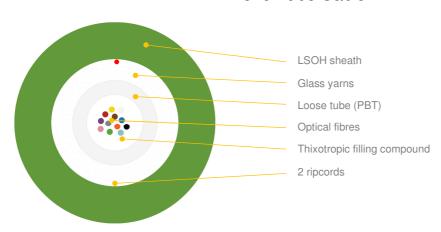


Type:	EXOVM-12-LH	REV: 0
Issued:	18/10/2021	KP
Project:	079-21	

12F Mono Tube Cable



^{*}schematic drawing, not to scale

DESIGN:

Central loose tubes (PBT \varnothing 3.0mm) with thixotropic filing compound and ITU-T G.652D optical fibres Glass yarns as strain relief and water absorbent

Red polyester ripcords (2)

UV stabilized green (RAL 6018) LSOH sheath (minimal thickness 1,3mm)

	Quantity [pcs]				Ø nominal	Nominal	Max	Max	
Variant	Fibres	Fibres	Total	Active	(-0,3/+0,3)	weight (±10%)	allowed tension	static tension	
		per tube	elements	tubes	[mm]	[kg/km]	[N] / ε=0,4%	[N] / ε=0,25%	
1T x 12F	12	12	1	1	7,1	54	2000	1000	

FIBRES COLOUR CODE

Fibre number	1	2	3	4	5	6	7	8	9	10	11	12
Fibre colour	Blue	Orange	Green	Brown	Grey	Yellow	Red	Violet	White	Black	Aqua	Pink

TUBES COLOUR CODE Central tube: natural

OPTICAL FIBRES AND LOOSE TUBES COLOUR IDENTIFICATION

Fibres and tubes identification information see DSH_Colors_CODE_XXXX document.

FIBRES PARAMETERS

Optical fibres parameters see DSH_OFP document.

MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

Temperature range:

Installation: -10...+50 [°C] Operation: -20...+60 [°C] Transport & Storage: -40...+70 [°C]

Cable bending radius:

12 x cable diameter (during operation) 20 x cable diameter (during installation)



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Tensile strength	
Sample Length: 100 m All fibres to be spliced Attenuation increment: Δα≤0.05dB @ 1550nm (after test) No significant damage to fibre unit Sample Length: 100 m All fibres to be spliced Attenuation increment: Δα≤0.05dB @ 1550nm (after test) No significant damage to fibre unit Sample Length: 100 m All fibres to be spliced Attenuation increment: Δα≤0.05dB @ 1550nm (after test) Attenuation increment: Δα≤0.05dB @ 1550nm (after test) Attenuation increment: Δα≤0.05dB @ 1550nm (after test) No significant damage to fibre unit All fibres to be spliced Attenuation increment: Δα≤0.05dB @ 1550nm (after test) No significant damage to fibre unit Austenuation increment: Δα≤0.05dB @ 1550nm (after test) No sacket cracking and fibre breakage Impact resistance IEC60794-1-21 Method E4 Impact energy: 10.3 Radius: 300 mm Distance: 0.5m No. of impacts: 3 at different points 500mm apart All fibres to be monitored Austenuation increment: Δα≤0.01dB @ 1550nm (after test) No sacket cracking and fibre breakage IEC60794-1-21 Method E7 No. of cycles: 5 Twist angle: starting position to -180° to starting position to +180° and back (±360° total) Load: 100N All fibres to be monitored Mandrel radius: 12 x OD / 5 turns (wrapped and unwrapped) / 3 flexing cycles All fibres to be monitored Mandrel radius: 12 x OD / 5 turns (wrapped and unwrapped) / 3 flexing cycles All fibres to be monitored Legend shall remain legible Load: 4N (LSOH sheath) Water penetration IEC 60794-1-22 Method F5A, F5B Method F5A, F5B Method F5A, F5B Sample length: 1m	
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Method F5A, F5B Sample length: 1m (3 samples of each cable)	
(3 samples of each cable)	
Time: 24 hrs	
Tube kink IEC 60794-1-21 Method G7 Length(L1): 350mm No tube kink	
Moving length:100mm/60mm	
Number of cycles: 5 Number of samples: 5	
Ripcord test IEC 60794-1-21 Method E25 Keeping the test samples 12h @ -10 °C The rip cord shall rip through the cal	rable
400mm of the cable sample should be sheath and not break for the entirety	
ripped through and the cable core the pull) ty 01
revealed.	
No. of samples: 3	
Temperature cycling IEC 60794-1-22 Method F1 Temperature steps: For T_{A2} and $T_{B2} \le 0,15 dB/km$	
1 cycle For T_{A1} and $T_{B1} \le 0.05 dB/km$	
+23 °C → -10 °C(T _{A1}) → $+60$ °C(T _{B1}) → $+23$ °C Test wavelength: 1550nm	
2 cycle (last cycle)	
$+23^{\circ}\text{C} \rightarrow -10^{\circ}\text{C}(T_{A1}) \rightarrow -40^{\circ}\text{C}(T_{A2}) \rightarrow$	
+60 °C(T _{B1})→+70 °C(T _{B2}) →+23 °C Step time : 8h	
Flame retardant IEC 60332 -1 Sample: 600mm / time : 60s Uncharred surface length: min. 50m	mm·
Shall meet specification	,
Smoke density IEC 61034-2 Chamber: 27m³ Light transmittance: min. 50%	
Test duration: 40 min	
Toxicity IEC 60754-2 Temp. : 935 °C / time : 30 minutes PH ≥4.3	
Conductivity≤10µs/mm	

MARKING

The following print (white hot foil / inkjet) is applied at 1-meter intervals:

"MANUFACTURER'S NAME" "NUMBER OF OPTICAL FIBRES" "FIBRE TYPE" "YEAR/MONTH" "CUSTOMER" "LASER SYMBOL" "LENGTH MARKING" "BATCH NUMBER"

Example: FIBRAIN EXOVM-12 12F SM G652D 2015/06 PROPERTY OF VIRGIN MEDIA "LASER SYMBOL" "LENGTH MARKING" "BATCH NUMBER"

The accuracy of marking is ±0,5%. Remarking is in accordance with Bellcore GR 20 and supersedes earlier markings. Occasional loss of marking is possible. Cables can be supplied with a range of single mode or multimode fibres and customized print.



Туре:	EXOVM-12-LH	REV: 0
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PACKING

Cables will be shipped on disposable wooden or treated wooden drums. Both ends of the cable will be capped and accessible for testing. Rotation direction arrow will be marked on the drum together with identification information.

DELIVERY LENGTH

2000-8000 meters +1% / -2%, with possibility of supplying up to 5% of total contract quantity as short length cables which should be above 1000 meters long. Tolerance of 5% of order quantity shall be allowed.

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