



TFCrane (N)SHTÖU-J 3xCS + 2xCS/2 + FO CS-abbreviation of cross-section

Based on: DIN VDE 0250-814

- Low Voltage Rubber Flexible Cable with Integrated Fiber-Optics for Reeling
- Upon request, weights and diameters may be individually adjusted based on end-use applications or customer requirements.



Applications:

Flexible cable designed for high mechanical stresses, especially for applications with frequent winding and unwinding with co-occurrent tensile and torsion stress. The cable is used for conveyors, container cranes, harbour cranes, building machinery, handling machines in mining and tunnelling equipment. For use in wet or dry conditions, in industrial units, in underground and open-cast mining, in explosion-risk areas. Tear, impact and abrasion resistant jacket.

Construction

Conductors	Flexible stranded annealed tin coated or bare copper conductor class 5 to IEC 60228
Separator	If needed a suitable tape separator between the conductor and insulation
Insulation	EPDM rubber, halogen-free, lead-free compound, type 3GI3 acc. to DIN VDE 0207/20, developed by TFKable Colour coding of power conductors compliant to HD 308. DIN VDE 0293- 308
Color of insulation*	Power cores: 3-core circuit identification: Brown, black, grey Earth cores: Green-yellow
Earth conductor	Rubber insulated, tin coated or bare copper conductor
Fiber Optic Modulus Identification of the fibers	A-D(ZN)13Y 6, 12, 18 or 24 fibers G50/125, G62,5/125 or E9/125 Color coding of the fibers and buffering tubes
Fiber covering	Buffering tube with filling compound
Core arrangement	Three power cores twisted together, earth conductor split into 2 parts and FO placed into the interstices
Inner sheath	A special synthetic thermosetting compound type 5GM3 acc. to DIN VDE 0207/21
Color of inner sheath	Yellow
Anti-torsion braid	Braid of polyamide threads between internal and outer layer of sheath
Outer layer of sheath	Special designed by TFKable, synthetic thermosetting compound, 5GM5 quality acc. to DIN VDE 0207/21
Colour of outer jacket	Yellow

*other identification available on request

Characteristics

Rated Voltage U_0/U 0.6/1 kV

Max. operating voltage U_m 1.2 kV

AC test voltage 3 kV

Current carrying capacity DIN VDE 0298-4

Max. conductor operating temperature +90°C

Max. conductor temperature during short circuit +250°C

Minimum ambient temperature for fixed installation -40°C

Minimum ambient temperature for mobile installation -25°C

Minimum bending radius acc. to DIN VDE 0298-3:

OD of cable[mm]	>8 ≤12	>12 ≤20	>20
Fixed installation	3D	4D	4D
On drums	5D	5D	5D
On deflection pulleys	7.5D	7.5D	7.5D
Moving freely	4D	5D	5D
Twist limits	50°/m		
Travel speed up to	250m/min		
Tensile load	20N/mm ²		
Flame propagation	PN-EN 60332-1-2, IEC 60332-1-2		
Oil resistant	PN-EN 60811-404, IEC 60811-404		
UV resistant	UL 2556, ISO 4892-2		
Ozone resistant	PN-ISO 1431-1		

Example of standard sheath marking: TFKABLE 3 TFCrane CE (N)SHTÖU-J 3x35+2x16/2+FO 0,6/1 kV year + meter

Parameters

Number of cores x cross-section mm²	Conductor diameter mm	Approx. overall diameter mm	Approx. weight kg/km	Max. tensile load N
3x35+2x16/2+FO	7.8	42.0	2918	2100
3x50+2x25/2+FO	9.6	42.3	3322	3000
3x70+2x35/2+FO	11.4	46.2	4275	4200
3x95+2x50/2+FO	13.0	49.6	5255	5700
3x120+2x70/2+FO	14.7	57.7	6986	7200
3x150+2x70/2+FO	16.5	58.1	7702	9000
3x185+2x95/2+FO	18.3	66.8	9856	11100
3x240+2x120/2+FO	20.9	73.2	12380	14400

Standard length cable packing: 500 m on drums. Other forms of packing and delivery are available on request

Fiber data

Parameter	G50/125 multimode	G62.5/125 multimode	E9/125 singlemode
Attenuation at 850 nm	≤3.0 dB/km	≤3.5 dB/km	-
Attenuation at 1300 nm	≤1.0 dB/km	≤1.0 dB/km	-
Attenuation at 1310 nm	-	-	≤0.4 dB/km
Attenuation at 1550 nm	-	-	≤0.25 dB/km
Bandwidth at 850 nm	≥500 MHz*km	≥200 MHz*km	-
Bandwidth at 1300 nm	≥500 MHz*km	≥500 MHz*km	-
Numerical Aperture at 850 nm	0.200 ±0.015	0.275 ±0.015	-
Group refractive index at 850 nm	1.482	1.496	-
Group refractive index at 1300 nm	1.477	1.491	-
Group refractive index at 1310 nm	-	-	1.466
Group refractive index at 1550 nm	-	-	1.467