV AC, 1 min (pair/shield and to power cores)
Conductor resistance at 20 °C (2.5 mm^2)	⩽ 8.21 Ω/km (tinned, IEC 60228 class 6)
Insulation resistance at 20 °C	⩾ 20 MΩ·km
Current rating, 2.5 mm^2 (single layer on drum, 30 °C)	30 A base value; apply multicore factor for loaded cores and reel-layer derating to DIN VDE 0298-4
CAN characteristic impedance	120 Ω ± 12 Ω (at 1 MHz)
CAN mutual capacitance	⩽ 45 pF/m (nominal)
CAN attenuation	⩽ 2.6 dB/100 m at 1 MHz
CAN loop resistance at 20 °C	⩽ 80 Ω/km
Bus compatibility	CAN / CANopen to ISO 11898-2; DeviceNet on request

4 Mechanical, thermal and dimensional data

Parameter	Value
Overall diameter	30.0 ± 1.0 mm (per client requirement ≈ 3 cm)
Approx. weight	≈ 1,290 kg/km
Copper weight (calculation basis)	≈ 832 kg/km
Max. tensile load (static, conductors)	1,380 N (15 N/mm² × 92.5 mm²)
Max. travel speed	120 m/min (spreader reel); higher on request
Max. acceleration	0.4 m/s²
Min. bending radius — reeling / flexing	7.5 × D ≈ 225 mm
Min. bending radius — fixed installation	5 × D ≈ 150 mm
Torsional stress	± 25 °/m
Ambient temperature — flexing	–25 °C to +80 °C
Ambient temperature — fixed	–40 °C to +80 °C
Max. conductor temperature	+90 °C
Sheath resistance	Oil (IEC 60811-404), UV, ozone, seawater spray, abrasion and tear

5 Standards and quality

Standard	Scope
IEC 60228	Conductors of insulated cables (class 6)
DIN VDE 0250-814 / EN 50396	Design principles and test methods for rubber/elastomer flexible cables
DIN VDE 0298-4	Current-carrying capacity and derating
ISO 11898-2	CAN physical layer
IEC 60332-1-2	Flame propagation, single vertical cable
IEC 60811 series	Material tests for insulation and sheath
ISO 9001 · RoHS · REACH	Quality management and material compliance

Factory tests on every drum: conductor resistance, voltage test, insulation resistance, CAN impedance/continuity check, dimensional inspection and sheath marking check. Test report supplied with the shipment.

6 Marking, packing and installation notes

Item	Detail
Sheath marking	FEICHUN FC-CFX™ (SMK)-CAN 37G2.5+1x2x0.5 0.6/1kV + metre marking
Delivery length	3 × 95 m (one length per drum)
Packing	Fumigation-free export wooden drums, ends sealed with heat-shrink caps, drum labels in English
Installation	Unwind from the drum without twisting (no loops or kinks); allow the cable to relax before fixing to the reel; drum core diameter ≥ 15 × D recommended for long life

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