Nexans

High Temperature

ELCUFLON®

Contents

Properties of ELCUFLON® Cables

ELCUFLON® is our registered trademark for high temperature cables with insulation based on Fluorocarbonpolymeres resp. in zero halogen version with Polyetheretherketone.

ETFE	Ethylene-Tetrafluoroethylene copolymer
FEP	Perfluoroethylene-Propylene copolymer
PEEK	Polyetheretherketone
PTFE	Polytetrafluoroethylene
PFA	Perfluoroalkoxy-Tetrafluoroethylene copolymer
PEIC	Polyetherimid copolymer

ELCUFLON® cables offer an outstanding temperature resistance

ETFE	below –180°C up to +150°C
FEP	below –180°C up to +180°C/+200°C
PEEK	below –180°C up to +220°C
PTFE, PFA	below –180°C up to +260°C
PEIC	below –180°C up to +130°C

Additional outstanding properties of ELCUFLON® cables:

- Resistance against soldering temperature (no shrinking or melting)
- Exceptional flame resistance
- High insulation resistance
- Minimum dielectric loss
- High dielectric strength
- No water absorbtion
- Best chemical resistance
- Absolute weather resistance
- Excellent cut and abrasion resistance
- Space saving due to thin wall thickness
- High radiation resistance (PEEK)
- High tensile strength (PEEK)
- Zero halogen (PEEK/PEIC)

Upon request we manufacture special constructions in combination with other insulation materials, e.g. PE, TPU or PVC

Colour Code

0 orange	1 black	2 white	3 grey	4 red
5 blue	6 yellow	7 green	8 violet	9 brown

Additional colour distinction by spiralized colour stripes

Technical Data

Material Properties	Unit	ETFE (7Y)	PEIC	FEP (6Y)
max. continuous operating temperature	°C	+ 150	+ 130	+ 200
Cold resistance	below °C	- 180	- 60	- 180
Tensile strength	N/mm2	30	20	10
Elongation at break	%	150	50	200
Volume resistivity	Ω x cm at + 20°C	10^{16}	$4{,}6 \times 10^{16}$	2×10^{18}
Dielectric constant ε_r (1 MHz)		2,6	2,9	2,1
Dissipation factor δ (1 MHz)		0,0008	0,0056*)	0,0002
Oxygene index	%	30	46	95
Irradiation resistance	Gy (rad)	10^5 (10^7)	10^4 (10^6)	10^4 (10^6)

*) measured at 100 kHz

Material Properties	Unit	PEEK	PTFE/PFA (5Y/14Y)
max. continuous operating temperature	°C	+ 220	+ 260
Cold resistance	below °C	- 180	- 180
Tensile strength	N/mm2	70	20
Elongation at break	%	50	200
Volume resistivity	Ω x cm at + 20°C	10^{16}	$10^{18}/10^{16}$
Dielectric constant ε_r (1 MHz)		3,2	2,1
Dissipation factor δ (1 MHz)		0,003	0,0002
Oxygene index	%	35	95
Irradiation resistance	Gy (rad)	10^7 (10^9)	10^3 (10^5)

Example of type codes

No. of cores	A 1. Letter operating voltage	B 2. Letter Insulation	C 3./4. Letter Conductor surface	D 1. Group of figures AWG-dimens. of conductor	E 2. Group of figures No. of Strands and AWG	F 4./5. Letter Screen	G 5./6. Letter Sheath	Remarks
	M	E		24	- 1936			
	T	X	N	30	- 738			
	M			28	- 736			
	H			18	- 118			
	M	T	Z	30	- 130			Typ 2
2	T	X		26	- 734	S	Y	
4	T	X		20	- 1932	Z	E	
		C						

A 1. Letter – max. operating voltage
- **.M** 250 V (test voltage 1500 V)
- **.T** 600 V (test voltage 2000 V)
- **.H** 1000 V (test voltage 3000 V)

B 2. Letter – Insulation material
- **.X** PTFE extruded
- **.E** FEP extruded
- **.T** ETFE extruded
- **.Pk** PEEK extruded
- **.C** PEIC extruded

C 3./4. Letter – Conductor surface
- **.N** nickel plated (cont. operating temperature up to + 260°C)
- **.** omission silver plated (cont. operating temperature up to + 200°C)
- **.Z** tinned (cont. operating temperature up to + 180°C)
- **.BC** bare (cont. operating temperature up to + 180°C)

D 1. Group of figures
- **.** AWG dimension of conductor (in case of metric dimensions cross section)

E 2. Group of figures
- **.** In case of 3 figures the 1st one stands for the no. of single strands, the 2nd and 3rd figure stand for the AWG size of the single wire
- **.** In case of 4 figures the 1st and 2nd stand for the no. of single wires, the 3rd and 4th figure stand for the AWG size of the single wire
- **.** In case of metric dimensions the cross section is completed by the no. of single wires and their diameter

F 4./5. Letter – Screen
(only application for control cables)
- **.N** copper nickel plated
- **.S** copper silver plated
- **.Z** copper tinned

G 5./6. Letter – Sheath
(only application for control cables)
- **.TJ** PTFE wrapped tape
- **.E** FEP extruded
- **.Y** PVC extruded

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Dimensions and Constructions of solid and stranded Wires according to AWG

AWG Gauge	Solid wires		Stranded wires	
	Diameter mm	Cross section mm^2	Cross section mm^2	Construction
32	0,203	0,032	0,035	7 x 0,079
(31)	0,226	0,040		
30	0,254	0,051	0,055	7 x 0,102
(29)	0,287	0,065		
28	0,320	0,081	0,093	7 x 0,127
			0,096	19 x 0,079
(27)	0,361	0,102		
26	0,404	0,128	0,14	7 x 0,160
			0,15	19 x 0,102
(25)	0,455	0,162		
24	0,511	0,205	0,22	7 x 0,203
			0,25	19 x 0,127
(23)	0,574	0,259		
22	0,643	0,324	0,34	7 x 0,254
			0,38	19 x 0,160
(21)	0,724	0,411		
20	0,813	0,517	0,56	7 x 0,320
			0,60	19 x 0,203
(19)	0,912	0,654		
18	1,024	0,823	0,88	7 x 0,404
			0,93	19 x 0,254
(17)	1,151	1,039		
16	1,290	1,309	1,25	19 x 0,287
(15)	1,450	1,652		
14	1,628	2,084	1,93	19 x 0,361
			2,44	37 x 0,287
(13)	1,829	2,627		
12	2,052	3,308	3,02	19 x 0,455
			2,80	37 x 0,320
(11)	2,304	4,168		
10	2,588	5,262	4,65	37 x 0,404
(9)	2,906	6,632		