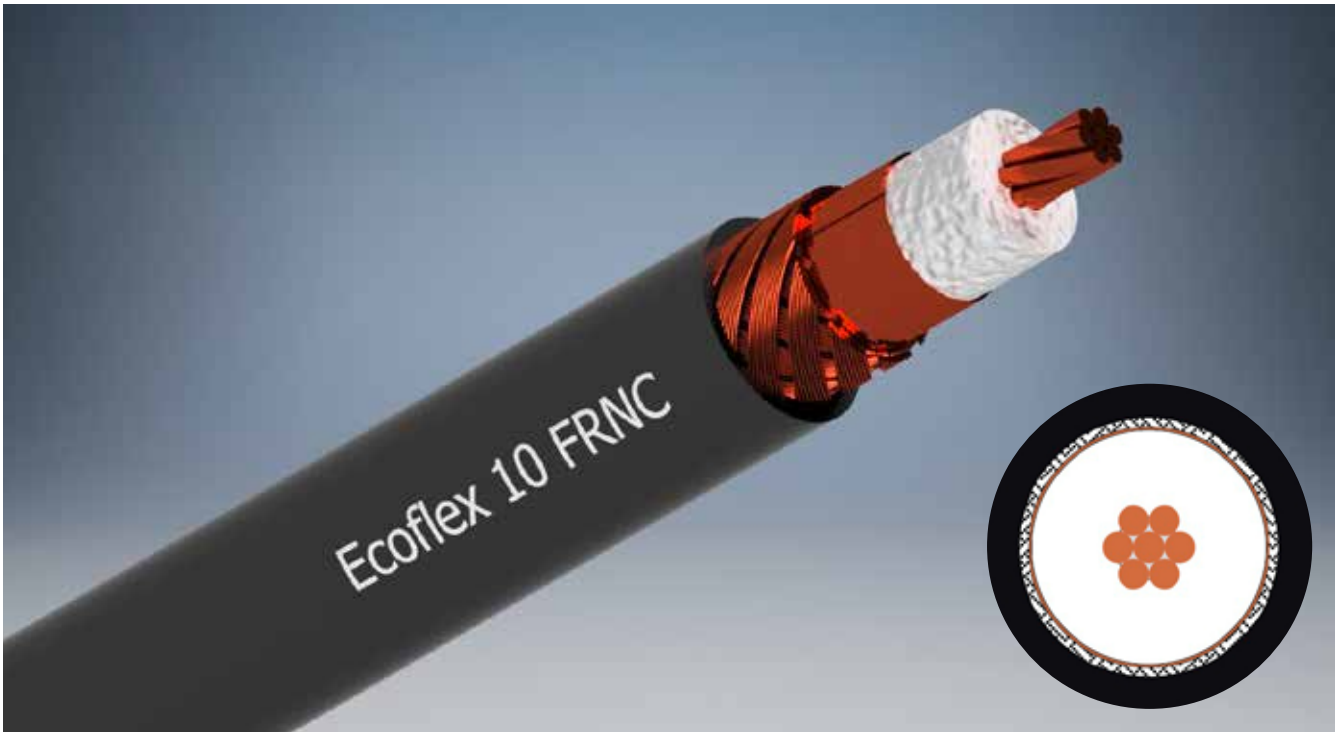
Ecoflex® 10 FRNC

ultraflexible, low loss and free of halogen



Ecoflex 10 FRNC is a flexible, low loss 50 ohm coaxial cable for the frequency range up to 6 GHz. Advanced manufacturing techniques combined with the use of a low loss PE-LLC dielectric with a foaming rate of more than 70% result in very low attenuation values, which set standards among flexible coaxial cables of this dimension.

The high flexibility of Ecoflex 10 FRNC is further enhanced through the use of an oxygen-free copper inner conductor containing 7 stranded bare copper wires. During a special manufacturing process the inner conductor is compressed, calibrated and then pre-coated to achieve good attenuation and return loss values. Another advantage of Ecoflex 10 FRNC is its double shielding: an overlapping copper foil and an additional shield braiding of bare copper wires with 75 % coverage ensure a high screening attenuation of > 90 dB at 1 GHz.

The jacket of Ecoflex 10 FRNC is made of a special thermoplastic copolymer (FRNC: Flame Retardant Non Corrosive). Due to this flame retardant and halogen-free material the cable has a low fire load, low flame propagation and limited smoke emission. The amount of toxic and corrosive gases is considerably reduced during combustion.

