

Outdoor HDPE Unarmoured Unitube Optical Fibre Cable

OM3 / OM4 / OM5 Multimode | Unitube (UT) | Unarmoured (UA) | UV-Stabilised HDPE Sheath | Variants: 6F + 12F per type

1. Product Description

This datasheet covers the OM3, OM4, and OM5 variants of the outdoor UV-stabilised HDPE unarmoured unitube multimode optical fibre cable, each available in 6-fibre and 12-fibre counts. All variants share the same all-dielectric unitube construction: 50/125 μm multimode fibres in a single gel-filled PBT loose tube, water swellable tape, and a UV-stabilised HDPE outer sheath colour-coded by fibre grade — Aqua (OM3), Erika Violet (OM4), Lime Green (OM5). OM5 (Wideband Multimode Fibre, IEC A1a.4 / TIA-492AAAE) additionally supports SWDM4 at 850–953 nm, enabling 100G and 400G over a single fibre pair.

- Data centre structured cabling — 10G/40G/100G OM3 and OM4 links in duct
- OM5: 100G/400G SWDM4 and BiDi applications over a single fibre pair
- Campus backbone and inter-building links in duct systems
- High-voltage right-of-way (all-dielectric, EMI-immune, lightning-safe)
- Outdoor–indoor transition cable (duct-to-riser)
- Low-count, lightweight point-to-point connectivity

2. Product Cross-Sections

All variants share the same 7.0 mm OD. Sheath colour identifies the fibre grade. The orange dot at centre of each fibre represents the 50 μm graded-index multimode core.

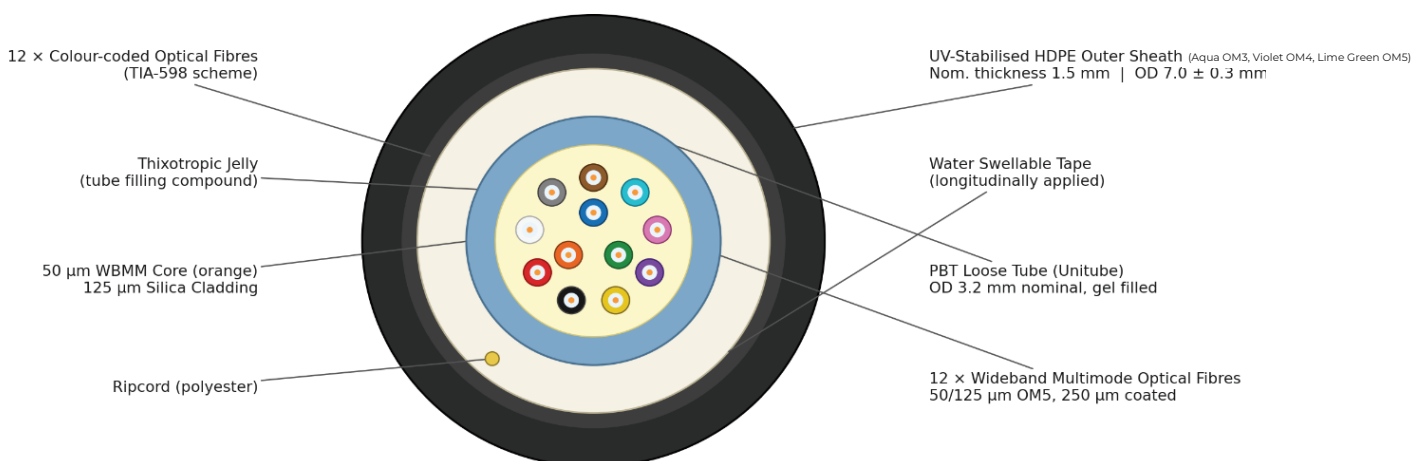


Figure — 12F Unitube Un armoured OM3 Cross-Section (OD 7.0 mm, (Aqua OM3, Violet OM4, Lime Green OM5))



3. Cable Construction Details

All variants share the same material specification. Construction tables below are representative of the series; variant-specific dimensions are in Section 3.2.

3.1 Common Construction — All Variants

S. No.	Element	Material / Description	Nominal Value
1	Optical fiber	50/125 µm graded-index multimode; OM3 (IEC A1a.2) / OM4 (IEC A1a.3) / OM5 (IEC A1a.4 / TIA-492AAAE);\ndual-layer UV-curable acrylate coating; colour coded per TIA-598-D	250 µm coated
2	Tube filling compound	Thixotropic jelly, non-dripping; 100% void fill in tube	Per tube
3	Loose tube (unitube)	Polybutylene terephthalate (PBT), single gel-filled tube	OD 3.2 mm nom.
4	Water blocking tape	Water swellable tape, longitudinally applied with overlap	0.25 mm thick
5	Ripcord	Polyester, placed under sheath	1 no.
6	Outer sheath	UV-stabilised HDPE; colour per grade — Aqua (OM3), Erika Violet (OM4), Lime Green (OM5);\ncarbon black ≥ 2.3%; no armour — all-dielectric	1.5 mm thick
7	Cable OD	Overall nominal	7.0 ± 0.3 mm
8	Cable weight	Approximate	See Sec. 3.2

3.2 Variant-Specific Physical Dimensions

Parameter	6F	12F
Fibre count	6	12
Colour scheme (fibres 1–6)	Blue, Orange, Green, Brown, Slate, White	Same as 6F
Colour scheme (fibres 7–12)	—	Red, Black, Yellow, Violet, Rose, Aqua
Cable OD (nominal)	7.0 mm	7.0 mm
Cable weight	60 kg/km	62 kg/km

Fibre Type	Sheath Colour	Standard
OM3	Aqua	IEC A1a.2 / ISO/IEC 11801
OM4	Erika Violet	IEC A1a.3 / ISO/IEC 11801
OM5	Lime Green	IEC A1a.4 / TIA-492AAAE

4. Optical Characteristics — 50/125 µm OM3/OM4/OM5 (Common to All Variants)

Optical performance is identical across all variants; only the construction changes.

