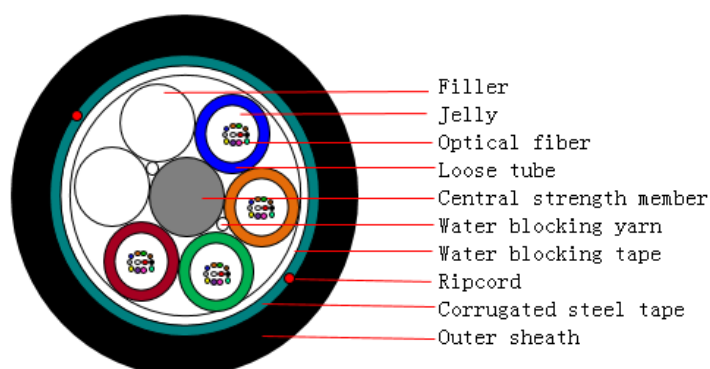


- Standard loose tube containing fibers and filled with fiber jelly
- Gel-filing loose tube, dry core
- FRP for central strength element with no bonding
- Corrugated steel tape armored
- UV resistance PE outer sheath

Part number

PROC-H03-XXXXXX-XX	Standard loose tube outdoor cable, dry core, armored, HDPE jacket
1 2 3	
*1 indicate the fiber count: 012=12 cores, 024=24 cores, 048=48 cores, 072=72 cores, 096=96 cores, 144=144 cores...	
*2 indicate the fiber type: SM1=G652D, SM2=G657A1, SM3=G657A2, SM4=655C, OM1=OM1, OM2=OM2, OM3=OM3...	
*3 indicate the fiber quantity per tube: 06=6c/tube for fiber $\leq$ 36c, 12=12c/tube for fiber > 36c, Special request is available	

Cable construction



Specification

Parameter		Specification
Loose tube	Material	PBT
	Water-blocking Material	Fiber jelly
Cable core water-blocking material		Water blocking yarn+ water blocking tape
Central strength member		FRP+PE sheath when needed
Outer sheath material		HDPE
Tensile strength (N)	Short term	1500(fiber core $\leq$ 72C), 3000(fiber core > 72C)
	Long term	600(fiber core $\leq$ 72C), 1000(fiber core > 72C)
Crush (N/100mm)	Short term	1000
	Long term	300
Min. bending radius (mm)	Static	10D
	Dynamic	20D

Attenuation (dB/km)	At 1310nm (SM)	≤0.35
	At 1550nm (SM)	≤0.21
	At 850nm (MM)	≤3.0
	At 1300nm (MM)	≤1.0

Fiber performance

Single Mode fiber type according to IEC 60793-2-50					
No.	Item	Unit	G652D	G657A1/A2	G657B2/B3
1	Mode-field diameter @1310nm	μm	9.2±0.4	(8.6-9.5)±0.4	(6.3-9.5)±0.4
	Mode-field diameter @1550nm		10.4±0.5	9.8±0.5	9.8±0.5
2	Cladding diameter	μm	125±0.7	125±0.7	125±0.7
3	Core-cladding concentricity	μm	≤0.5	≤0.5	≤0.5
4	Cladding non-circularity	%	≤0.7	≤0.7	≤0.7
5	Coating diameter	μm	245±5	245±5	245±5
6	Cladding-coating concentricity	μm	<12.0	<12.0	<12.0
7	Numerical aperture		0.14	/	/
8	Fiber cutoff wavelength	nm	$\lambda_{cc} \leq 1260$	$\lambda_{cc} \leq 1260$	$\lambda_{cc} \leq 1260$
9	PMD link value	ps/√km	≤0.06	≤0.06	≤0.06
9	PMD maximum individual fiber	ps/√km	≤0.1	≤0.2	≤0.2
10	Proof test (entire fiber length)	kpsi	≥100	≥100	≥100
11	Attenuation @ 1310nm /1383nm	dB/km	≤0.35	≤0.35	≤0.35
	Attenuation @ 1550nm /1625nm	dB/km	≤0.21	≤0.21	≤0.21
12	Operating temperature	°C	-60 ~ + 85	-60 ~ + 85	-60 ~ + 85
13	Fatigue coefficient (typical)		≥20	≥20	≥20

