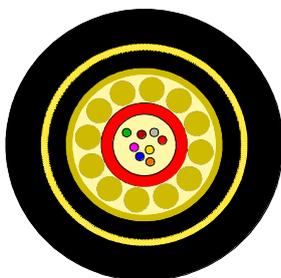


SM-UJEREA 12: Metal-free Aerial/Ground Optical Cable

Cable Design

Infrabel Specification S68 Telecom



- not to scale -

- **Optical Fibre:** single mode fibres according to ITU-T G.652.D, consisting of a glass core and cladding.
- **Loose Tube:** thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Reinforcement Layer (1st):** one layer of round FRP elements.
- **Protective Wrapping:** fibreglass reinforced tape.
- **Inner Sheath:** black high density polyethylene (HDPE).
- **Reinforcement Layer (2nd):** aramid yarns.
- **Auxiliary Materials:** e.g. tapes or binders, included to help production.
- **Outer Sheath:** black HDPE, two ripcords beneath.

This optical fibre cable is designed according to Infrabel Telecom Specification as a metal-free aerial/ground cable. The cable is suitable for aerial and underground installation, either in ducts or directly buried.

Technical data

No. of Fibres			12	
Design			1 x 12	
Loose Tube Inner/Outer - Ø	mm	2.2 / 3.0		
Reinforcement layer (1 st) - Ø	mm	5.3		
Protective Wrapping - Ø	mm	5.9		
Inner Sheath Thickness (min.)	mm	0.8		
Reinforcement layer (2 nd) - Ø	mm	9.0		
Outer Sheath Thickness (min.)	mm	1.4		
Cable Diameter	mm	12.5 (max. 13.0)		
Cable Weight	kg / km	125		
Modulus of Elasticity (min.)	GPa	12		
Thermal expansion coefficient	°C ⁻¹	7x10 ⁻⁶		
Temperature Range	°C	Installation -10 to +50	Transport & Storage -30 to +70	Operation -30 to +70

Please refer to our General Installation, Safety & Handling recommendations before handling.

Main characteristics

Test	Test Standard	Specified Value	Acceptance Criteria ¹
Max. Tension in Operation	IEC 60794-1-2-E1	5000 N (at 15°C)	$\Delta\alpha \leq 0.05$ dB/km
Crush	IEC 60794-1-2-E3	5000 N / 100 mm, 1 min.	$\Delta\alpha$ reversible
Impact	IEC 60794-1-2-E4	3kg, h=150mm, 50 impacts, R=12.5mm	$\Delta\alpha$ reversible, no visible rips
Repeated Bending	IEC 60794-1-2-E11	R=12xD, 1000 cycles, 8.5 kg	$\Delta\alpha \leq 0.05$ dB after test $\Delta\alpha \leq 0.1$ dB during test
Temperature Cycling	IEC 60794-1-2-F1	-30°C to +70°C	$\Delta\alpha \leq 0.1$ dB/km, reversible
Water Penetration	IEC 60794-1-2-F5B	sample=3m, water column=1m	no water leakage after 10 days

¹ All optical measurements at 1310 nm.

Optical Characteristics

See the attached cabled optical fibre data sheet.

Identification

Fibre and Module Colours

Module	Optical Fibres											
	1	2	3	4	5	6	7	8	9	10	11	12
1	red ³	orange	yellow	green	blue	violet	grey	white	red ¹	orange ¹	yellow ¹	green ¹
												

<colour>": "n" black ring marks every 150mm (max)

Sheath Marking

The outer sheath is marked in 1 meter intervals as follows:

**INFRABEL - OPTICAL FIBER T / <year of manufacture> / 12xG.652.D
- DRAKA(SR) - <cable ID no.> <length marking in meter>**

Sag & Tension Table

Span (m)	Temperature (°C)	Without additional load		Wind 140 km/h	
		Sag (m)	Tension (kN)	Inclined sag (m)	Tension (kN)
49	15	0.18	2.0	0.99	3.55
56	15	0.24	2.0	1.21	3.77
63	15	0.30	2.0	1.45	4.00

Logistic

Packing

Wooden drums with protection and sealing caps on both cable ends.

Delivery Length

Standard delivery length is 4 km with a tolerance of ±100m.

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