FLEXIBLE POWER CABLE | 640/1100 V | EPR / CR | IEC 60228 Class 5 | YCWG heavy duty

FC-YCWG 3×70+3×16 mm² 640/1100 V

Heavy-duty weather- and oil-resistant rubber-sheathed flexible power cable, 3 × 70 mm² phase cores with 3 × 16 mm² split earth, textile reinforced, for mobile equipment rated 640/1100 V.

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Client reference 61A, 640/1100 V ZTEFJB YCWG 3+70 mm² + 3+16 mm²

1 Application

Flexible power supply for heavy mobile and semi-mobile equipment operating at 640/1100 V, including mining machinery, crushers, conveyors, pumps, port and yard equipment, dredges and construction plant.

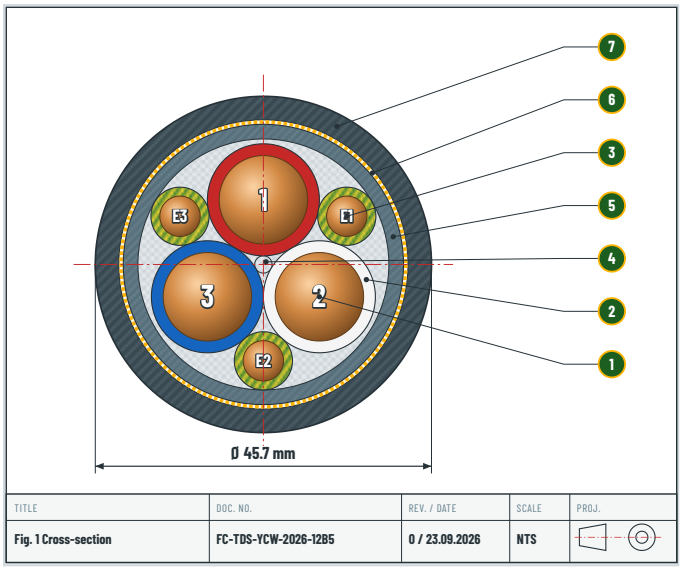
Suitable for trailing duty, reeling at moderate speeds, and fixed or protected installation where frequent repositioning occurs. The three symmetrically placed earth cores give a balanced construction with low induced voltage and even mechanical loading.

The heavy-duty chloroprene outer sheath is resistant to weather, UV, ozone, oils and abrasion, and is suitable for outdoor, wet and dusty environments.

Key features

- Class 5 fine-wire copper conductors
- EPR insulation, 90 °C continuous rating
- Symmetrical 3-core split earth in the interstices
- Textile reinforcement between inner and outer sheath
- Heavy-duty CR outer sheath, weather and oil resistant (W)
- Flame retardant to IEC 60332-1-2

2 Construction



TITLE	DOC. NO.	REV. / DATE	SCALE	PROJ.
Fig. 1 Cross-section	FC-TDS-YCW-2026-12B5	0 / 23.09.2026	NTS	

Pos.	Element	Material / description
1	**Conductor**	Plain annealed copper, fine-wire Class 5, IEC 60228
2	**Insulation**	EPR, type EI 4, 90 °C
3	**Earth conductors**	3 × Class 5 copper, EPR insulated, green/yellow
4	**Centre filler**	Rubber compound, fills centre and interstices
5	**Inner sheath**	Synthetic rubber compound
6	**Reinforcement**	Polyester textile cord braid
7	**Outer sheath**	Heavy-duty chloroprene rubber (CR), black

Core identification: phase cores red, white, blue; earth cores green/yellow (other identifications on request)

Element	Specification
Conductor	Plain annealed copper, Class 5 to IEC 60228; max. single-wire diameter 0.51 mm
Phase cores	3 × 70 mm², EPR insulated
Earth cores	3 × 16 mm², EPR insulated green/yellow, one laid in each outer interstice
Insulation	Ethylene-propylene rubber (EPR), type EI 4, 90 °C
Lay-up	Phase cores stranded around a rubber centre filler with earth cores in the outer interstices
Inner sheath	Extruded synthetic rubber compound
Reinforcement	Braided polyester textile cord
Outer sheath	Heavy-duty chloroprene rubber (CR), weather and oil resistant, black