Single Mode fiber type according to IEC 60793-2-50			
No.	Item	Unit	G655C
1	Mode-field diameter @1550nm	μm	(8-10)± 0.4
2	Cladding diameter	μm	125±1.0
3	Core-cladding concentricity	μm	≤0.5
4	Cladding non-circularity	%	≤0.7
5	Coating diameter	μm	245±5
6	Cladding-coating concentricity	μm	<12.0
7	Numerical aperture		0.14

8	Fiber cutoff wavelength	nm	$\lambda_{cc} \leq 1450$
9	PMD link value	ps/√km	≤ 0.1
9	PMD maximum individual fiber	ps/√km	≤ 0.2
10	Proof test (entire fiber length)	kpsi	≥ 100
11	Attenuation @ 1550nm	dB/km	≤ 0.22
	Attenuation @ 1625nm	dB/km	≤ 0.25
12	Operating temperature	°C	-60 ~ + 85
13	Fatigue coefficient (typical)		≥ 20

Multi Mode fiber type according to IEC 60793-2-10

No.	Item	Unit	OM1	OM2	OM3	OM4
1	Core diameter	μm	62.5±2.5	50±2.5	50±2.5	50±2.5
2	Cladding diameter	μm	125±1.0	125±1.0	125±1.0	125±1.0
3	Core-cladding concentricity	μm	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
4	Cladding non-circularity	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
5	Coating diameter	μm	245±10	245±10	245±10	245±10
6	Cladding-coating concentricity	μm	<12.0	<12.0	<12.0	<12.0
7	Numerical aperture		0.275	0.200	0.200	0.200
8	Proof test (entire fiber length)	kpsi	≥ 100	≥ 100	≥ 100	≥ 100
9	Attenuation @ 850nm	dB/km	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0
	Attenuation @ 1300nm	dB/km	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
10	Operating temperature	°C	-60 ~ + 85	-60 ~ + 85	-60 ~ + 85	-60 ~ + 85
11	Fatigue coefficient (typical)		≥ 20	≥ 20	≥ 20	≥ 20

Mechanical & Environment performance

No.	Item	Test Method	Acceptance Condition
1	Tensile strength test	- Load: short term tensile - Length of cable under load: 50 m - load time: ≥ 1min.	- Loss change ≤ 0.1 dB @1550 nm - Fiber strain $\leq 0.6\%$ - No fiber break and no sheath damage.
2	Crush test IEC 60794-1-2-E3	- Load: 1,000N/100 mm - Load time: ≥ 1min.	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
3	Impact resistance test IEC 60794-1-2-E4	- Points of impact: 5 - Times of per point: 1 - Impact energy: 4.5N.m - Radius of hammer head: 12.5mm	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.

4	Repeated bending test IEC 60794-1-2-E6	- Bending radius: 20 x cable diameter - Load: 150N - Flexing rate: 3 sec/cycle - No. of cycle: 30	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
5	Torsion test IEC 60794-1-2-E7	- Length: 1m - Load: 150N - Twist rate: 1 min/cycle - Twist angle: $\pm 90^\circ$ - No. of cycle: 10	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
6	Water penetration test IEC 60794-1-2-F5B	- Height of water: 1m - Sample length: 3m - Test time: 24 hours	- No water shall have leaked from the opposite end of cable.
7	Temperature cycling test IEC 60794-1-2-F1	- Temperature step: +20°C $\rightarrow$ -40°C $\rightarrow$ +60°C $\rightarrow$ +20°C - Time per each step: 12 hrs - Number of cycle: 2	- Loss change ≤ 0.05 dB/km@1550 nm - No fiber break and no sheath damage.
8	Compound flow test IEC 60794-1-2-E14	- Sample length: 30cm - Temp: 70°C $\pm$ 2°C - Time: 24 hours	- No compound flow

Color code

The individual fiber and loose tube shall accordance with standard TIA/EIA-598-A and the color code as below

No.	1	2	3	4	5	6
Color	Blue	Orange	Green	Brown	Gray	White
No.	7	8	9	10	11	12
Color	Red	Black	Yellow	Purple	Pink	Aqua

Environmental data

Operation temperature	-40°C ~ +70°C
Installation temperature	-20°C ~ +60°C
Storage temperature	-40°C ~ +70°C
2011/65/EC (RoHS)	Compliant

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