Parameter	Condition for OM3	Condition for OM4	Condition for OM5	Specified Value for OM3	Specified Value for OM4	Specified Value for OM5
Fibre type	-	-	-	Multimode 50/125 µm, OM3 (laser-optimised)\nIEC 60793-2-10 A1a.2 / ISO/IEC 11801	Multimode 50/125 µm, OM4 (wideband laser-optimised)\nIEC 60793-2-10 A1a.3 / ISO/IEC 11801	Wideband Multimode 50/125 µm, OM5 / WBMMF\nIEC 60793-2-10 A1a.4 / TIA-492AAAE
Attenuation (cabled fibre)	@ 850 nm\n@ 1300 nm	@ 850 nm\n@ 1300 nm	@ 850 nm\n@ 953 nm\n@ 1300 nm	≤ 3.0 dB/km\n≤ 1.0 dB/km	≤ 3.0 dB/km\n≤ 1.0 dB/km	≤ 3.0 dB/km\n≤ 3.0 dB/km\n≤ 1.0 dB/km
Overfilled launch (OFL) bandwidth	@ 850 nm\n@ 1300 nm	@ 850 nm\n@ 1300 nm	@ 850 nm\n@ 953 nm\n@ 1300 nm	≥ 1500 MHz·km\n≥ 500 MHz·km	≥ 3500 MHz·km\n≥ 500 MHz·km	≥ 3500 MHz·km\n≥ 1850 MHz·km\n≥ 500 MHz·km
Effective modal bandwidth (EMB)	@ 850 nm	@ 850 nm	@ 850 nm\n@ 953 nm	≥ 2000 MHz·km	≥ 4700 MHz·km	≥ 4700 MHz·km\n≥ 2470 MHz·km
Core diameter	-	-	-	50.0 ± 2.5 µm	50.0 ± 2.5 µm	50.0 ± 2.5 µm
Cladding diameter	-	-	-	125.0 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm
Numerical aperture	-	-	-	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
Supported link length (informative)	10GBASE-SR @ 850 nm\n40/100GBASE-SR4 @ 850 nm	10GBASE-SR @ 850 nm\n40/100GBASE-SR4 @ 850 nm\n100GBASE-SR10 @ 850 nm	10GBASE-SR @ 850 nm\n40/100GBASE-SR4 @ 850 nm\nSWDM4 / BiDi 100G (953 nm)	300 m\n100 m	550 m\n150 m\n150 m	550 m\n150 m
Proof test level	-	-	-	≥ 0.69 GPa (1% strain)	≥ 0.69 GPa (≥ 1% strain)	≥ 0.69 GPa (≥ 1% strain)
Proof test level	-	-	-	SC/UPC, LC/UPC, SC-APC, LC-APC, FC/UPC, ST	SC/UPC, LC/UPC, SC-APC, LC-APC, FC/UPC, ST	SC/UPC, LC/UPC, SC-APC, LC-APC, FC/UPC, ST

5. Mechanical Characteristics

Values vary by fibre count and cable OD — see Section 3.2 for per-variant tensile and bend radius figures. Crush and impact values are common.

Parameter	Test Method (IEC 60794-1-21)	Value
Crush resistance	Method E3	1000 N / 100 mm
Impact resistance	Method E4	3 Nm, 3 impacts

Acceptance criteria: fibre attenuation change ≤ 0.05 dB at test wavelength during and after each test; no fibre breakage; no sheath cracking.



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OPTICAL FIBER CABLE
OM3/OM4/OM5

6. Environmental Characteristics

Common to all variants.

Parameter	Test Method	Specified Value
Operating temperature	IEC 60794-1-22, F1	-40 °C to +70 °C
Installation temperature	—	-10 °C to +50 °C
Storage / transport temperature	—	-40 °C to +70 °C
Temperature cycling	IEC 60794-1-22, F1 (2 cycles)	$\Delta\alpha \leq 0.05$ dB/km @ 850 nm and 1300 nm
Water penetration	IEC 60794-1-22, F5B	No leakage — 3 m / 1 m head / 24 h
Compound flow (tube jelly)	IEC 60794-1-21, E14	No drip @ +70 °C, 24 h
UV resistance (HDPE sheath)	Carbon black $\geq 2.3\%$ (ASTM D1603)	Well dispersed
Environmental stress cracking	ASTM D1693	No cracking
RoHS compliance	EU Directive 2011/65/EU	Fully compliant

7. Packing and Delivery

Standard delivery: 2,000 m / 4,000 m ($\pm 5\%$) on returnable wooden drums. Both cable ends sealed with end caps. Drum flange marked with product code, fibre type, variant (fibre count), length, gross weight, drum number, direction of rotation and traceability code. Non-standard lengths available on request.

8. ORDERING DETAILS

TVARA FIBER CONNECTOR HOUSING - LIU PANNEL ORDERING DETAILS			
AA	BBBBB	CCC	DDD
↓	↓	↓	↓
TVARA FIBER	Out Door (OD) Type Multi mode	Cable Type	Fiber count
TF	M3OD	UTD - Uni tube, Die electric	006
	M4OD		012
	M5OD		

EXAMPLE:

TF-M3OD-UTD-006	DHRUVA Connect – TVARA FIBER, Multi-mode Out door, Unitube un-armored, 6 Fiber optic cable.
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