3 Dimensional data

Parameter	Unit	Value
Power cores		**3 × 70 mm²**
Conductor diameter, power (approx.)	mm	**12.0**
Insulation thickness, power (nominal)	mm	**1.6**
Earth cores		**3 × 16 mm²**
Insulation thickness, earth (nominal)	mm	**1.2**
Diameter over lay-up (approx.)	mm	**34.1**
Inner sheath thickness (nominal)	mm	**2.0**
Outer sheath thickness (nominal)	mm	**3.2**
Overall diameter (nominal)	mm	**45.7 ± 5 %**
Copper content (approx.)	kg/km	**2,360**
Cable mass (approx.)	kg/km	**3,930**

4 Electrical data

Parameter	Unit	Value
Rated voltage U_0/U	V	**640/1100**
Maximum system voltage U_m	kV	**1.2**
AC test voltage, core to core (5 min)	kV	**3.5**
Max. DC resistance at 20 °C, 70 mm²	Ω/km	**0.272**
Approx. AC resistance at 90 °C, 70 mm²	Ω/km	**0.348**
Max. DC resistance at 20 °C, 16 mm² (earth)	Ω/km	**1.21**
Min. insulation resistance constant K_i at 90 °C	MΩ·km	**3.67**
Current rating, 70 mm², free air, 30 °C ambient	A	**245**
Short-circuit rating, 70 mm² (1 s, 90 → 250 °C)	kA	**10.01**
Short-circuit rating, 16 mm² earth (1 s)	kA	**2.29**

Current rating: three loaded cores, single cable in free air, conductor 90 °C, ambient 30 °C, based on IEC 60364-5-52 / VDE 0298-4 methodology for rubber-insulated flexible cables.

Derating on cylindrical drums

Operating condition	Factor	Rating, 70 mm² (A)
1 layer	0.80	**196**
2 layers	0.61	**149**
3 layers	0.49	**120**
4 layers	0.42	**103**

Ambient temperature correction

Ambient (°C)	10	20	30	35	40	45	50	55	60
Factor	1.15	1.08	1.00	0.96	0.91	0.87	0.82	0.76	0.71

Multiply the free-air rating by the applicable factors. Factors are cumulative where more than one condition applies.

5 Mechanical and thermal data

Parameter	Unit	Value
Min. bending radius, fixed installation (4 × D)	mm	**183**
Min. bending radius, trailing / reeling (6 × D)	mm	**274**
Min. diameter of guide rollers / pulleys (15 × D)	mm	**686**
Max. static tensile load (15 N/mm² × power copper)	N	**3,150**
Max. travel speed	m/min	**60**
Max. acceleration	m/s²	**0.4**
Conductor operating temperature, max.	°C	**+90**
Short-circuit conductor temperature, max. (≤ 5 s)	°C	**+250**
Ambient temperature, flexing / reeling	°C	**–25 … +80**
Ambient temperature, fixed installation	°C	**–40 … +80**

6 Standards and tests

Reference standards

- **IEC 60228** Conductors, Class 5
- **GB/T 5013 / IEC 60245** Rubber-insulated flexible cables, design reference (YCW family)

Routine and type tests

- Conductor resistance, 100 % of lengths
- AC voltage test 3.5 kV, 5 min, all cores
- Spark test on insulation
- Dimensional check and visual inspection

- **IEC 60502-1** Test voltages and insulation thickness reference
- **DIN VDE 0298-4** Current-carrying capacity
- **IEC 60332-1-2** Flame propagation, single cable
- **EN 60811-404** Mineral oil resistance of sheath
- **EN 50396** Ozone resistance
- **HD 605 / ISO 4892-2** UV / weathering resistance
- Tensile and elongation of insulation and sheath, before and after ageing
- Hot set test
- Mineral oil immersion test on sheath
- Flame test to IEC 60332-1-2

7 Marking, packing and ordering

Sheath marking	Embossed or ink-jet: *FEICHUN CABLES FC-YCWG 3×70+3×16 mm² 640/1100 V YEAR* with sequential metre marking
Packing	Fumigated wooden drums (ISPM 15) or steel drums for heavy lengths; both cable ends sealed with heat-shrink end caps; drum flange marked with document no., size, length, gross/net mass and drum no.
Delivery lengths	As per order, single continuous lengths; drum sizing confirmed on order acceptance
Production lead time	2–3 weeks after order confirmation and advance payment
Quality documentation	In-house routine test report per drum; third-party witness testing available at the buyer's cost
Warranty	Minimum 3 years against manufacturing defects
Certifications	FeiChun holds ATEX, IECEx, VDE, CE, UKCA, EAC and Russian Fire Safety certification (scope per certificate)

Order code	FC-YCWG 640/1100 V 3×70+3×16 mm² BK

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Technical data sheet

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