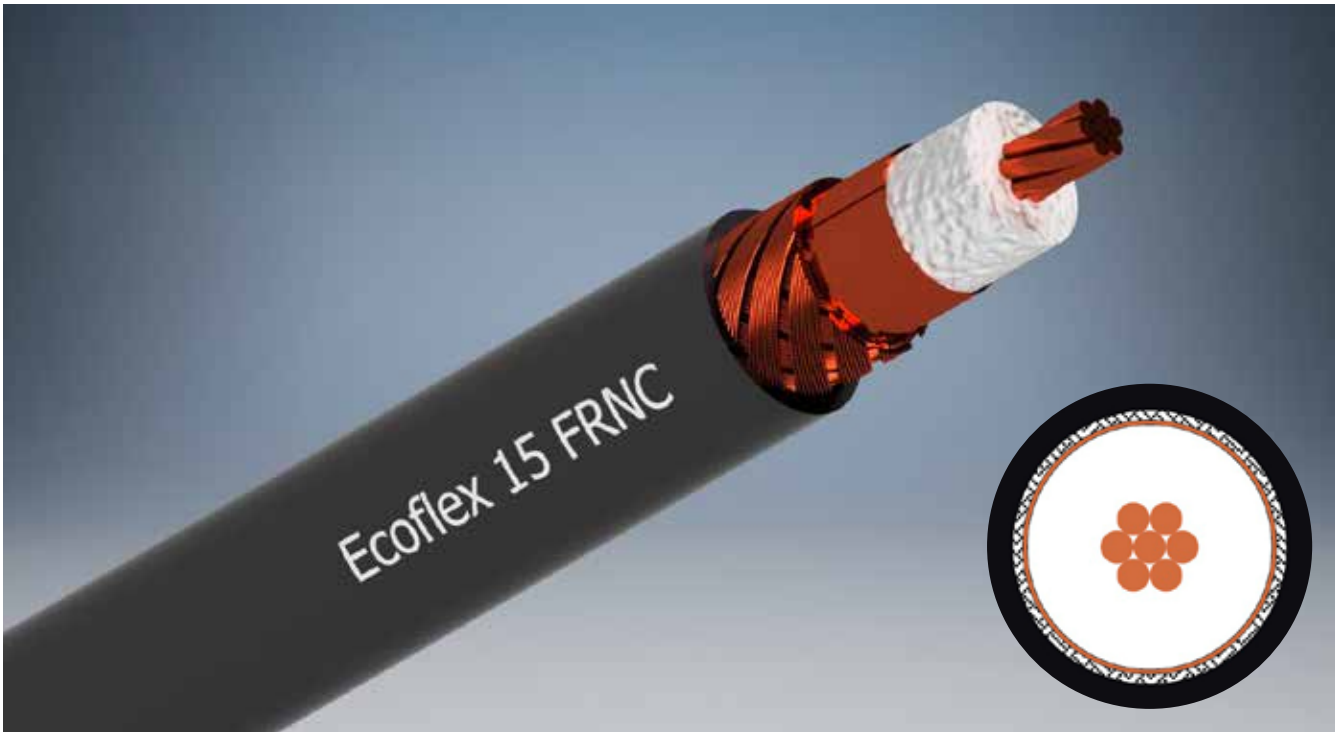
# Ecoflex® 15 FRNC

## flexible, low loss, stray radiation resistant and free of halogen




Ecoflex 15 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.

The unique construction of Ecoflex 15 FRNC combines the excellent attenuation properties of non-flexible solid inner conductor 1/2" cables with the high flexibility of cables manufactured with stranded inner conductors. The high flexibility of Ecoflex 15 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 continuously compressed, calibrated and then pre-coated to achieve good attenuation, good return loss values and stable impedance matching. Another advantage of Ecoflex 15 FRNC 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 15 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 this cable, solderless N, UHF and 7-16 DIN connectors were developed. They can be assembled in a short time without special tools. Ecoflex 15 FRNC is the right choice, when an extremely flexible, low loss, halogen-free and microwave rated cable is required. It can be used for numerous RF applications. Especially in cases with long distances and critical connections, where every „dB" is important, Ecoflex 15 FRNC offers a lot of advantages.

### Key features

| | |
|---|---|
| Diameter | 14,6 ± 0,3 mm |
| Impedance | 50 ± 2 Ω |
| Attenuation at 1 GHz/100 m | 9,80 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 | 4,5 mm (7 x 1,5 mm) |
| Dielectric | foamed Polyethylene (PE) with skin |
| Dielectric Ø | 11,3 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 | 12,1 mm |
| Jacket | highly flexible thermoplastic copolymer (FRNC) black |
| Weight | 184 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 | 1300 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 | ≤ 2,5 Ω/km |
| DC-resistance Outer conductor | 5,0 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 15 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 | 0,86 | 2,00 | 5,00 |
| 100 MHz | 2,81 | 7,00 | 17,00 |
| 500 MHz | 6,70 | 17,00 | 39,00 |
| 1000 MHz | 9,80 | 22,50 | 54,60 |
| 3000 MHz | 18,30 | 58,50 | 118,00 |

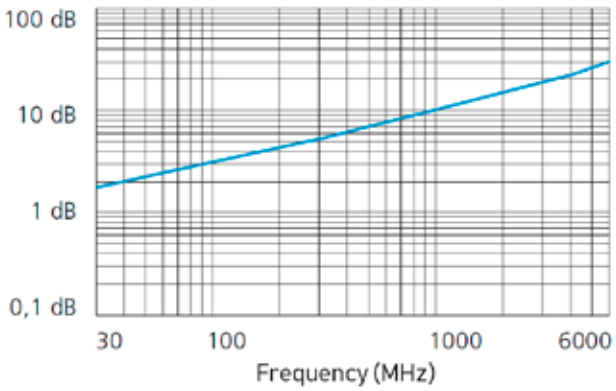
## Typ. Attenuation (db/100 m at 20°C)

| | | | |
|---|---|---|---|
| 5 MHz | 0,60 | 1000 MHz | 9,80 |
| 10 MHz | 0,86 | 1296 MHz | 11,40 |
| 50 MHz | 1,96 | 1500 MHz | 12,40 |
| 100 MHz | 2,81 | 1800 MHz | 13,80 |
| 144 MHz | 3,40 | 2000 MHz | 14,60 |
| 200 MHz | 4,05 | 2400 MHz | 16,20 |
| 300 MHz | 5,00 | 3000 MHz | 18,30 |
| 432 MHz | 6,10 | 4000 MHz | 21,60 |
| 500 MHz | 6,70 | 5000 MHz | 24,60 |
| 800 MHz | 8,60 | 6000 MHz | 27,50 |

## Max. Power handling (W at 40°C)

| | | | |
|---|---|---|---|
| 10 MHz | 6.327 | 2400 MHz | 326 |
| 100 MHz | 1.928 | 3000 MHz | 284 |
| 500 MHz | 810 | 4000 MHz | 237 |
| 1000 MHz | 547 | 5000 MHz | 206 |
| 2000 MHz | 364 | 6000 MHz | 183 |

## Typ. Attenuation (db/100 m at 20°C)




## Typ. Return loss