

HFCL Limited



TECHNICAL SPECIFICATIONS

MICROCABLES

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288F MULTITUBE MICROCABLE

Cable Description

Micro cables offer flexibility of upgrading a network that can quickly grow and change. Micro cables are designed for use in micro ducts by blowing. Its small outer diameter provides the required rigidity for blowing/pushing through ducts offers lower minimum bending radius. In this cable, optical fibres and water-blocking gel is placed inside buffer tubes. The core is constructed by stranding the buffer tubes around FRP rod, the central strength member. Water swellable yarn is provided over the FRP Rod. This core is then covered with a black HDPE jacket. A ripcord is provided under the jacket for ease of entry.

Applications

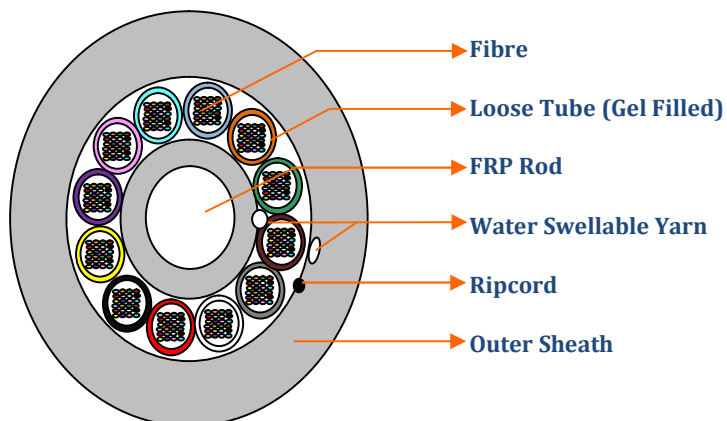
- Microduct, Existing Duct
- Trunk, Distribution, Feeder
- Local loop, Metro & Long Haul

Features

- Multiple network applications
- Wet core option available



Cross Section



Construction

Parameter	Dimensions/Layout	Type
Fibre Count	288	
Number of fibres per tube	24	Glass Fiber
Number of Loose Tubes	12	PBTP
Central Strength Member	3.5 mm upcoated to 5.5 mm	FRP Rod
Moisture Barrier	Over FRP Rod + Core	Water Swellable Yarn
Outer Sheath	0.5 mm (Nominal)	HDPE – Black
Number of Ripcords	1	Polyester
Cable Diameter	10.5 ± 0.3 mm	
Cable Weight	100 ± 10 kg/km	



Color Coding

Fiber Color	1	2	3	4	5	6	7	8	9	10	11	12
EIA/TIA 598	Bl	Or	Gr	Br	Sl	Wh	Rd	Bk	Yl	Vi	Pk	Aq
	13	14	15	16	17	18	19	20	21	22	23	24
	Bl	Or	Gr	Br	Sl	Wh	Rd	Yl	Vi	Pk	Aq	Nt

*Fibers from 13-24 shall be ring marked.

Tube Color	1	2	3	4	5	6	7	8	9	10	11	12
EIA/TIA 598	Bl	Or	Gr	Br	Sl	Wh	Rd	Bk	Yl	Vi	Pk	Aq

Cable Characteristics

Mechanical Characteristics		
Tensile Strength	1000 N	IEC 60794-1-21-E1
Crush Resistance	1000 N	IEC 60794-1-21-E3
Impact Strength	1 N.m	IEC 60794-1-21-E4
Torsion	± 360 °	IEC 60794-1-21-E7
Kink	10 x D	IEC 60794-1-21-E10
Minimum Bend Radius	20 x D	IEC 60794-1-21-E11

Water Penetration Test	1m water head, 3 m sample, 24 hours	IEC 60794-1-22-F5
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Environmental Characteristics		
Installation	- 30 ° C to + 70°C	IEC 60794-1-22-F1
Operation	- 30 ° C to + 70°C	
Storage	- 30 ° C to + 70°C	



Fiber Characteristics

Fiber Type (200 micron)				ITU-T G.657A1	
Optical					
Attenuation		1310 nm			≤ 0.36 dB/km
		1550 nm			≤ 0.23 dB/km
Chromatic Dispersion		1550 nm			≤ 18.0 ps/nm.km
Cable cut-off wavelength		λcc			≤ 1260 nm
Zero Dispersion Wavelength					1300 – 1324 nm
Zero Dispersion Slope					≤ 0.090 ps/nm² x km
Polarization mode dispersion					≤ 0.1 ps / √km
Mechanical					
Bending induced attenuation		10 turns	φ 30 mm	1550 nm	≤ 0.20 dB
				1625 nm	≤ 0.50 dB
		1 turn	φ 20 mm	1550 nm	≤ 0.20 dB
				1625 nm	≤ 0.50 dB
Proof Stress Level					1.0 % (100 kpsi)
Geometrical					
Mode Field Diameter		1310 nm			8.8 ± 0.4 μm
		1550 nm			10.3 ± 0.5 μm
Core – Cladding Concentricity Error					≤ 0.5 μm
Cladding Diameter					125 ± 0.7 μm
Cladding Non – Circularity					≤ 0.7 %
Coating – Cladding Concentricity Error					≤ 10 μm
Primary Coating Diameter		(Colored)			200 ± 10 μm
Primary Coating Material					UV Cured Acrylate
Fibre Curl		Radius			≥ 4 m



Marking on Cable

HFCL GOA, 288F LT SM G.657A1 MICROCABLE, *Year of manufacture, Length Code, Meter Marking*

Or

As per customer requirement.

Packing Details

The cable is available in standard drums of 2.0 km \pm 5 %. It shall be provided on wooden drums or spools. Both the cable ends shall be sealed & readily accessible. Each drum shall be permanently labelled on both sides of the flange with information required by the customer in addition to the following standard marking:

- Drum Number
- User Name
- HFCL GOA
- Fiber Count
- Cable Length
- Year of Manufacture
- Net Weight
- Gross Weight
- India