For the easier installation of Ecoflex 10 FRNC, a special high quality solderless N male connector has been developed in addition to a full range of available standard connectors. It can be mounted in a few minutes without special tools. Ecoflex 10 FRNC is the right choice, when a highly flexible, low loss, halogen-free and microwave rated cable is required. It can be used for numerous RF applications.

Key features

Diameter	10,2 ± 0,2 mm
Impedance	50 ± 2 Ω
Attenuation at 1 GHz/100 m	13,49 dB
f max	**6 GHz**
Euroclass acc. to EN 50575	**Fca**

Characteristics

- Jacket material according to DIN EN 50290-2-27 (HD 624.7)
- Flame retardant according to IEC 60332-1-2
- Manufactured according to DIN EN 45545-2 Table 5 R15 HL2
- RoHS compliant (Directive 2011/65/EC & 2015/863/EU RoHS 3)
- Low Smoke, Fire retardant, Zero Halogen (LSZH)
- Corrosivity of fumes according to IEC 60754-2
- Smoke density according to IEC 61034
- UV-resistant

Technical data

Inner conductor	Stranded bare copper wire
Inner conductor Ø	2,85 mm (7 x 1,0 mm, 10 AWG)
Dielectric	foamed Polyethylene (PE) with skin
Dielectric Ø	7,2 mm
Outer conductor 1	copper foil overlapped
Shielding factor	100%
Outer conductor 2	shield braiding of bare copper wires
Shielding factor	75%
Outer conductor Ø	7,9 mm
Jacket	highly flexible thermoplastic copolymer (FRNC) black
Weight	136 kg/km
Min. Bending radius	4XØ single, 8XØ repeated
Temperature range	-55 to +85°C Transport & fixed installation
	-40 to +85°C Flexible use
Pulling strength	600 N

Electrical data at 20°C

Capacity (1 kHz)	78 nF/km
Velocity factor	0,85
Screening attenuation 1 GHz	≥ 90 dB
DC-resistance Inner conductor	≤ 3,5 Ω/km
DC-resistance Outer conductor	6,6 Ω/km
Insulation resistance	≥ 10 GΩ*km
Test voltage (Inner conductor/Outer conductor rms 50 Hz 1 Min.)	1000 V
Max. Voltage	5 kV

	Ecoflex 10 FRNC	RG 213/U	RG 58/U
Capacity	78 pF/m	101 pF/m	102 pF/m
Velocity factor	0,85	0,66	0,66
Attenuation (dB/100m)			
10 MHz	1,14	2,00	5,00
100 MHz	3,80	7,00	17,00
500 MHz	9,12	17,00	39,00
1000 MHz	13,49	22,50	54,60
3000 MHz	25,37	58,50	118,00

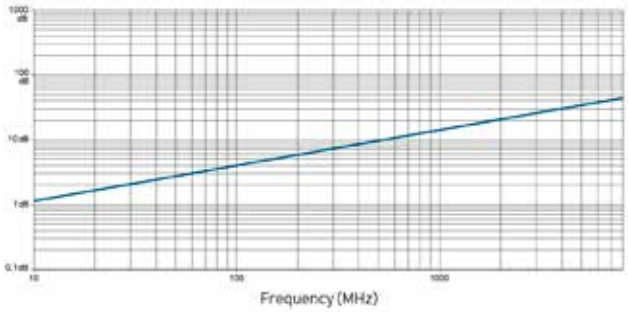
Typ. Attenuation (db/100 m at 20°C)

5 MHz	0,76	1000 MHz	13,49
10 MHz	1,14	1296 MHz	15,68
50 MHz	2,66	1500 MHz	17,01
100 MHz	3,80	1800 MHz	18,91
144 MHz	4,66	2000 MHz	20,14
200 MHz	5,51	2400 MHz	22,42
300 MHz	6,94	3000 MHz	25,37
432 MHz	8,46	4000 MHz	29,55
500 MHz	9,12	5000 MHz	33,44
800 MHz	11,88	6000 MHz	37,05

Max. Power handling (W at 40°C)

10 MHz	3.960	2400 MHz	210
100 MHz	1.210	3000 MHz	180
500 MHz	510	4000 MHz	150
1000 MHz	350	5000 MHz	130
2000 MHz	230	6000 MHz	120

Typ. Attenuation (db/100 m at 20°C)



Typ. Return loss